A RESIDUAL INFRASTRUCTURE. THE RISE AND OBSOLESCENCE OF BIG SATELLITE TELEVISION DISHES IN COLOMBIA

BY

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DISSERTATION

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To Cata,

ABSTRACT

The first satellite dish arrived in the South American country of Colombia in 1970. Two decades later, hundreds of them covered the roofs of apartment buildings, community centers, and town halls all around the country. This dissertation follows the trajectory of big satellite dishes by looking at a network that connects amateurs in the United States and traders in Miami and Medellín to populations living in urban and rural Colombia. In a timescale of forty years, big satellite dishes changed not only technologically, but also in how government agents, businesses, and users conceived of them.

Grounded in infrastructure studies of media and Latin American communication and science and technology studies, this dissertation looks at three particular aspects: the role of informal infrastructures in the development of technological modernity, the labor and knowledge of local technicians needed in transitions in media technologies, and the participation of media infrastructures in the production of culture. Despite considered stable and finished, infrastructure design and maintenance reveal an important set of values connecting culture and technology. In the case of television, the dissertation explores a network of actors, objects and practices that impacted urban and rural spaces and shaped understanding of intellectual property in a Latin American Country.

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INTRODUCTION

The first satellite dish arrived in the South American country of Colombia in 1970. Two decades later, hundreds of them covered the roofs of apartment buildings, community centers, and town halls all around the country. All of them had one characteristic: they were huge, and they promised to connect people to international networks of communication. In its first version, the Colombian government invested millions of dollars in modernizing telecommunications, later locally designed “parabolic antennas” in the 1980s and 1990s offered access to multiple channels that beamed their signals over the Colombian territory at an affordable cost. Moreover, while the original satellite dish, located in a town nearby the capital city, now represents the decay of ideas of national development, some of the remaining antennas are still in use by community television networks in the country. Both projects confronted the shifting nature of television distribution infrastructures, in which smaller satellite dishes, cable television, and internet services compete in the market of accessing media content.

Parabolic antennas have served multiple purposes. In their most basic principle brought from the study of optics, a parabolic surface can concentrate a disperse number of signals, used in radar systems and radio telescopes. In the development of satellite telecommunications, they

became the primary devices for transmission and reception of television signals circulating in the C-Band frequencies (4 to 8 GHz) of the electromagnetic spectrum. As such, they represent the terrestrial presence of interactions with outer space. While most approaches to satellite technologies and television focus on the view from above, this dissertation explores the ground level in which satellite dishes are observable and experienced in the everyday landscape. Through their physical presence, they reveal an instance of a distant infrastructure.

Satellite dishes got their name from their concave shape. People in the United States remember them as Television Receive-only Antennas, or even Big Ugly Dishes, a visible device in the "free" period without subscriber or program fees, that constituted the first rush of home and individual satellite television growth. In Colombia, they are known as parabolic antennas, or *antenas parabólicas*. These antennas, built initially by amateurs, used do-it-yourself home satellite television tactics that traveled around the world.[1] Initially conceived for individual use, later these satellite dishes inspired the design of the local networks of community access television, an experience replicated from rural areas in the United States to countries across the South American continent. This dissertation focuses on the multiple transitions of satellite dishes as a residual infrastructure that is still used in Colombia to get access to television content.

Compared to the study of satellites, parabolic antennas had been less examined. With the exceptions of the study of social class and taste developed by Charlotte Brundson[2] or the use of satellite dishes as portal technologies by Lisa Parks,[3] the study of television distribution has been

[1] Lisa Parks and James Schwoch, *Down to Earth: Satellite Technologies, Industries, and Cultures* (New Brunswick, N.J.: Rutgers University Press, 2012).
[2] Charlotte Brunsdon, *Screen Tastes : Soap Opera to Satellite Dishes* (London ; New York: Routledge, 1997).
[3] Lisa Parks, "Technostruggles and the Satellite Dish. A Populist Approach to Infrastructure," in *Cultural Technologies: The Shaping of Culture in Media and Society*, ed. Göran Bolin (New York: Routledge, 2012), 64–84.

focused on the transitions to the digital, through optical fiber or mobile phones. However, a look at the history of satellite dishes can reveal core topics in the study of media distribution, in terms of the legal and technological measures to control it. Explorations of satellite signal scrambling or the use of trade agreements to ensure copyright protection reveal previous efforts at enclosure of the distribution of content at a global scale.

The main goal of this dissertation is to write the biography of satellite dishes by looking at a network that connects amateurs in the United States and traders in Miami and Medellín to populations living in urban and rural Colombia. In a timescale of forty years, big satellite dishes changed not only technologically, but also in how government agents, businesses, and users conceived of them. Each chapter follows a chronology that reveals changes to that same object, by legal definitions and cultural references expressed in legislation, newspapers, and popular culture. From this perspective, this dissertation contributes to the study of informal practices in shaping media economies in particular.

In studying to the concept of informality and its relation to cultural industries, the case of parabolic antennas stresses the process in which this infrastructure became legible to state agencies.[4] Such approach is inspired by the interdisciplinary work that study of legality as a category [5] by which states can designate something as formal while, in other cases, they can

[4] James C. Scott, *Seeing like a State: How Certain Schemes to Improve the Human Condition Have Failed* (New Haven, Conn. [u.a.: Yale Univ. Press, 2008).
[5] Jean Comaroff and John L. Comaroff, *Law and Disorder in the Postcolony* (University of Chicago Press, 2008); Rebecca Galemba, "Taking Contraband Seriously: Practicing 'Legitimate Work' at the Mexico-Guatemala Border," *Anthropology of Work Review* 33, no. 1 (2012): 3–14; Yuri Jack Gómez-Morales, "Reconsiderar la innovación: entre la informalidad y la ilegalidad," in *Ensamblando heteroglosias*, ed. Olga Restrepo Forero (Bogotá, Colombia: Universidad Nacional de Colombia, Sede Bogotá, Facultad de Ciencias Humanas, Centro de Estudios Sociales--CES, 2013), 429–35.

criminalize other forms of informality [6]. In that perspective, while communication studies have considered how national media, from radio to television, had played a role in shaping citizens as subjects, my proposed research highlights how, in some cases, governments rely on informality to extend the reach of their projects.[7]

In close connection with these debates, scholars working on informal media economies [8] have also stressed the difficulties of using the language of intellectual property to understand the practices of media consumption around the world. These studies extend the idea of cultural industry by illuminating the variety of processes occurring in the informal production, circulation and consumption of media content. While some studies highlight the informal nature of "formal" cultural industries [9] other have focused on pirate networks in which content circulates,[10] addressing how the boundaries between formal are historically contingent, as they can be redrawn with changes in law and policy.[11] While much of the literature on informal media economies focused on the production and circulation of media texts, my research focus on the infrastructures allowing media distribution.

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[6] Ananya Roy, "Slumdog Cities: Rethinking Subaltern Urbanism," *International Journal of Urban and Regional Research* 35, no. 2 (2011): 223–38; Teresa PR Caldeira, "Peripheral Urbanization: Autoconstruction, Transversal Logics, and Politics in Cities of the Global South," *Environment and Planning D: Society and Space* 35, no. 1 (February 1, 2017): 3–20.

[7] Patricia Fernández-Kelly and Jon Shefner, *Out of the Shadows: Political Action and the Informal Economy in Latin America* (University Park, Pa.: Pennsylvania State University Press, 2006); Brodwyn M. Fischer, Bryan McCann, and Javier Auyero, *Cities from Scratch: Poverty and Informality in Urban Latin America* (Durham: Duke University Press, 2014).

[8] Ramon Lobato and Julian Thomas, *The Informal Media Economy* (Cambridge: Polity Press, 2015).

[9] Toby Miller, *Global Hollywood 2* (London: BFI, 2009).

[10] Alexander S. Dent, "Piracy, Circulatory Legitimacy, and Neoliberal Subjectivity in Brazil," *Cultural Anthropology* 27, no. 1 (2012): 28–49; Alexander S. Dent, "Intellectual Property, Piracy, and Counterfeiting," *Annual Review of Anthropology* 45 (2016): 17–31; Brian Larkin, "Pirate Infrastructures," in *Structures of Participation in Digital Culture*, ed. Joe Karaganis (New York: Social Science Research Council, 2007); Ravi Sundaram, *Pirate Modernity: Delhi's Media Urbanism* (London; New York: Routledge, 2009).

[11] Lobato and Thomas, *The Informal Media Economy*.

By considering informal media economies as connected to processes of globalization from below, this dissertation also contributes to questions raised in the field of international communication, and more recently, in studies about global media.[12] From an historical perspective, some of the foundational studies in media circulation and flow, recognized the networks of trade that included videocassetes recorders and other technologies.[13] However, in discussions over ideas of cultural and media imperialism, most of the debates emphasize local production and media counterflows toward US media.[14] Similarly, these debates shaped the audience turn in Latin American communication studies, which also recognized these tensions, and theorized its influence into the prevalence of popular culture in the process of modernization.

For these reasons, this dissertation explores some of the technological aspects in popular culture to include them as part of the debates around massification and consumption in Latin American cities. This dissertation stresses the practices around media technologies as a site to trace another level in which technologies help to shape ideas of culture, which in the case of parabolic antennas, involved different stakeholders from local entrepreneurs to communities that adopted these systems for accessing international television. Consequently, this dissertation, follow the work of several historians of technology wrote not a history of inventions or artifacts, but historical

[12] Joseph D Straubhaar, *World Television: From Global to Local* (Los Angeles: Sage, 2007); Anna Cristina Pertierra and Graeme Turner, *Locating Television: Zones of Consumption* (London: Routledge, 2013); Lisa Parks and Shanti Kumar, *Planet TV : A Global Television Reader* (New York: New York University Press, 2003); Daya Kishan Thussu, *International Communication : Continuity and Change* (London: Arnold, 2000); Albert Moran, *New Flows in Global TV* (Bristol: Intellect, 2009); Lynn Spigel and Jan Olsson, *Television After TV: Essays on a Medium in Transition* (Duke University Press, 2004).
[13] Douglas A. Boyd, Joseph D. Straubhaar, and John A. Lent, *Videocassette Recorders in the Third World* (New York: Longman, 1989); Armand Mattelart and Héctor Schmucler, *Communication and information technologies: freedom of choice for Latin America?* (Norwood, NJ: Ablex Pub. Corp., 1985).
[14] John A Lent, *Mass Communications in the Caribbean* (Ames, Iowa: Iowa State University Press, 1990); Stuart H. Surlin and Walter C. Soderlund, *Mass Media and the Caribbean* (Taylor & Francis, 1990).

accounts of the techniques and entanglements generated in interacting with these artifacts (Arnold, 2005; Edgerton, 2007).[15] Moreover, this dissertation consider the historical development of technology in Latin America, which has recognized how practices of technological recycling and non-authorized copies have been central in the continent.[16]

Argumentative contributions

The study of media infrastructures has informed this dissertation. Media infrastructure studies emphasize the circulation of signals as "a critical shift away from the analysis of screened content alone."[17] As such this dissertation explores the unique materialities of media distribution: "the resources, technologies, labor, and relations that are required to shape, energize, and sustain the distribution of audiovisual signal traffic on global, national, and local scales"[18] in the specific case of Big Satellite Dishes in Colombia. Although this corpus offered a reference point in traveling back and forth between Colombia and the United States, to paraphrase Brazilian

[15] David Arnold, "Europe, Technology, and Colonialism in the 20th Century," *History and Technology* 21, no. 1 (2005): 85–106; David Edgerton, *The Shock of the Old : Technology and Global History since 1900* (Oxford ; New York: Oxford University Press, 2007).
[16] Hernán Thomas, *Sur-Desarrollo-Producción de Tecnología En Países Subdesarrollados* (Centro Editor de América Latin, Buenos Aires, 1995); Hernán Thomas, "Los estudios sociales de la tecnología en América Latina," *íconos* 14, no. 2 (2010): 35–53; Eden Medina, Ivan da Costa Marques, and Christina Holmes, *Beyond Imported Magic: Essays on Science, Technology, and Society in Latin America* (Cambridge: MIT Press, 2014); Ivan da Costa Marques, "Cloning Computers: From Rights of Possession to Rights of Creation," *Science as Culture* 14, no. 2 (2005): 139–60.
[17] Parks and Schwoch, *Down to Earth: Satellite Technologies, Industries, and Cultures*; Lisa Parks, *Cultures in Orbit : Satellites and the Televisual* (Durham: Duke University Press, 2005); Nicole Starosielski, *The Undersea Network* (Durham, N.C.: Duke University Press, 2015); Heather A. Horst, "The Infrastructures of Mobile Media: Towards a Future Reseach Agenda," *Mobile Media & Communication* 1, no. 1 (2013); Shannon Christine Mattern, *Deep Mapping the Media City* (Minneapolis: University of Minnesota Press, 2015); Brian Larkin, "Degraded Images, Distorted Sounds: Nigerian Video and the Infrastructure of Piracy," *Public Culture* 16, no. 2 (2004): 289–314; Sundaram, *Pirate Modernity: Delhi's Media Urbanism*; Lisa Parks and Nicole Starosielski, *Signal Traffic: Critical Studies of Media Infrastructures* (Urbana: University of Illinois Press, 2015).
[18] Parks and Starosielski, *Signal Traffic: Critical Studies of Media Infrastructures*, 5.

anthropology Teresa Caldeira,[19] the debates and discussions in the field of Latin American communication[20] and science and technology studies[21] shape the arguments in this dissertation. In this perspective, this dissertation aims to contribute to the increasing study of infrastructures in Latin America and the Caribbean.[22]

Informality and modernization

The histories included in this dissertation ground three specific arguments developed. The first is that the history of satellite dishes reveals the central role of informal infrastructures in the development of technological modernity. As a concept that refers to a range of activities occurring outside the official, authorized spaces of economy, informality describes the many unrecognized practices happening beyond the view of the state. This perspective serves to expand the definition

[19] Teresa Pires do Rio Caldeira, *City of Walls : Crime, Segregation, and Citizenship in São Paulo* (Berkeley: University of California Press, 2000), 5.
[20] Jesús Martín Barbero, *Communication, Culture and Hegemony: From the Media to Mediations* (London ; Newbury Park: SAGE Publications, 1993); Diego García Ramírez and Marialva Carlos Barbosa, "Historias de La Televisión En Colombia: Vacíos y Desafíos," *Comunicación y Sociedad*, no. 26 (2016): 95–121.
[21] Anita Say Chan, *Networking Peripheries: Technological Futures and the Myth of Digital Universalism* (Cambridge, MA: MIT Press, 2014); Eden Medina, *Cybernetic Revolutionaries: Technology and Politics in Allende's Chile* (Cambridge, MA: The MIT Press, 2014); Medina, Marques, and Holmes, *Beyond Imported Magic: Essays on Science, Technology, and Society in Latin America*; Juan Arturo Camargo Uribe, Antonio García Rozo, and Juan Manuel Gonzalez Scobie, "El Estilo tecnológico del sistema de televisión en Colombia," in *Ingeniería, innovación y tecnología social*, ed. María Belén Albornoz, Javier Jiménez Becerra, and Jorge Rojas Alvarez (Bogota: Universidad Nacional de Colombia, Facultad de Ingeniería, Departamento de Ingeniería de Sistemas e Industrial, 2017); Thomas, *Sur-Desarrollo-Producción de Tecnología En Países Subdesarrollados*.
[22] Simón Uribe, *Frontier Road: Power, History, and the Everyday State in the Colombian Amazon* (John Wiley & Sons, 2017); Kregg Hetherington and Jeremy M. Campbell, "Nature, Infrastructure, and the State: Rethinking Development in Latin America," *The Journal of Latin American and Caribbean Anthropology* 19, no. 2 (2014): 191–94; Tatiana Acevedo Guerrero, Kathryn Furlong, and Jeimy Arias, "Complicating Neoliberalization and Decentralization: The Non-Linear Experience of Colombian Water Supply, 1909–2012," *International Journal of Water Resources Development* 32, no. 2 (March 3, 2016): 172–88; Kathryn Furlong, "The Dialectics of Equity: Consumer Citizenship and the Extension of Water Supply in Medellín, Colombia," *Annals of the Association of American Geographers* 103, no. 5 (September 1, 2013): 1176–92; Sebastián Ureta, "Normalizing Transantiago: On the Challenges (and Limits) of Repairing Infrastructures," *Social Studies of Science* 44, no. 3 (June 1, 2014): 368–92, https://doi.org/10.1177/0306312714523855; Vincent Joseph Andrisani, "Inventing Havana in Thin Air: Sound, Space, and the Making of Sonic Citizenship" (Thesis, Communication, Art & Technology: School of Communication, 2017), http://summit.sfu.ca/item/17422.

of media industries to include informal agents, bringing a new set of interactions, and analytic possibilities into view.[23]

In the case of Colombia, the use of satellite dishes started as a governmental project to connect Colombia to the world and remote areas of the country to its political center. Later, satellite dishes became a business aimed at high-income populations, ranging from local elites, military leaders, and drug traffickers leaded by entrepreneurs and amateur technologies who began to build them locally. However, the expectations of the initial entrepreneurs reached a different level, as for some of them, satellite dishes represented an alternative to the national infrastructure. Gradually, the business grew and offered the service to a broader set of populations, from middle-classes living in new urban developments to low-income populations in urban and rural areas. Small companies produced the satellite dishes and imported the necessary equipment in an era in which the Colombian government approached the microenterprise sector as an issue of informality.[24] Legislation over television distribution focused on the use of the electromagnetic spectrum, but later it focused on the use of public spaces by the new construction of satellite dishes and community television networks, and in the 1990s concerns turned to copyright infringement. Through copyright, the government designed new rules for regulating television distribution, and motivate community television to use their infrastructures to produce local content.

This dissertation follows such interactions between formality and informality as a part of the construction of television infrastructure in Colombia. As Ramon Lobato and Julian Thomas

[23] Lobato and Thomas, *The Informal Media Economy*.
[24] Omar Rodríguez, "Entrepreneurship and Its Analysis in Colombia: A Contextualized Literature Review," *Cuadernos de Economía* 34, no. spe66 (December 2015): 605–28.

argue "informality can be typical rather than exceptional, reflecting a nation's broader political economy, technological development, and regulatory environment,"[25] making necessary to put histories of television in a broader framework of a regulatory flux where rules have yet to solidify. Histories of infrastructure in Colombia have followed the narrative of national development, because of the importance they have had in the national economy and the expansion of the field of engineering in Colombia.[26] However, more recent research has addressed the presence of multiple actors and the coproduction of these systems,[27] which in the case of television, had shown how technologies encountered the institutions and content production of Colombian television.[28] This dissertation builds on these histories to investigate the role of informal economies on culture as a result of discussions of national identity and the impact of globalization through the lens of the distribution systems created in Colombia during the 1980s and 1990s.

Local design and media as an assemblage of parts

The second argument of this dissertation is that transitions in media technologies need the

[25] Lobato and Thomas, *The Informal Media Economy*, 23.
[26] Ericka Herazo, "Opening the Black Box of Technology: A Historiography of Techniques in Colombia," *Anuario Colombiano de Historia Social y de La Cultura* 44, no. 1 (2017): 340.
[27] Camargo Uribe, García Rozo, and Gonzalez Scobie, "El Estilo tecnológico del sistema de televisión en Colombia."
[28] Instituto Nacional de Radio y Televisión, *Historia de una travesía: cuarenta años de la televisión en Colombia* (Santafe de Bogotá: Presencia, 1994); Luis Fernando Múnera Gutiérrez, *La radio y la televisión en Colombia* (Santafé de Bogota: APRA Ed., 1992); Alejandro Grimson and Mirta Varela, *Audiencias, cultura y poder : estudios sobre la televisión* (Buenos Aires: EUDEBA, 1999); Fernando Calero Aparicio, "The Colombian Media. Modes and Perspective in Television," in *Latin Politics, Global Media*, ed. Elizabeth Fox and Silvio Waisbord (Austin: University of Texas press, 2002); Guillermo Orozco Gómez and Nora Mazziotti, *Historias de la televisión en América Latina: Argentina, Brasil, Colombia, Chile, México, Venezuela* (Barcelona: Editorial Gedisa, 2002); Diego García Ramírez and Leonardo Herrera Delgams, *El Caribe colombiano a través de su televisión: agenda informativa y realidad regional en Telecaribe* (Bogotá, D.C.: Universidad Sergio Arboleda, 2011); García Ramírez and Barbosa, "Historias de La Televisión En Colombia: Vacíos y Desafíos"; Andrea Catalina Gomez Aparicio, "Representaciones sociales acerca de la televisión colombiana y su vínculo con la identidad cultural en Cartagena.1970-1986," June 14, 2016, http://repository.udem.edu.co/handle/11407/2234.

labor and knowledge of local technicians who assemble partial solutions to support them. Satellite dishes in the rural United States and "*antenas parabólicas*" in Colombia share a similar location in fringe zones areas of television infrastructures.[29] This dissertation studies the circulation of signals through satellites, but also the circulation of devices, spare parts, and knowledge that supported the production of parabolic antennas. In the case of Colombia, these circuits involved the Caribbean market of electronic parts, as well as local craftspeople with the particular skills to build the satellite dishes. In tracing these connections, the dissertation looks at the process of *coger el tiro*, "get the hang of it," a recurrent practice on engaging with technological artifacts in Latin Americathat speaks for a cultural reading of technological practices[30].

The argument about design means that this dissertation focuses on both the materiality of technological devices and their construction and use. Critiques of the centrality of devices in studying media experiences came from human-centered ideas of communication as well as from a systemic understanding of how those technologies are part of broader networks. From audience studies to the social construction of technology approaches, human agents emerged as participants in the communication process, and not only as recipients of media messages or consumers of technological devices.

As this dissertation asserts, the stability of the media device can be confronted when technologies are seen as an assemblage of parts rather than finalized products. Such epistemology,

[29] Lisa Parks, "Where the Cable Ends: Television in Fringe Areas," in *Cable Visions: Television beyond Broadcasting*, ed. Cynthia Chris, Sarah Banet-Weiser, and Anthony Freitas (New York, N.Y.: New York University Press, 2007).
[30] Thomas, *Sur-Desarrollo-Producción de Tecnología En Países Subdesarrollados*.

derived from repair practices[31] as well from studies on supply and logistics in the production of technology,[32] follows the idea of historicizing the insides of the television set, as a site "of ongoing power struggles and negotiations that determine television's content and form."[33] Moreover, at the level of the practices explored here, media devices are adapted to fulfill particular aesthetic experiences, which in some cases involves the participation of users. In this regard, attention is paid not only to final products like television sets, video recorders or satellite equipment but also to spare parts and electronic components used in the assemblage of "mediating technologies." By mediating technologies, this dissertation refers to how technologies, whether peripheral within infrastructures, can alter socio-technical relationships in significant ways.[34]

In connection with the transitional nature of these ephemeral devices, access to infrastructure happens at a different level, but it serves as training until formalized economies dismantles these informal infrastructures by competing with them or using legislation to push them to change or disappear. As many authors have discussed in the case of piracy, despite all the institutional organization towards copyright protection, "piracy breeds a 'Hollywood habit,' familiarizing global audiences with American product and softening up markets for future exploitation."[35] Studying the design and uses of satellite dishes in Colombia, by a set of actors usually neglected from state-centric histories, reveals similar aspirations of connectivity compared

[31] Lee Vinsel and Andrew Russell, "After Innovation, Turn to Maintenance," *Technology and Culture* 59, no. 1 (2018): 1–25.
[32] Matthew Hockenberry, "Material Epistemologies of the (Mobile) Telephone," *Anthropological Quarterly* 91, no. 2 (August 24, 2018): 485–524.
[33] Parks and Kumar, *Planet TV : A Global Television Reader*, 8.
[34] Kathryn Furlong, "Small Technologies, Big Change: Rethinking Infrastructure through STS and Geography," *Progress in Human Geography* 35, no. 4 (August 1, 2011): 460–82.
[35] Toby Miller, "Hollywood 2010" (Adress to the Centre for Screen Business, Australian Film, Television and Radio School, Moore Park, 2006).

to the development of a television infrastructure from a national perspective. Due to the subsequent collapse of an integrated infrastructural ideal and the withdrawal of the state's ambition to provide development, paraphrasing Brian Larkin, in the technological infrastructure one can see the shift from the developmental state to new forms of individual competitive liberalism.[36] In this perspective, as the Colombian government argued, satellite dishes anticipated the privatization of television in the country.

Mundane objects and infrastructures

The third argument developed in this dissertation is that studying an infrastructure of media distribution extends the spectrum of understanding the politics of culture, by integrating technical aspects into a broader study of values and institutions in culture.[37] In this direction, specifically in chapter 3, this dissertation explores amateur technical cultures,[38] not to follow its organization and practices, but to look and how those practices were part of a broader spectrum of cultural definitions of the legal and illegal uses of technology.[39] In a general view, a transition from ideas of "cultural development" to more recent references to creative industries encountered the social life of Big Satellite Dishes during the time period studied. However, studying the attitudes towards the uses and practices of satellite technologies reveals how they have been produced as official or informal by both legal and cultural discourses.

In this dissertation, the goal is to include technologies as a participant in the production of

[36] Larkin, "Pirate Infrastructures," 76.
[37] Arnold Pacey, *The Culture of Technology* (Cambridge, Mass.: MIT Pr., 2000).
[38] Kristen Haring, *Ham Radio's Technical Culture* (Cambridge, MA: MIT Press, 2007).
[39] Kavita Philip, "What Is a Technological Author? The Pirate Function and Intellectual Property," *Postcolonial Studies: Culture, Politics, Economy* 8, no. 2 (2005): 199–218.

culture, especially when an infrastructure such as satellite television helped to manage the circulation of it. As several studies have considered the changes in the politics of culture in Latin America,[40] this intervention intends to highlight media infrastructures as sites in which the struggle over the production of meaning also takes place. A mundane object, like the Big Satellite Dishes, evoke "basic rules, tensions, or unspeakable aspects of social relations that pervade people's everyday lives, their strategies, material practices, anxieties, and hopes.[41].

A residual infrastructure

Satellite dishes' presence in public space, triggered "various dispositions, feelings, moods, or sensations"[42] making them the subject of particular interpretations from normative references to disruption of urban aesthetics to symbols of community, extending the label of piracy attached informal housing developments to the act of building satellite dishes. As the residual in media can be "the artifacts that occupy space in storage houses, are shipped to other parts of the world, are converted for other uses, accumulate in landfills, and relate to increasingly arcane skills," the big satellite dishes, their networks and cables constitute a residual infrastructure of media distribution.

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[40] Alejandro Grimson, *Culturas políticas y políticas culturales.* (Buenos Aires: CLACSO, 2014); Eduardo Restrepo, "'Cultura Ciudadana' En Bogotá: Biopolítica, Hegemonización y Pánico Cultural En La Época Del Culturalismo," *Polisemia*, no. 21 (2016); Margarita Chaves, Mauricio Montenegro, and Marta Zambrano, "Mercado, Consumo y Patrimonialización Cultural," *Revista Colombiana de Antropología* 46, no. 1 (July 2010): 7–26; Ursula Mena Lozano and Ana Rosa Herrera Campillo, *Políticas culturales en Colombia: discursos estatales y prácticas institucionales* (Erscheinungsort nicht ermittelbar: Mena & Herrera, 1994); Liliana López Borbón, *Construir ciudadanía desde la cultura : aproximaciones comunicativas al Programa de Cultura Ciudadana, Bogotá, 1995-1997* (Bogotá: AlcadÌa Mayor de Bogotá, Institulo Distrital de Cultura y Turismo, 2003); Ana María Ochoa Gautier, *Entre los deseos y los derechos: un ensayo crítico sobre políticas culturales* (Bogotá, Colombia: Instituto Colombiano de Antropología e Historia, 2003); Marta Lucía Gómez Bustos, "Políticas culturales: construcciones sociales y luchas de sentido en Bogotá, 1930-2000" (Doctorado en Estudios Culturales Latinoamericanos, Universidad Andina Simón Bolívar sede Ecuador, 2015), http://repositorio.uasb.edu.ec/handle/10644/4894.
[41] Pierre Lemonnier, *Mundane Objects: Materiality and Non-Verbal Communication* (London: Routledge, 2016).
[42] Parks and Starosielski, *Signal Traffic: Critical Studies of Media Infrastructures*.

As such, the physical presence of satellite dishes represents multiple temporalities of the stories narrated in this dissertation. From the antennas in the ruins of the Chocontá Space Center, to other unused antennas located in different parts of the country, one narrative puts them in a past era of cheap access to television channels, not only from the United States, but also from Brazil, Venezuela, Spain, and Peru, among the most remembered.

As in the conceptualization of residual media developed by Charles Acland[43], this dissertation also takes advantage of the conceptualization of residual culture, proposed by Raymond Williams. Williams' suggestion for an historical analysis "to recognize the complex interrelations between movements and tendencies both within and beyond a specific and effective dominance" the practices observed in the dissemination of Big Satellite Dishes reveal a recurrent use of local ingenuity to solve everyday problems. The recognition of these practice in the global south, as the presence of backup services,[44],or the continuous effort of improvisation and repair,[45] have been central in the role of technical knowledge in Latin America. Rather than focusing on global planning of national production, characterized by the involvement by the state and development agencies, the history of the satellite TV infrastructure in Colombia relied on "a level of pragmatic response of isolated local producers".[46] This dissertation explores such practices of improvisation, in a longer process of responses across history, as a way of finding the residual in

[43] Charles R. Acland, *Residual Media* (Minneapolis: University of Minnesota Press, 2007), Publisher description http://www.loc.gov/catdir/enhancements/fy0666/2006026092-d.html.
[44] Paul Edwards, "Infrastructure as Modernity: Force, Time and Social Organization in the History of Sociotechnical Systems," in *Modernity and Technology*, ed. Thomas J. Misa, Philip Brey, and Andrew Feenberg (Cambridge, MA: MIT Press, 2003).
[45] Stephen Graham and Nigel Thrift, "Out of Order. Understanding Repair and Maintenance," *Theory, Culture & Society* 24, no. 3 (2007): 1–25.
[46] Thomas, *Sur-Desarrollo-Producción de Tecnología En Países Subdesarrollados*, 124.

technology practices.

In their use in Colombia, Big Satellite Dishes served in the process of media globalization as a partial solution to give access to available content. Locally-produced, the *Antenas Parabólicas* were built in large scales but unnoticed as part of technological production until everyone uses them everywhere. As they preceded the direct satellite broadcast systems by multinational companies like Hughes Satellite Networks and News Corporation, they anticipated the private use of satellite communication for accessing television in Colombia. Their emergence through informal network made these satellite dishes portal technologies,[47] not only as intelligible during their use but also as partial solutions in which users also employ quick fixes and customized designs. Decisions over programming, over content production and over legislation expand the intelligibility of this infrastructure as communities experienced different levels of engagement. Moreover, while these practices happen in multiple sites, tracing satellite dishes served as a platform for thinking "through key issues of technological literacy, social power, and resource use."[48]

As community television still uses satellite dishes for accessing television, its stories speak of a vital residual infrastructure, in which content from Christian evangelical channels, global news networks like Russian Television and some licensed international channels circulates. For this reason, despite the time frame of this dissertation ending in the early 2000s, it leaves open a revision of this experience in a more extended temporality of media transition currently taking place in the country.

[47] Parks, “Technostruggles and the Satellite Dish. A Populist Approach to Infrastructure.”
[48] Parks, 81.

Chapter Outline

Chapter 1 describes how the national and official infrastructure of earth stations and satellite communications in Colombia encountered the emergence and dissemination of amateur television earth stations at the beginning of the 1980s. This dissertation considers how technical infrastructures distribute culture in ways that contribute to shaping notions of identity and culture. The chapter delves into three moments in the Colombian history of communication to trace its changing landscape of satellites and television. First, it examines the inauguration of the Chocontá Outer Space Station in 1970 as a national development project, explaining the technological aspirations embedded in this system. Under this addition to the local infrastructure, a circulation of international live events joined the increasing circulation of local production and canned television programs imported from the US and Mexico. Pushing the transformation of the national infrastructure was the convergence of color images and satellite signals. In these technological changes, the effort to expand the satellite infrastructure shows the value assigned to outer space connectivity, as a way to create national cohesion, link with colonial circuits of culture, and a tool for reaching, maybe even influencing neighboring countries. With enthusiasm, the government proposed the acquisition of a national satellite, which also failed for political reasons. When the nation-state withdrew from these plans, it enabled the decentralization of national television at the local level, with the promotion of locally-produced regional television. With these shifts in infrastructure priorities, the government opened the market for cable television to assist Colombian citizens in maintaining contact with foreign cultures. As these events unfolded, the government became increasingly aware of amateur satellite dishes but did not define any rules to regulate them.

Chapter 2 moves to the United States to follow the entrepreneurial venture opened when,

on October 18, 1979, the Federal Communication Commission in the United States made it possible for private citizens to legally have satellite dishes. Satellite dish amateur enthusiasts created an international community around the construction of satellite dishes and electronic devices. First, the chapter focus on the history of satellite technologies in do-it-yourself manuals for building satellite earth stations. These manuals joined other amateur sources to build the business of direct satellite broadcasting. The group of amateurs included engineer entrepreneurs, who could turn their knowledge into a business opportunity, mostly for remote areas or fringe zones of television. Although these entrepreneurs lived in different parts of the US, including California and Colorado, I focus on the development of satellite dishes in Florida and particularly in Miami. As a connection city with Central and South America, the circulation of satellite dishes in the Caribbean found in Miami a trade infrastructure in which these technologies could travel. Therefore, this chapter surveys the circulation of satellite dishes in the Caribbean and some of the acknowledged impact on culture. The chapter closes with the first attempt at controlling the expansion of this infrastructure from the United States. In particular, the convergence of technologies and legal measures over copyright issues sets these cases forth as a precedent regarding future attempts to control content distribution at a global scale.

Chapter 3 centers on the emergence of the satellite dish industry in Colombia, by tracing the first experiments in the Colombian city of Medellín. As a city with a complicated history in the 1980s when drug trafficking and violence permeated everyday life, the emergence of satellite dishes revealed a crossroads in which legal and illegal commerce connected Colombia to an increasingly global economy. From the development of infrastructural projects to the constitution of a sophisticated network of smuggling, Medellín represented a case of urbanization in which

planned designs were supported by innovative practices of people solving everyday problems, making technological production the space for the emergence of localized designs built out from the networks that converged in the city. Inspired by studies of technology in Latin America, I explore the local practices that permitted the articulation of satellite dishes in the infrastructure of Colombian television.[49] A focus on the circulation of equipment, spare parts, and publications, converged with the local production of the antennas. The initial experiments also supported discourses of decentralization, that led to the first attempt to use an infrastructure based on satellite dishes to distribute television content in a neighborhood. As a way of disseminating knowledge about these devices and their possibilities for creating television infrastructure, I focus on *Electronica Fácil*, a magazine published in Medellín to popularize knowledge about electronics. By looking at the practice of building antennas, through an article published in *Electronica Fácil*, the chapter underscores the physical aspects of satellite dishes and their translation not only in language but also as particular practices.

Chapter 4, focuses on the arrival of satellite dishes in the Colombian capital city of Bogotá, as a force that expanded from the experiments in the Caribbean and Medellín, and encountered the urban changes experienced by the city in its transition in the 1990s. This chapter looks at the process of dissemination of international television, from individual users who could afford a private satellite dish to the expansion to "closed housing projects" and later into traditional neighborhoods and settlement at the outskirts of the city. While in their first versions a lack of regulation allowed their expansion, by the end of the decade, rules about satellite dishes in public

[49] Thomas, *Sur-Desarrollo-Producción de Tecnología En Países Subdesarrollados*.

space inaugurated the era of regulation of these infrastructures. At the same time, licensed subscription television services emerged, competing and pushing stricter rules for the use of satellite dishes.

In this transition, a look at debates about the role of television expressed the anxieties of local elites for increasing circulation of foreign content. Following the increasing adoption of community television systems attached to satellite dishes, the aesthetic aspects of these devices disrupted the urbanistic idea of the "old" Bogotá. As such, the first attempt to control them emerged from concerns about public space. By the end of the 1980s, the local government pushed the defense of public space as a priority, and the location of many antennas in parks and communal zones made them a target for formalization. This process expanded into other zones of the city, pushed by the interest of community action boards in the city who built them to cover their neighborhoods. This first attempt at regulation also encountered the creation of licensed subscription television services that also distributed international signals. In this competitive environment, licensed systems had the advantage of using the electromagnetic spectrum, and incorporated the more reliable system of cable television, which was also coded as legal and formal, in comparison to satellite dishes that were framed as informal and increasingly produced as illegal.

Chapter 5 looks at the multiple transformations to satellite dishes stations that happened during Colombia's further political and economic liberalization. As the new Constitution of 1991 offered support for a new understanding of free enterprise, the companies that manufactured satellite dishes expanded their businesses in Colombia. However, in the establishment of the international trade agreement, the government opted for regulating television distribution with new

legislation that created a national authority that established different categories for television services. Satellite dishes moved into these different categories pushed by ideas of privatization and formalization that targeted satellite dishes' use of public space and incidental satellite signals. As such, the process of negotiation followed an increasing vigilance of parabolic antenna stations around the country. While some earth stations opted for becoming part of paid subscription television companies, others claimed their role as community services aimed at the local population.

In this process of privatization, the government allowed the creation of Community Television as a service. Responding to other changes in the Constitution that strengthened democratic participation, former satellite dishes infrastructures claimed their role as providers of a public service, which allowed them to continue as community projects. As the reason for considering these channels public services, communal TV relied on local production, the government mandated activity that converting community members from informal consumers of television into legal producers of culture. In this transition, non-governmental organizations played a central role in the formalization of these experiences, as they advocated for the role of local content despite the difficulties in producing it.

The epilogue builds on this trajectory to explore the meaning of residual applied to a media infrastructure. In particular, it emphasizes the arguments presented in this introduction under the light of the history narrated in the body of the dissertation as effective elements in the present. The fate of satellite dishes is confronted with the new ecology of media distribution, in particular in the transition from analog to digital. As the meaning of "television" has undergone a significant shift in digital technologies, this dissertation also considers that even as significant, "they did not

happen overnight."[50] The presence of the big satellite dishes in the contemporary landspcape of technology not only offer a lens on the past, but also in contemporary practices of communication. Although for some people, big satellite dishes are objects of nostalgia, for others they are still the way to get access to television content.

[50] Parks and Kumar, *Planet TV : A Global Television Reader*, 9.

CHAPTER 1: SATELLITE TELEVISION AS AN INTERNATIONAL PROJECT

On Wednesday, March 25, 1970, Colombian television entered the space era. President Carlos Lleras Restrepo inaugurated the Center of Outer Space Communications in Chocontá in which engineers from ITT constructed a 30 m antenna for satellite reception. This first act connected Lleras Restrepo with the ambassador in Vatican City, Dario Echandía, and broadcasted a message from Pope Paul VI. The embassies in Chile and Japan also sent images and sounds to Colombia. The release of the satellite earth station coincided with the Catholic Holy Week, and so for that first week of satellite broadcasting, Colombians received Spanish Catholic celebrations from Granada and Valladolid, alongside an Argentinian musical and a Mexican sports show.[1] That Sunday, Colombian Television broadcasted the *Urbi et Orbi* blessing, signaling Colombians' integration to the Catholic community. In this sense, Chocontá Center embodied a desire for connection with modern technology, Catholicism, Hispanic legacy, and Latin American integration.

[1] Gerardo Aldana, "Colombia Entra Hoy En La Era Espacial," *El Tiempo*, March 25, 1970.

Chocontá is 75 km from Bogotá in a zone known as La Sabana, which is located near the center of Colombia and comprised of flatlands with an average height of 2700 meters above the sea. The company responsible for designing the spatial center, the US International Telephone & Telegraph (ITT), found that Chocontá was the perfect place to overcome natural catastrophes, so they built the earth station to resist 8-degree earthquakes in combination with 60 km/h winds.[2] From this environmentally protected position, the antenna was set to point to the Intelsat satellite, which covered the Atlantic and enabled communication with North America and Europe. From Chocontá the satellite station transmitted signals to telecommunication centers in Bogotá by way of microwave network build for connecting the country. From the outset, transmittal expectations were high as Colombia asked for 1200 channels in the third version of the COMSAT satellites and expected to have 4800 more in the fourth version.[3]

The monumental presence of the Chocontá Space Center captured the attention of ensuing generations of people in the center of the country, who grew up seeing these satellite dishes while traveling in the north-bound road out of Bogotá. While this first instance of big satellite dishes was reliant on technology and management from US corporations – ITT and COMSAT – it projected Colombian aspirations and interests; for Colombians, the space era became close, and it turned into an exciting and expanding epoch. In the upcoming year, the government envisioned the launch of a Colombian satellite in pursuit of national and technological sovereignty, and the renewal of the space station by adding two more antennas. Although the project for a national satellite failed—marking the end of Colombia's aspiration to colonize outer space—the experiment yielded

[2] Aldana.
[3] Empresa Nacional de Telecomunicaciones de Colombia, *Historia de Las Telecomunicaciones En Colombia* (Bogotá: Telecom, 1970).

a more practical approach to the governmental use of satellite for telecommunications.

In this chapter, I describe how the national and official infrastructure of earth stations and satellite communication in Colombia encountered the emergence and dissemination of amateur television earth stations by the beginning of the 1980s. The national project of satellite television "offered utopian dreams for technological solutions to distance" which in the case of Colombia had been historically justified by its geography.[4] As technology improved over the decades, television moved to a transnational stage "transcending the space and time of the nation by connecting us, each as individual consumers, to the global."[5] Since studies of television and the nation-state have emphasized issues of identity and representation, my work considers how technical infrastructures (specifically sociotechnical systems) distribute culture in ways that contribute to shaping those notions. Therefore, I emphasize the materiality of connectivity to reveal how the aspirations of politicians, engineers, and other stakeholders involved in connecting Colombia through outer space has manifested in big satellite dishes. As the most interlinked infrastructure for globalization, satellite systems thus "encode the dreams of individuals and societies and are the vehicles whereby those fantasies are transmitted and made emotionally real."[6]

I explore three moments in the Colombian history of communication to trace its changing landscape of satellites and television. First, I examine the inauguration of the Chocontá Outer Space Station in 1970 to find some of the technological aspirations embedded in this system. Under this addition to the local infrastructure, a circulation of international live events joined the

[4] Uribe, *Frontier Road*.
[5] Pertierra and Turner, *Locating Television*.
[6] Brian Larkin, "The Politics and Poetics of Infrastructure," *Annual Review of Anthropology.* 42 (2013): 333.

increasing circulation of local production and canned television programs imported from the US and Mexico. Driving the transformation of the national infrastructure was the convergence of color images and satellite signals. But in these technological changes, the effort to expand the satellite infrastructure demonstrates the values assigned to outer space connectivity, both as a way to create national cohesion and a tool for reaching, maybe even influencing neighboring countries. With enthusiasm, the government proposed the acquisition of a national satellite, which failed for political reasons. Withdrawing from these plans enabled the decentralization of national television at a local level, with the promotion of locally-produced regional television. With these shifts in infrastructural priorities, the government licensed suscription television to open the markets of television distribution in the country.

The Colombian Connection

In 1970 the Ministry of Communications published a history of telecommunication in Colombia. The goal for the authors was to "gather simply the Colombian experience of telecommunications, which made us closer to the world of today and tomorrow."[7] As such, the history traced a path from Pre-Columbian communication to the latest telecommunication innovation, that year's inauguration of the Chocontá Space Center. The narrative opened with a chapter on the "conquerors" lack of communication, referring to the European settlers who colonized the territory. Then the book discusses the role of communication during the independence process, and the ways technologies since then have focused on nation-building. Ensuing chapters focus more specifically on the relationship of telegraphy to national

[7] Empresa Nacional de Telecomunicaciones de Colombia, *Historia de Las Telecomunicaciones En Colombia*, 13.

consolidation, and the institutionalization of communications with the creation of the Colombia Telecommunication Company (TELECOM) in May 1947. The trajectory concludes with a section on modern methods of communication that includes chapters on the Colombian "conquer of space," and satellite television networks in Chocontá.

Horses, ink, and paper emerge in the Ministry's story as the marvelous communicative innovations introduced by Spanish colonization. Not only did these allow "words to travel far, always farther," but more importantly, the works of scribes, conquerors, and priests "became the point of departure of a new stage in communications"[8] because they emerged in a moment when, in American territories, "the written word was launched for conquer time and space." In short, those writings represented the culture of conquest and the colony, "with works full of merit for being the first written references of what would be our country in the future." Despite the lack of communication with Spain, the "archaic prose" of the Viceroyalty of New Granada in the "new world" improved only after the first issues of Miguel de Cervantes' *Don Quixote* began circulating. The authors of the history of telecommunication thus conclude that while in Europe people lived in the splendor of culture, in America the "darkness of ignorance and superstition" prevailed.[9] In the pursuit of modernization, for local elites, the only way to pull the countries out their swamp was to follow the path towards an urbanized European world. Following Western conventions, cities, particularly the capital, became centers for organizing the country. For culture, centrality meant unification by way of "introducing and homogenizing uniformity of rhythms of life,

[8] Empresa Nacional de Telecomunicaciones de Colombia, 34.
[9] Empresa Nacional de Telecomunicaciones de Colombia, 35.

gestures, and ways of speaking."[10]

The relationships between culture and writing are essential, as was also evident in the development of media infrastructure when radio and television acquired a role in cultural reproduction through their educational uses. The project of national television in Colombia started in 1954 during the military Regime of Gustavo Rojas Pinilla. Television, originally supported by the boom of coffee prices by the end of the decade, started as a public service financed by the state. However, two years later the government opened television for commercial sponsorship because it could no longer afford to finance television.[11]

At first, the government limited television services to the urban center which fit with the centrist regime and its need for political control.[12] In the case of its infrastructure, nature played a significant role, albeit a highly contested one.[13] Historically, Colombia's mountainous topography impeded national engineering projects while symbolizing the enactment of power through national infrastructure projects. In the case of road systems to connect the country, their construction implied 'breaking' the Andes through human labor and dynamite, sparking intense political disputes over the control of land and the rampant grabbing of indigenous properties.[14] By comparison, the deployment of telecommunication antennas seemed like a less violent intervention that praised the altitude of Colombian mountains rather than fighting against it. By using the Andes

[10] Martín Barbero, *Communication, Culture and Hegemony: From the Media to Mediations*, 135.
[11] Elizabeth Fox, "International Relations and National Policies of Latin American Broadcasting" (American University, 1993), 206.
[12] Calero Aparicio, "The Colombian Media. Modes and Perspective in Television," 92.
[13] Ashley Carse, "Nature as Infrastructure: Making and Managing the Panama Canal Watershed," *Social Studies of Science* 42, no. 4 (August 1, 2012): 539–63.
[14] Uribe, *Frontier Road*, 14.

mountain range to retransmit signals in only seven jumps spanning the 900+ kilometers from Bogotá to Barranquilla (with few repeater stations), the transmission and distribution components formed an extensive network that covered the most populated areas of Colombia, a grand innovation at the time[15]. The government programmed, produced, and transmitted what went out over Colombia's airwaves. Content was based on a somewhat elitist view of culture and included classical music and great works of literature.

The allegory of the problematic connectivity with Spain since colonial times also extended to the historical difficulties of setting up a national telecommunications system in Colombia. As the history book from the Ministry of Communication states, "to arrive at the inauguration of Colombian television in June 1954, we had to conquer the proper difficulties of our orographic system: high mountain ranges close in their peaks to 6000 meters (19.000 ft) high, extensive flatlands and swamps, and in sum, the absence of good roads and train for transportation of equipment for long distance links."[16] In the case of television, the network that could traverse such topography extended across the north, center, and south by posting communication repeaters in the high part of the mountain ranges.

The broadcast networks, considered an innovative design, reached first the regions of Bogotá, Manizales, and Cartagena, and by 1958, it covered other regions like the Highlands of the Magdalena, Quindío, Valle del Cauca, Boyacá and Bucaramanga. However, reception had trouble, especially in zones not reached from the three mountain ranges that cross the country, and thus the

[15] Juan Arturo Camargo Uribe and Antonio García Rozo, "Aspectos sociales de la introducción del color en la red de televisión colombiana," *Revista Folios*, no. 34 (2011).
[16] Empresa Nacional de Telecomunicaciones de Colombia, *Historia de Las Telecomunicaciones En Colombia*, 169.

national communications infrastructure produced a sense of regional differences and distances from centers of power. As a critique from *El Vespertino* explained on May 26, 1964, "The technical deficiencies in television continue to be registered, and it demonstrated that there are national regions, specifically those of the Atlantic coast, to which the image invariably becomes distorted, making it impossible to identify scenes and characters. The television viewers on the coast have to adjust, then, with only audio, and in such circumstances, it would be much more economical and practical to exchange their television for a modest but operative radio receiver."[17]

That same year, Colombian television started to use videotaping technology, with the gradual introduction of video reproducers, recorders, and edition equipment, initially for the reproduction of foreign content. Before such distribution, scripts from Mexico and Cuba arrived to be represented by local actors. As in the case of the commercial program of Colgate-Palmolive, a "North American delegate supervised the production of the show."[18] The re-shooting of format programs preceded the circulation of canned programs. A canned program takes its name from the early material container and receptacle in which the recorded content was physically stored and transported to its place of a subsequent transmission.[19] Born in the late 1940s and early 1950s it launched the exportation of the television programs to other nations, as well as the services of dubbing and subtitling into local lingua franca. Gradually, commercial television from Mexico and the United States shared time with local productions.

The circulation of international content matched with an increasing interest in television as

[17] Instituto Nacional de Radio y Televisión, *Historia de una travesía*, 115.
[18] Múnera Gutiérrez, *La radio y la televisión en Colombia*, 84.
[19] Moran, *New Flows in Global TV*, 16.

entertainment by the Colombian population who had access to the medium. By 1962, the poet and politician Eduardo Cote Lamus denounced “the black hand” that supported the expansion of US Time and Life, through the business of Cuban-born Goar Mestre, in making television a business. The proposal included to target low-income population by deploying 150.000 new television sets, and launch and educational-private channel, that will transform the national channel into a private one.[20] To address this situation, the government created the National Institute for Television and Radio (INRAVISION), a "decentralized" public institute under the executive branch of government, a public-private hybrid established to run Colombian television. The infrastructure and social services of television were state run and financed; commercial entertainment, and advertising was run by the private sector, and the two parties shared television's power to inform and shape opinions. With the emergence of private companies called "programmers" produced or purchased a television program to fill the airtime they rented from INRAVISION and sold time on the program to advertisers.[21]

The monumentality of live events

The Chocontá Space Center aimed to connect Colombia to the increasing telecommunication networks available through the INTELSAT communication system. Over a year earlier TELECOM had selected a location in which to build the Chocontá Space Center that had no electromagnetic interferences and provided “electricity and water facilities, a good road for equipment and people transportation, a firm subsoil for the antenna pedestal and a nearby town where the operators could live.” Civil and electrical work, as well as the equipment manufacturing,

[20] Instituto Nacional de Radio y Televisión, *Historia de una travesía*, 102.
[21] Fox, “International Relations and National Policies of Latin American Broadcasting,” 208.

began in 1969. The contract for designing, building, installing and running the earth station, the microwave link to the telecommunication center in Bogotá, and the maintenance for six months, cost the government 4 million and 400 thousand dollars with ITT Space Communications, Inc.[22]

The antenna was a subsystem composed of the reflector and its pedestal, electronic equipment and servomechanisms. The Japanese firm Mitsubishi Electric Corporation built the antenna, in which the reflecting surface sized 29. 6 meters. It had 360 aluminum trapezoidal panels, in an iron structure that made the dish weight around 50 tons. The structure of the antenna was supported by a concrete pedestal that in conjunction with the antenna summed 97 feet tall and weighs 1,620 tons.[23] With its first antenna, Colombia would gain access to 12 telephone channels, three circuits for telegraphy and telex and a television system capable of transmitting two programs through the INTELSAT III series of satellites.

Figure 1.1. *Photo of the Chocontá Antenna*. From TELECOM. Historia de las

[22] Empresa Nacional de Telecomunicaciones de Colombia, *Historia de Las Telecomunicaciones En Colombia*. In terms of the equipment The Earth Station had five different components: 1) the antenna, 2) the equipment for terrestrial communication, 3) a terrestrial link, 4) a multiplex subsystem, and 5) the service installation.
[23] Empresa Nacional de Telecomunicaciones de Colombia, 180.

Telecomunicaciones en Colombia, 1970..

As a monument to Colombia's modernization, the inauguration of the Chocontá Space Center would meet the desires for connectivity in the satellite era. Such promises seemed feasible in light of the Space Communication center's construction which was completed in 10 months, a "record time for Colombian Standards." In the ad published in *El Tiempo* newspaper on the day of the inauguration, TELECOM mentioned that from Colombians there will not be long distance family members, businesses or events that they cannot reach. From today, "Colombian communication with the world – and from the world with Colombians, will be through satellite, and it will be faster, clearer, exact, cheaper, and without interferences."[24] INRAVISION also emphasized that the world satellite system "will allow Colombian television audiences to put their eyes over the world through the big international events that INRAVISION will bring through that channel."[25]

If the location of the earth station represented a monument to technological advancement and orographic conquest of Colombia, its inauguration date symbolized the unique relationship between modernization, Catholicism, and Colombia's deployment of communication technologies. The chosen date, March 25th, 1970, marked the validating closure of Carlos Lleras Restrepo's liberal government, and, perhaps more importantly, it coincided with the Catholic holy week and Easter celebrations. As a public ritual, the Chocontá Space Center inauguration scaffolded a political and religious in which finally Colombia get connected with its past, but it

[24] TELECOM, "Advertisement," *El Tiempo*, March 23, 1970, 13.
[25] INRAVISION, "Advertisement," *El Tiempo*, March 23, 1970.

also platform a narrative of the future, a moment at which people become enrolled in a particular community of aspiration.[26] While from a technical perspective the Chocontá Space center allowed Colombia to connect with the world, it was also the Catholic ecumene that Colombia finally got a direct link with Rome and Spain distinct from the history of colonization. Despite the government planned the Chocontá Space Center to carry multiple telecommunication tasks, television and the visual culture of Catholicism played a central role in displaying the global connection. Years before, from 1962 and 1967 broadcasters in Western industrial national created the platform for "satellite spectaculars", live-via-satellite television programs.[27]

In 1968, the best sports tv program for the journalist of *El Espectador* in Bogota, was the Olympic games of Mexico.[28] The production relied on *Teletigre*, a new television programmer that also operated the second channel available initially in Bogota and surrounding areas. *Teletigre* or TV9 Tele-Bogota, the channel was rented for five years to Consuelo de Montejo, who setup *Teletigre* in association with ABC World Vision. *Teletigre* produced a program to be broadcast at 8pm and repeated it at 11pm in the first channel. The proximity of Mexico, helped to get the videotape in time for a daily transmission, that also reached Peru and Chile. While *Teletigre*'s transmission came from a recorded tape of the Olympics, ABC deployed an infrastructure for covering the events that included the use of the Intelsat 3 Satellite to ensure global coverage from Mexico City.[29]

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[26] Kregg Hetherington, "Waiting for the Surveyor: Development Promises and the Temporality of Infrastructure," *The Journal of Latin American and Caribbean Anthropology* 19, no. 2 (July 2, 2014): 198.
[27] Parks, *Cultures in Orbit : Satellites and the Televisual*, 21.
[28] Instituto Nacional de Radio y Televisión, *Historia de una travesía*, 166.
[29] Travis Vogan, *ABC Sports: The Rise and Fall of Network Sports Television* (Univ of California Press, 2018), 85. A consortium comprising ABC (USA), the European Broadcasting Union, NHK (Japan) and Mexican tv combined to

Experiments in live satellite broadcasting happened through the hybrid private-public alliances of State and programmers. Before the construction of the Chocontá Space Center, INRAVISION broadcast the 24th Eucharistic congress hosted in Bogota in 1968, the first time a Catholic Pope, Paul VI, visited the country. In that occasion, INRAVISION worked together with *Radiotelevisione italiana* (RAI) and *Radiotelevision Española* to broadcast the visit. The government considered the transmission a technological feat, considering that a "Latin American country could respond so adequately to the communication needs demanded by an event like this."[30]

A year later, INRAVISION, and the local television programming company, *Radio Television Interamericana* (RTI), broadcast the Apollo 11 moon landing. Journalists considered it an unprecedented event that would make Colombian viewers "the first on the moon" by virtue of being "side by side with the greatest conquerors in the biggest heroic deed in the history of humanity.[31] *El Tiempo* covered the enjoyment from experience live events, in article describing how people in Sunday rather than going to cinema theaters, people stayed in front of the screen to watch the event. The newspaper affirmed that "Bogotá enacted the 20th of July, for the first time in its history, far from patriotic remembrances."[32] The journal reported thousands of people in front

provide the pictures. Yet the broadcasts nearly did not happen because early in September Intelsat 3 crashed. The ATS satellite was used instead. Philip Barker, "How The Guardian's Rodda Revealed Truth of Bloody Protest at Mexico 1968 Games," *Sports Journalists' Association* (blog), October 8, 2018.

[30] Empresa Nacional de Telecomunicaciones de Colombia, *Del maguaré a la fibra óptica: crónica de las comunicaciones* (Bogota: Editorial Gente Nueva, 1995), 249. As described by Lisa Parks, events like the visit of the Pope staged a global mapping of technological development, dividing the world into zones of technological progress and illiteracy, and used the liveness of the satellite-relayed signal to dramatize and reinforce them.. Parks, *Cultures in Orbit : Satellites and the Televisual*, 40.

[31] RTI, "Advertisement," *El Tiempo*, July 20, 1969.

[32] "Bogotá Pasó El 20 de Julio En Orbita Lunar," *El Tiempo*, July 21, 1969, 30.

of the *El Tiempo* building, when the day before, the leading distributor of television sets in Bogotá, J. Glottmann, installed five big screens for people to watch the broadcast. The public, the article said, stayed "curious, expectant, and intercommunicated by peculiar interpretations and picturesque speculations."[33] This televised event thus took on national, as well as global, even celestial, meanings.

Miles de personas se congregaron frente a este diario para presenciar en los televisores instalados sobre la calle todos los detalles del alunizaje de Apolo 11. Este servicio fue posible gracias a la colaboración de la firma J. Glottman. (Foto EL TIEMPO).

Figure 1.2. *Public screening of Apollo 11 moon landing in Bogota*. El Tiempo. July 20, 1969

Events such as the Moon landing and the 1968 Mexico City Olympics created an ongoing

[33] "Bogotá Pasó El 20 de Julio En Orbita Lunar," 30. As another article in El Tiempo narrates, it was also of interest that one of the astronauts, Buzz Aldrin performed a communion in outer space. Matthew Cresswell, "How Buzz Aldrin's Communion on the Moon Was Hushed Up," *The Guardian*, September 13, 2012, sec. Opinion, https://www.theguardian.com/commentisfree/belief/2012/sep/13/buzz-aldrin-communion-moon.

demand for live satellite television coverage.[34] After participating in these events, the Colombian government use the inauguration of the Chocontá Center of Outer Space Communication, to stage a series of event connected with the celebrations of the catholic Holy Week. As the broadcast relied on the work of TELECOM and INRAVISION, it will show Colombians the commitment to television as a public service for education and culture. The programming included a series of events broadcasted from Wednesday to Sunday.

Figure 1.3. *Programming slots for the Holy Week*. El Tiempo. March 25,1970. p. 14.

On Wednesday, the broadcast started at 11:30am with the chat between the president Carlos Lleras, and the Vatican City ambassador Dario Echandía. After a series of images recorded in Rome, the screen showed Pope Paul the Sixth. In his allocution, he reminded the audience of his

[34] Peter Marshall, "Satellite Communications Video Markets: Dynamics and Trends," in *Handbook of Satellite Applications*, ed. Joseph N. Pelton, Scott Madry, and Sergio Camacho-Lara (Cham: Springer International Publishing, 2017), 149, https://doi.org/10.1007/978-3-319-23386-4_85.

visit two years earlier and said that "today we encounter again. Me, a pilgrim in the street of Bogotá who appears again in front of you , (that now) enters into your home for delivering, through this exceptional media, the same greeting of peace, the same wishes of Christian felicity, the same blessings as from the unforgettable journey."[35] After thanking the technicians who built the earth station, the Pope ended with a blessing in Latin, *Benedicad vos Omnipotente Deus Pater el Filios et Espiritu Santus*, *Amen*." As summarized by a journalist from *El Tiempo* "at 12:08 am the Pope appeared to read his message to Colombia. The voice of the Pontiff, for the Colombians, was perfectly heard. He expressed his congratulations to the promoters and technicians working on the international communication station and made vows to strengthening Colombia's ties with the world 'under the sign of peace.'" A sense of fascination captured every news report in Colombia about the experience of having the pope in the private space of Colombian homes.

[35] Andres Alzate, "Chocontá City Trajo El Mundo a Colombia," *El Tiempo*, March 26, 1970, 8.

La imagen del Papa Pablo VI fue vista así, en las pantallas de los televisores, cuando el Sumo Pontifice enviaba un mensaje especial y bendicion al pueblo colombiano, en transmisión directa desde El Vaticano. (Foto EL TIEMPO, de Gustavo Castro Gaitán).

Figure 1.4. *Image of Paul VI on a TV screen*. El Tiempo, March 26, 1970. p. 8

The ritualistic aspects of this infrastructural act manifested a connection between high technology and national cultural traditions,[36] specifically, Colombia's Catholic heritage. However, the agenda also included more contemporary compromises, to connect Colombia to the INTELSAT network promoted by the US government, and to a regional commitment to link Colombia to other Latin American countries. The investment of four million dollars paid to ITT

[36] Joshua Barker, "Engineers and Political Dreams: Indonesia in the Satellite Age," *Current Anthropology* 46, no. 5 (2005): 703–27.

Space Communications for the Chocontá Space Center, entered the governmental budget, with the promise that after ten years, satellite communication would be more profitable. More immediately, the signal's multiple destinations enabled a "quick integration with telecommunication systems in America and the rest of the world," particularly with the broadcasting of television programs from other parts of Latin America. In ten years, argue the editorial in El Tiempo, satellite technologies will "shake our consciousness," unchaining "an infinite number of reflections of what we are and what we can be." The satellite station of Chocontá "will be our formal link to that increasing chain of interdependence, which is uniting the people, regardless of the technical diversity of their economic and social systems."[37]

Noticing such changes happened quickly. By the end of the week, journalists from *El Tiempo* acknowledged variations in the way Colombians celebrated the Holy Week, at least in Bogotá. While "the average person from Bogotá…is still loyal to the tradition of the holy week" said one journalist, he characterized three different approaches to how such loyalty was expressed: 1) those who participated in the ceremonies, 2) those who followed the celebrations from their homes via local and foreign satellite transmissions, and 3) those who traveled to other parts of the country for vacation. For the first time, the dramatic reenactments of Christ's death competed with live transmissions from Spain and Rome. As one journalist described the broadcasting of the Way of the Cross from Valladolid, Spain: "it was a lovely transmission because it took us to that land and put us in the procession as one more Spaniard."[38]

The color of international in black-and-white TV sets

[37] "Una Ventana al Mundo," *El Tiempo*, March 26, 1970.
[38] Gabriel Pulecio, "Grandes Multitudes En Actos de Semana Santa," *El Tiempo*, March 29, 1970.

The images of Pope Paul VI visit to Bogotá in 1968 became the first images of color television broadcast from Latin America. As "TV cameras followed all his movements," all those scenes had "a perfect transmission of the full-color image and great quality sound, captured by more than 700 million people in Europe, USA, and Latin America."[39] The audience also included everyday newspaper readers and radio listeners, and moviegoers who got the information from the network established by the Colombian Telecommunication Company, which videotaped "more than 40 hours and printed more than 10,000 meters of film." Such success was praised by the National Aeronautics and Space Administration (NASA) which stated that "this first broadcast in color from Latin America, was even more perfect and with better quality than those sent from Europe."[40]

A letter from L.M. Broomall, the Vice President of International Relation of Western Union International also praised the quality of the broadcast. The letter, addressed to Francisco Lozano Valcarcel, president of Telecom, referred to a contract, in which the company lent a portable earth station for the upcoming Apollo moon landing. Later Broomall persuaded Valcarcel to consider the deployment of color devices for future broadcasting: "I'm sure that your associates at TELECOM will realize that the "Color Bogotá" will probably be a criterion in future television transmission using satellite. My congratulations to you and your associates in making such a notable work."[41]

[39] Empresa Nacional de Telecomunicaciones de Colombia, *Historia de Las Telecomunicaciones En Colombia*, 175.
[40] Empresa Nacional de Telecomunicaciones de Colombia, 176.
[41] Empresa Nacional de Telecomunicaciones de Colombia, 176.

The development of satellite television encountered the global expansion of color television in the events of the Cold War. Color television's ability to expose the spectacular "real" or "natural" reached other countries, attached to "forms of Cold War rhetoric" that added depth and veracity to audiovisual representations. More specifically, as explained by Susan Murray, "the meeting of satellites, global markets, and color television was understood to be representative not only of cutting-edge technologies and economic infrastructure but also of the peak of space-age modernity and the international, technological, and scientific competition that was so much an American part of Cold War policy discourse."[42] This expansion encountered the technical dispute among analog color formats, between the standard designed in the US National Television System Committee (NTSC), and the German PAL and French SECAM formats.[43]

Colombia's decision took several years, as all these formats compete, being the German PAL format the preferred by local engineers as the most suitable for Colombia's geography. Nevertheless, as Jaime Arturo Camargo and Antonio García explained, NTSC allowed Colombian television to strengthen its links with the United States production and distribution networks of the United States via satellite and through the importation of video recordings. This transition altered the balance between local and foreign content, and also showed the impact of thousands of Betamax-TV equipment in color, a good part of them imported from contraband, and the awakening of a large industry of illegal import-content, that started to develop a particular taste for audiovisual experience in Colombian households. [44]Negotiations over the deployment of color

[42] Susan Murray, *Bright Signals: A History of Color Television* (Durham NC: Duke University Press, 2018), 238.
[43] Andreas Fickers, "The Techno-Politics of Colour: Britain and the European Struggle for a Colour Television Standard," *Journal of British Cinema and Television* 7, no. 1 (March 3, 2010): 95–114.
[44] Camargo Uribe and García Rozo, "Aspectos sociales de la introducción del color en la red de televisión

television involved mostly private companies, especially programmers, that seek the adoption of color as an opportunity to produce content for national and international audiences.[45]

Nevertheless, if the process to extend the television infrastructure took several years, so too did the process of people who acquired their television sets. As in 1970, a Colombian advertising company calculated that 760 thousand households owned a television set. Estimating that five people, equivalent to a family, got access to each of these televisions, the study calculated that around 4 million Colombians watched television, constituting around 20% of Colombia's population for that year. More importantly, the study distinguished among social classes. 91% of people identified as upper class in the interview declared they owned a television set, as well as for 64% of the middle class and 18% of lower-class interviewees.[46]

Obtaining media devices involved several networks, most of them attached to the Caribbean. Despite some businesses selling television sets in Colombian biggest cities, and some affluent families bringing them from their travels to the United States, middle classes turned to the Caribbean Island of San Andrés to buy such devices. Declared as a free port in 1953, also during the government of Gustavo Rojas Pinilla, San Andrés served as a tourist spot for Colombian and Central American visitors. In this process, the Island also reoriented its economy from agriculture to the sale of imported textiles. However, in a second place, the sale of household appliances constituted a growing business as people traveled to buy tax-exempted appliances. As explained by Johannie Lucia James Cruz, by 1974 " a television that in the continental territory had a price

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colombiana."

[45] Camargo Uribe, García Rozo, and Gonzalez Scobie, "El Estilo tecnológico del sistema de televisión en Colombia," 264.

[46] Empresa Nacional de Telecomunicaciones de Colombia, *Historia de Las Telecomunicaciones En Colombia*, 170.

of $ 8000 approximately in the Island, costed an average of $ 3500. A simple recorder, which on the continent was worth $ 3000, on the island was obtained for $ 1000, approximately."[47]

Some government initiatives even included the transition to color television sets, as in the case of the government bank for rural development, which, by 1978, offered color televisions at "17.000 Colombian pesos, and receive an initial payment for the old black and white receptor."[48] In this process, by 1990 98% of the Colombian population owned a color television while almost 34% owned a black and white television.[49] The numbers were more prominent in rural areas, as in 1991 "only 48% of rural inhabitants own a television set, 37% in black and white and 11% in colors."[50] Since the introduction of color television for broadcasting was incomplete, technical accommodations had to be made: "television events produced and broadcasted in color for foreign networks, had to be degraded into black and white for their broadcasting in Colombia."[51]

Nevertheless, a more detailed exploration of these transitions should be discovered through study of people's practices with these technologies. As Catalina Gomez-Aparicio tells in her analysis of television practices in Cartagena, Colombia, "before the arrival of color television there was a technical transition, in the Caribbean, (as the viewer) put a transparent screen in the front that allowed them to view the images in light blue, green and pink colors." The use of "Instant Color TV Screens," despite being considered a hoax,[52] played a central role in technological

[47] Johannie Lucía James Cruz, *La travesia economica del poder: una mirada a la historia de San Andres* (San Andres Islas: Editorial Universidad Nacional de Colombia, 2017), 87, http://www.bdigital.unal.edu.co/61308/.
[48] Múnera Gutiérrez, *La radio y la televisión en Colombia*, 117.
[49] Múnera Gutiérrez, 146.
[50] Múnera Gutiérrez, 186.
[51] Camargo Uribe, García Rozo, and Gonzalez Scobie, "El Estilo tecnológico del sistema de televisión en Colombia," 263.
[52] "April Fool's Day: The Best TV Pranks," *The Telegraph*, April 1, 2017,

transitions, as in the case of experiencing color, at least for the user in the Caribbean. As a participant in Gomez-Aparicio's research expressed: "When color television arrived there was not much difference because I watch like that from before; moreover, it was costly to buy a new device, and in my house, we did not have money."[53]

SATCOL: The National Satellite project

The embrace of satellite technologies signaled a new stage of modernization, and multiple countries developed such systems. Regional systems initially attempted to bring satellite technologies as a means for enhancing rural education in several areas of the developing world.[54] Footprints, represented in maps of satellite coverage, describe an imagined cultural territory "shaped by the practice of downlinking and uplinking television signals."[55] In this way, satellite technologies offered a new opportunity to reach parts of the territory out of the telecommunications infrastructures in Colombia. For these reasons, as some countries developed their satellite projects, the aspiration for a national satellite was conveyed in a discourse that positioned the satellite in orbit with a set of keywords already associated with other modern projects: technology, tradition, development, and national unity.[56] More than technical objects, satellites operated on the level of fantasy and desire[57], in which the spectacle of outer space during the Cold War founded popular notions of global communication.

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https://www.telegraph.co.uk/tv/2017/04/01/april-fools-day-best-tv-pranks/instant-colour-television-1962/.

[53] Gomez Aparicio, "Representaciones sociales acerca de la televisión colombiana y su vínculo con la identidad cultural en Cartagena.1970-1986," 140.

[54] Edward T. Pfund Jr, "Regional Satellite Systems for the Late 1980s," in *10th Communications Satellite Systems Conference and Technical Display*, 1984, 697.

[55] Parks, *Cultures in Orbit : Satellites and the Televisual*, 49.

[56] Barker, "Engineers and Political Dreams."

[57] Larkin, "The Politics and Poetics of Infrastructure."

Colombia's equatorial location, but recognition of shared interests with countries in the "global south," became an essential factor in the local debates over outer space sovereignty during the Cold War. By 1975 the Colombian government actively defended the claim to sovereignty over the geostationary segment above the Colombian territory, in a dramatic assertion of satellite-related national sovereignty and challenges to northern power.[58] Colombia invited other countries that touch the equatorial line to claim sovereignty over the geostationary orbit to the international community. In the Bogotá Declaration of 1976, countries along the equatorial line – including the governments of Indonesia, Somalia, Kenya, Uganda, Gabon, Congo, Zaire, and Ecuador -- demanded the sovereignty of the geostationary orbit, 36,000 km above their territories.[59] None of these equatorial countries had satellites, and most of the orbital slots were taken by the countries that first ratified the Brussels convention relating to the Distribution of Program-carrying Signals Transmitted by Satellite in 1974. The Brussels Convention obliged each Contracting State to take adequate measures to prevent the unauthorized distribution on or from its territory of any program-carrying signal transmitted by satellite. However, two years later, the Bogotá Declaration failed to receive support from the United Nations, and in particular by the United States and the Soviet Union, who argued that outer space was an international common over which no one country could claim sovereignty.[60]

After this defeat, the government explored the idea of launching a satellite into the geostationary orbit right above the Colombian territory. Since 1975 governments around the world

[58] Lina. Téllez García, "Satélites de telecomunicaciones en Colombia. Pasado, presente y futuro." (Tesis en Derecho, Uniandes, 2014).
[59] Andrej Gorbiel, "The Legal Status of Geostationary Orbit: Some Remarks," *J. Space L.* 6 (1978): 171.
[60] Gorbiel.

opted for investing in satellite technologies as a means of achieving national coverage. The US government supported these efforts in particular for the development campaigns launched under the John F. Kennedy administration. Satellite distribution of national television channels emerged as an urgent priority in terms of linking together despaired territories. Such was the case when the USSR covered "its seven time zones" or when India experimented with Satellite Instructional Television. Similarly, Brazil and Mexico invested "tens of millions of scarce, borrowed dollars in nationally owned satellite to ensure that they could subsidize the extension of their national television networks."[61]

In this direction, the Colombian government developed a Pilot System to integrate two of the territories considered remote by the government: The island of San Andrés in the Caribbean, and Leticia, the southern city in the Amazonian region, in the border with Brazil and Peru. The pilot systems use an INTELSAT IV satellite, that connected the three earth stations. For this the government build two earth station in San Andres and Leticia, all of them with a parabolic antenna. In the inauguration of the Leticia station, in August 25th, 1979, people in the streets claim for better access to water and electricity service, as some people chanted “We do not live or eat from Television”. In the middle of an electrical outage, Turbay declared the importance of the works that will allow Leticia to communicate with the rest of the country and the world.”[62]

[61] Straubhaar, *World Television*, 74.
[62] “Empapado y Sin Luz Pronunció Discurso,” *El Tiempo*, August 26, 1979.

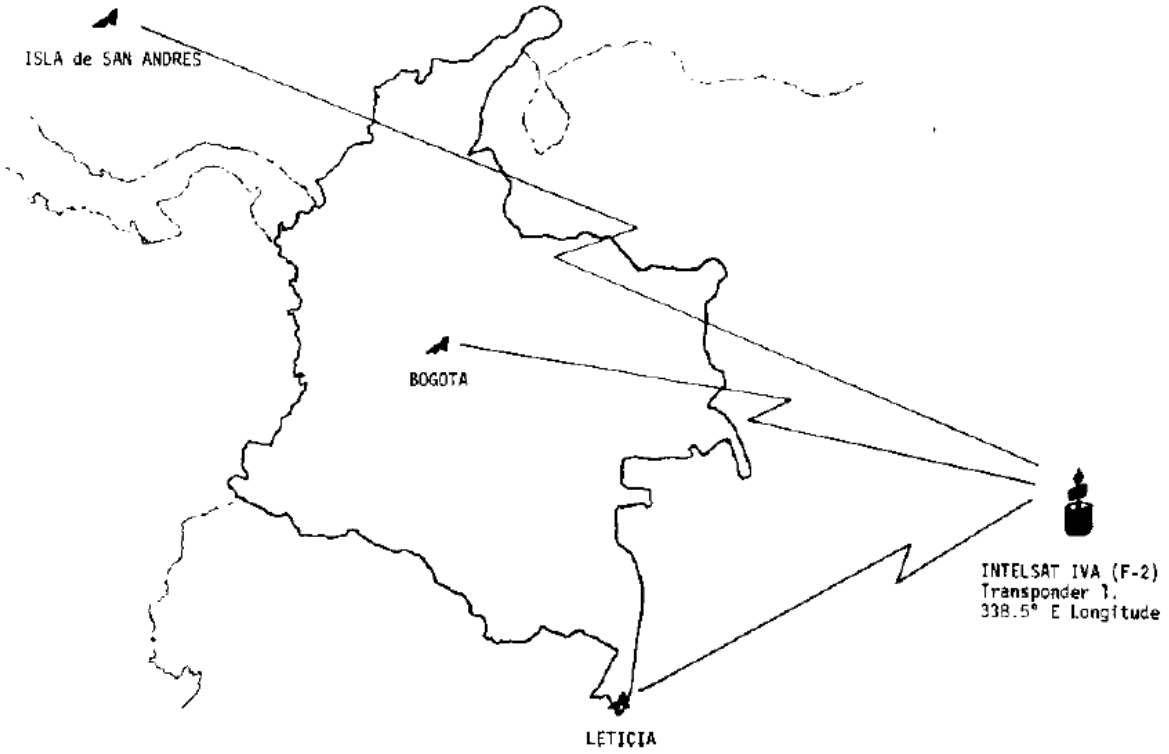

Figure 1.5. *Map of the Colombian Pilot System*. From SATCOL - A Domestic Satellite System for Colombia. 1982, p. 430.

That same year, the Minister of Communications Jose Manuel Arias Carrizosa addressed the necessity of establishing a new system which he called project SATCOL, based on a Colombian satellite. In a speech at the Colombian Engineering Association, he described the advantages of designing a national system based on satellite technologies to 1) contribute to the general development of the country, 2) establish sovereignty over the orbital segment located over Colombian territory, and 3) collaborate with neighboring countries to create a regional satellite service. The system he proposed would require the purchase of two satellites, the cost of launching them, and the building of a telemetry station. For the terrestrial segment, the investment covered 150 low traffic, 12 medium traffic, and six high traffic earth stations, valued at 28. 6 US dollars. A

final 12.5 million was required for planning, insurance, and unforeseen events.[63]

The main use of SATCOL will be to integrate multiple zones within the country. In addition to the physical isolation of millions of compatriots, the absence of a communication system leaves a "community without the capacity to accomplish a historical process to create a sense of nationality" because the people are "mere fellow citizens with a distant and blurry concept of culture." Such isolation also had economic consequence, as many "affluent" regions could not overcome the geographic barriers and "join with the rest of the country and receive the satisfaction of modern life." The development of communications towards "the center," relied on a microwaves system which could reach several areas in the country. The government opted for exploring the possibilities offered by outer space, under the increasing awareness of the economic benefits of decentralization. However, at stake was the developing of a new set of laws and rules for managing populations through outer space.[64]

Some of the economic benefits would come from job creation, since—as Arias Carrizosa observed—the development and building of satellite infrastructure could be developed by local technicians with the necessary technological skills. Moreover, the project would stimulate local industries, since Colombian industries "own[the] technical and technological resources to build metallic parts for antennas, to produce aluminum foil, and have [the] technical and technological means to elaborate and produce the parts which constitute the antenna reflector…the mobile

[63] Jose Manuel Arias Carrizosa, *Un Proyecto Satélite de Comunicaciones Para La Integración Nacional* (Bogota: Talls. Grafs. Banco de la República, 1979), 16.
[64] James Hay, "The Invention of Air Space, Outer Space, and Cyberspace," in *Down to Earth: Satellite Technologies, Industries, and Cultures*, ed. Lisa Parks and James Schwoch (New Brunswick, N.J.: Rutgers University Press, 2012).

modules for transportation and installation of equipment…components of electronic circuits…moreover, it has highly qualified staff for electronic units assembly, and to carry direction, organization and installation tasks."[65]

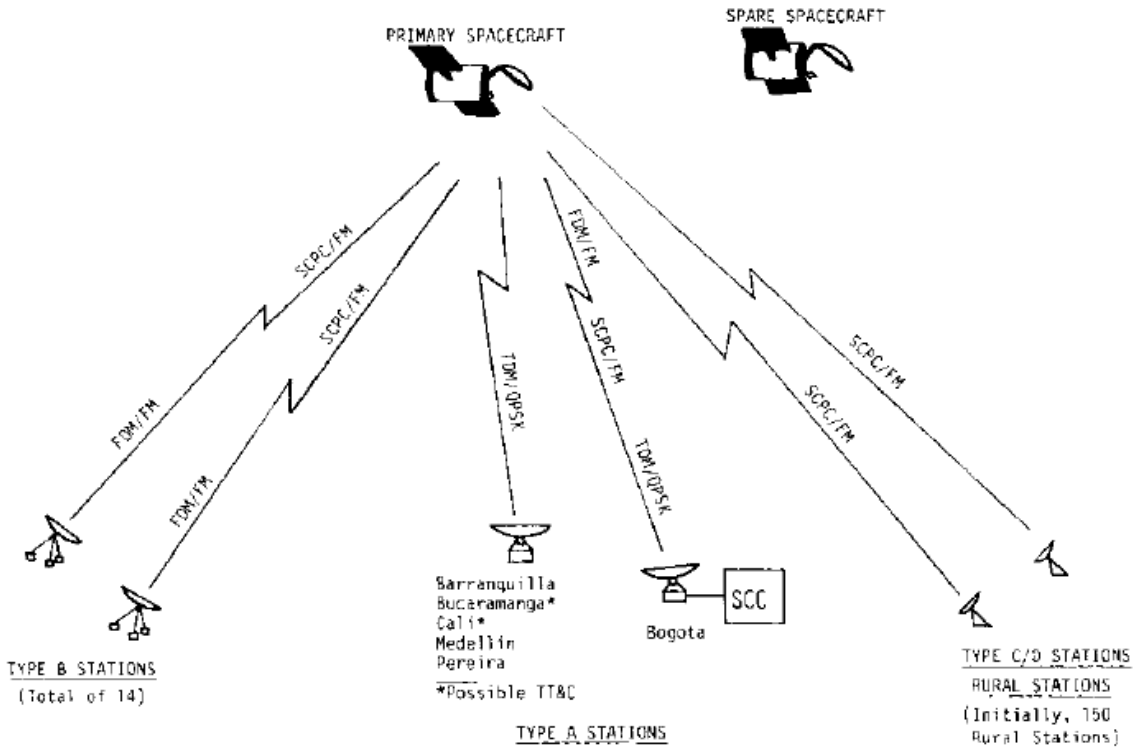

Figure 1.6. SATCOL system design. From SATCOL - A Domestic Satellite System for Colombia. 1982, p. 430.

The feasibility of building satellite earth stations around the country emerged as a new solution to connect "the main centers of the country" at faster speeds. For Alfonso Rey Córdoba, a lawyer who promoted the use of satellite technologies, the extension of the network to "the remotest sites in the country, especially the border localities" would provide services such as

[65] Arias Carrizosa, *Un Proyecto Satélite de Comunicaciones Para La Integración Nacional*.

television and radio that could not be easily achieved with terrestrial links. The full integration of communication systems would consequently bring "economic benefits for the country."[66]

Rey Córdoba considered it the essential complement to the satellite telecommunication network. Rey Córdoba explained that the size of the antenna depended on the traffic volume, and then characterized three levels of earth stations and the antennas needed for a national system. The first ones were six high-traffic antennas planned by Telecom for Colombia's most prominent cities—Barranquilla, Bogotá, Bucaramanga, Cali, Medellín y Pereira—to serve for telegraphy, telephony, and "for television program transmission to the rest of the country." The size of the antennas needed for such domestic purposes was estimated to be between 10 to 12 meters, compared to the ones used for the Intelsat system in the Chocontá Space center, which measured 29.6 meters. The second set of earth stations, middle-traffic antennas, covered the locations "which cannot be economically connected through microwave networks." Such locations included border settlements, particularly San Andres, an island in the Caribbean, and Leticia, situated in the border with Peru and Brazil. In the third level, around 150 earth stations will have access to the satellite mostly for the rural telephony program.[67]

As Arias Carrizosa also argued, the primary use for the SATCOL was rural telephony. However, this was not the systems only use. At the 9th Communications Satellite System Conference David Delgado Romero explained that in addition to telephony, "The SATCOL system will provide…television (TV), telex, telegraph, radio program distribution, and data transmission

[66] Alfredo Rey Córdoba, "El Satélite Colombiano, Satcol, y Sus Proyeccciones," *El Tiempo*, November 21, 1981.
[67] Rey Córdoba.

services. The system is designed to provide 10,000 to 15,000 telephony circuits, two TV channels, approximately 600 circuits for rural telephony and one military communications transponder."[68] Rey Cordoba expanded on the benefits of the SATCOL system, which "would broadcast two simultaneous TV programs, practically to the whole Colombian territory, including the transmission from six different locations in the country (where the high traffic earth stations would be located)." The radio service would also cover the national territory, with emissions "practically from any point in the country and to all the earth stations." This use of the satellite system would contribute to increasing demand for decentralization that would lead to the creation of regional channels, which started with the creation of the Simón Bolívar television station in San Andres, in 1974.[69]

In this project parabolic antennas served as a portal technology from the perspective of the state. The multiple earth stations located within Colombian borders demonstrated a new idea of telecommunication, that also revealed a new way of managing population.[70] From the ground level, the location of earth stations represented political decisions about where to create a multilevel set of centralities, and as such, they were entrenched in the historical territorial organization of the country which went from the general level of the nation to the specific unit of the municipality.[71] Put differently, the planned earth stations integrated the political organization of the territorial nation, just as the Chocontá Space Station symbolized the integration to the

[68] David Delgado Romero and Thomas O. Calvit, "SATCOL-A Domestic Satellite System for Colombia," in *9th Communications Satellite System Conference*, 1982, 519.
[69] Instituto Nacional de Radio y Televisión, *Historia de una travesía*, 223.
[70] Hay, "The Invention of Air Space, Outer Space, and Cyberspace."
[71] Marco Palacios, *Between legitimacy and violence: a history of Colombia, 1875-2002* (Durham: Duke University Press, 2006), 57.

international community in the 1970s.

The gradual decentralization of cultural content

In the last year of Julio Cesar Turbay's presidency, while building a satellite infrastructure project of national integration, the government mobilized the discourse of decentralization—also grounded in the new possibilities of satellite infrastructure—to offer regions in Colombia to broadcast via satellite from a proposed earth station back to the center. Previous efforts aimed to create local stations, but they were not allowed them to connect to national coverage networks. In July 10th, 1974, the government inaugurated the Simón Bolívar Station in San Andrés, after the government "worried that in the island, people would not be able to watch the image of the country, its institutions and its rulers." INRAVISION send on a weekly basis a selection of the best programs produced for Bogota for broadcast between 6 and 10:30 pm.[72]

However, the plea for regional channels promoted a more profound idea of decentralization of television infrastructure. The transition to a regional television system started in the presidency of Belisario Betancur who also promoted various measures for the decentralization of the Colombian State, such as the popular election of mayors, the modernization of the departmental and municipal regime, and the creation of regional planning systems. [73]During his term from 1982 to 1986, the government allowed the creation of several regional channels, not only with institutional independence but also programming independence and own technological structure.[74]

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[72] Instituto Nacional de Radio y Televisión, *Historia de una travesía*, 223.
[73] "La televisión regional en Colombia: filosofía, realizaciones y perspectivas," in *Historia de una travesía: cuarenta años de la televisión en Colombia*, by Instituto Nacional de Radio y Televisión and Jaime Abello Banfi (Santafe de Bogotá: Presencia, 1994), 464.
[74] Camargo Uribe, García Rozo, and Gonzalez Scobie, "El Estilo tecnológico del sistema de televisión en Colombia," 266.

In 1982, the report from the Ministry of Communication emphasized how one of the government's goals was to generate and emanate television programming from cities *throughout* Colombia (not merely Bogotá). Everyday news media supported these efforts by ensuring that they reported "a minimum of 20% related to cities and locations other than the republican capital."[75] The emergence of regional television in Colombia went on to become a milestone in the new presidency of Belisario Betancur, who not only supported the creation of regional channels like Teleantioquia and Telecaribe but also encouraged a more diverse set of national television content, particularly soap operas that would embody regional values.[76]

With the legal authorization and the support of the Ministry of Communications, the regions most interested in regional television quickly implemented their initiatives: Teleantioquia was founded on January 16, 1985 and began broadcasting on August 11 of the same year; Telecaribe formalized its constitution and initiated transmissions on April 28, 1986, after a year of operation of a promoter corporation.[77] These channels, as part of the national infrastructure should be commited to spread culture and education. In the inauguration of *Teleantioquia*, Belisario Betancur, born in the region, mentioned that "regardless of lamentations, because of the tenacity of the paisas (Antioqueños) this beautiful reality exists, in which all Antioqueño talent must turn for maintaining a high quality in programming, a constant creativity, and a critical spirit against

[75] Antonio Abello Roca, *Memoria al Congreso* (Bogota: Ministerio de Comunicaciones, 1982), 15.
[76] García Ramírez and Herrera Delgams, *El Caribe colombiano a través de su televisión*. As Diego Garcia and Leonardo Herrera had shown, "to arrive at this moment regions had to carry out a long battle for the State to give them the power to produce and broadcast a different television from that produced in Bogota." For them, television's audiovisual media offered an essential tool for narrating the region from their language and perspectives, helping them to disrupt their caricatured representation by national public television.
[77] "La televisión regional en Colombia: filosofía, realizaciones y perspectivas," 464.

the bad and the mediocre." Such a goal would be achieved with the use of television for distance and open education, and the use of teletext and videotext that would make *Teleantioquia* the most modern in Latin America.[78]

While in this case, the technical infrastructure for launching the channel emerged from the process, in the case of Telecaribe, a "spontaneous and informal television project" existed before its formalization. The experiment was spearheaded by José Jorge Dangond Castro, who had worked in alternative television production years earlier for the Hispanic population in the US. Dangond created a broadcast station for his hometown with "modest radio equipment of 30V, three Betamax, two cameras, and an antenna deployed in the roof of the Dangond building". According to the Medellin Newspaper *El Colombiano* "silently since October last year (1984) '*Televallenato'* started to work in this City, a local channel which every day gets a bigger audience." The article explained that the channel "without any license" started to show videos of local celebrations, to the point that some people believed it was a channel from the Antilles or the announced "Third" educational national channel. However, this channel came at a inexpensive cost in infrastructure and content production. Without any authorization *Televallenato* had begun broadcasting the Mexican soap opera *Los ricos tambien lloran* and several American movies with such frequency and consistency "that many adult bars expressed their concern because their clients did not go there anymore" because they were watching the broadcasts.[79] *Televallenato* did not use parabolic antennas for capturing television signals. Instead, the system recorded television programs, and it used the electromagnetic spectrum for transmitting over the city.

[78] Instituto Nacional de Radio y Televisión, *Historia de una travesía*, 330.
[79] "Los Vallenatos Ya Tienen Canal Regional de TV," *El Colombiano*, January 20, 1985.

As part of the television infrastructure, then, the Colombian government developed a surveillance system to control the use of the electromagnetic spectrum, managed by the Frequencies Technical Control and Registry Office at the Ministry of Communication. The emergence of the electromagnetic spectrum as a national resource generated a new set of strategies for managing and controlling its use. From military frequencies to the civil use for telecommunications, the spectrum entered into the high-modernist ideologies shaping social life in these years. If the centralist government included regional television under a regulated version of decentralization, the emergence of clandestine television stations demonstrated that modernization, as in the case of TeleCaribe, also took place out of the boundaries of state planning. In this sense, as James Scott argues, "formal schemes of order are untenable without some elements of the practical knowledge that they tend to dismiss."[80]

In the horizon a new "non-anticipated technological agent", as defined by Antonio García, Juan Arturo Camargo and Juan Manuel González, disrupted the use of the electromagnetic spectrum. Domestic parabolic antennas and satellite television receivers started to be use for distributing content over VHF bands in Medellin, the capital of the Antioquia Region. Resolution 3425 from the Ministry on Communication asserted how on September 17, 1982 "the Department of Engineering from the Llanogrande monitor station in the city of Medellin, informed the chief of the aforementioned station about the retransmissions of satellite signals which are continuously happening on the 188 MHz frequency (Channel 9), by Mr. Mario Yepes Gomez, who has already been asked to suspend those emissions". After acknowledging such infringements, The

[80] Scott, *Seeing like a State: How Certain Schemes to Improve the Human Condition Have Failed*, 7.

Llanogrande monitor Station informed the Judicial Division of the ministry, who appealed to article 48 of the decree 3418 of 1954 in ordering the suspension of the television signal transmission which Mr. Yepes was retransmitting in Medellín.[81]

Mr. Yepes traveled several times to the Satellite Dish conferences organized in the United States. He became an active member of the amateur community and spoke of his building satellite dishes in Medellín to the readers of *Coop's Satellite Digest*, a satellite dish amateur magazine that circulated in the US from 1979-1987.[82] In its December 1982 Edition, the magazine reported the incident and mentioned that for Yepes "the government monopoly (on television) is a violation of Colombian 'free speech' constitutional provisions, and, a violation of the Universal International Declaration of Human Rights." For three weeks, said the article, "the residents of Medellín were treated to WGN-TV (a superstation based in Chicago) and other US programming."[83]

Following the Decree 1462 of 1977, the Ministry ordered Yepes' equipment to be confiscated and asked the Medellín mayor to send them to INRAVISION. That same day the government suspended the importation of equipment and services in the realm of communication with the capacity to redirect video signals not intended for the general public. Put differently, a technology that could transmit, emit or receive electromagnetic waves was seen as a threat to the government-regulated electromagnetic systems and thus prohibited. An article from *El Colombiano* argued that these measures not only targeted the system deployed by Mario Yepes in

[81] Bernando Ramirez R, *Memoria al Congreso* (Bogotá: Ministerio de Comunicaciones, 1983), 268.
[82] Access to Coop's Satellite Digest was possible thanks to the digital version of the magazine hosted by the Old CATV equipment museum. Curated by Lew Chandler, and old cable veteran and Neal McLain, a retire cable TV engineer, the museum is an online website that had uploaded several resources on this Community Antenna Television in the United States http://theoldcatvequipmentmuseum.org.
[83] Bob Cooper, "Hello Mario Yepes," *Cooper's Satellite Digest*, December 1982, 86.

Medellín but also focused on the new requirements from the government to a private business that wanted to develop systems of subscription television in Colombia.[84]

Regarding satellite technologies, the government of Belisario Betancur will reject the idea of a national satellite on the basis that it would be costly technical solution for TELECOM, and satellite television broadcasting was not of interest for INRAVISION, which preferred to use the point-to-point network that they have been managing since the 1960s. Shortly after that, a new decree was passed for reinforcing the role of the Programming Council, "giving more importance to surveilling" television programming's "quality, morality, respect to the country, language care, public order maintenance" and its emphasis on "education, culture and national integration."[85] Control over television distribution will focus on public television and the developmental idea of bringing access to culture and education through this medium. However, a new landscape in television distribution, pushed by the increasing access to foreign content through videocassetes recorders and satellite dishes, will drive a transition in understanding culture and its circulation. Since then, the co-existing private earth stations, cable, and satellite distribution infrastructures began to compete, and/or supersede one another.[86]

The emergence of informal satellite earth stations

In this chapter, I explored some of the milestones of the Colombian government's approach to satellite technologies to evidence some of its aspirations and expectations for connecting Colombia to the Space Era. These projects carry the legacies of television as a technology of

[84] "Ordena Decomiso Del Equipo Que Trasmite Por Canal 9 En Medellin," *El Colombiano*, October 7, 1982.
[85] Múnera Gutiérrez, *La radio y la televisión en Colombia*, 131.
[86] Parks, "Where the Cable Ends: Television in Fringe Areas," 112.

control, in which debates about the dissemination of culture stressed the creation of a *national* culture despite the increasing global circulation of satellite signals and desire to connect Colombians to the world via private television. Due to its particular geography, the initial infrastructure took the advantage of the mountain system to deploy a network, that however, also reproduced the centrality of the capital city.

Although other cities had trade networks in the Caribbean and the Pacific, the selection of televisual content privileged the authorities in Bogota; when the system entered into commercialization, local critics blamed the low quality of foreign content. Satellite television in this early stage represented different content, as the selected events connected Colombia directly to the networks of culture that privileged the taste of local elites. Live events served to indicate how Colombia participated at an international level, if not as actors at least as an audience.

From the introduction of color television to the adoption of a national satellite for television distribution, and idea of television as a public service defined several aspects of these technological decisions. If in the first instance, commercial television pushed the government to make decisions over the role of entertainment in television, in the second one, the ideals of educational and cultural values were not enough to carry out the project of a national satellite TV system. As such, initial attempts of privatization worked under this model in which the government observed satellite technologies mostly for modernization and development processes, as well as to connect Colombia to the great events of the satellite years. Similarly, it also confronted an increasing concern about the centralized notion of culture, and the control over the circulation of audiovisual images through the national electromagnetic spectrum.

In this process, regional television systems echoed experimentations that made the government aware of potential infringements. As the case of Telecaribe showed, it was a risky activity that nevertheless would become symbolic of the lack of national television to represent not only local identities but also to circulate the content of interest of people in the regions. The experiments in Colombia echoed an increasing development of satellite earth stations and private and smaller, personal satellite earth stations that came from the United States via Caribbean countries. In the trading routes of drugs, video cassette recorders, spare parts, the knowledge and the equipment to build satellite stations proved to create a more dramatic decentralization rooted in values of private property and content diversity that characterized US television in these years.

CHAPTER 2: SATELLITE DISHES IN THE CARIBBEAN

The first expansion of parabolic antennas followed the adoption of satellite technologies by several countries around the world. In their attempt to use satellite for telecommunications, the investment, as in the case of Colombia, indicated huge amounts of money for their deployment and maintenance. Later, commercial television included these satellite technologies to circulated television signals across territories. In the United States, that was a particular conjunction of space exploration and an increasing search for decentralized systems for communication. As this chapter shows, by the end of the 1970s, satellite dishes used by amateurs turned these reception devices into a technology that helped the expansion of television to multiple locations in the US and neighboring countries. Countries in the Caribbean and Central and South America, will encounter this technologies in different ways, mostly to push the adoption of subscription television models.

In January 1979, Jack Anderson, TV-radio editor for the *Miami Herald*, published an article entitled "Super-Antenna Pulls in Everything." Anderson told the story of an electronic firm selling in Haileah, Florida, a unique entertainment device to "that guy who has everything." Anderson referred to a satellite dish, an antenna with a 23,000-mile range, "which can pick up any television signal in existence, whether aired over the earth's surface or from one of the communication

satellites way up yonder in outer space." He estimated the cost of the antenna and the special receiver-turner as US$7000 with an additional US$1000 if the buyer "is not handy at installing it himself." [1]

A.B. Electronic and Communications, Inc. marketed these antennas, but rather than selling them to private consumers in the area, the company sold them to Central and South America. According to Robert Behar, the company's president, by then the company sold two to Guatemala, two to Nicaragua and one to Venezuela. In his words, the buyers were "people with money who just want to keep up with what is happening on television in this country." Satellite dishes bloomed in Miami suburbs despite several concerns about their aesthetics, as well as in Orlando, Jacksonville, and Tampa. For Behar, an estimated 5000 were in private use in the US. By 1984, another article from the *Miami Herald* explained America's engagement with its so-called favorite dish. Steve Stecklow reported that in a 4000-mile tour of the Southwest, he saw dishes in virtually every town, spotted on roofs of motels, beside wooded cabins, in mobile home parks, and on suburban lawns. Now the estimation was a quarter-million, and for Frank Abruzzo, the owner of Satellite Link, a company in Fort Lauderdale, 60 percent of his sales came from exports to the Caribbean.[2]

As the use of satellites for television broadcasting expanded across the world, the circulation and deployment of satellite earth stations emerged from the new borders created from outer space. Initial designs depicting the footprint of satellites in concordance with US national borders did not correspond with the reach and spillover allowed by satellite technologies. Although

[1] Jack Anderson, "Super-Antenna Pulls in Everything," *The Miami Herald*, January 19, 1979, 5D.
[2] Steve Stecklow, "America's Favorite Dish," *The Miami Herald*, July 7, 1984, sec. Living Today, 1C.

reception across borders needed distinctive designs, groups of entrepreneurs localized the satellite dishes to receive the signal and to distribute them far from the initially expected area.

In this chapter, I explore the entrepreneurial venture opened when on October 18, 1979, the Federal Communication Commission in the United States, made it possible for private citizens to have their satellite stations legally. As Steve Stecklow acknowledged, "the advantages of home dishes quickly caught the eye of electronics manufactures and video aficionados" who invested in building satellite dishes and reception devices.[3] As a group, they created an international community around the construction of satellite dishes and electronic devices. Moreover, when television channels designed scrambling systems to protect their waves, they also acted as almost libertarian video hackers who claimed the doctrine of the free flow of information induced by satellite technologies.

First, I follow the narratives about the history of satellite technologies found in Do-it-yourself manuals for building satellite earth stations. In these narratives, an emphasis on entrepreneurship also connected with ideas of freedom of speech and access to information in the United States. These manuals joined other amateur sources that instructed how to take-off the business of direct satellite broadcasting (DBS) television. The group of amateurs included engineer entrepreneurs, who could turn their knowledge into a business opportunity, mostly for remote areas or fringe zones of television. Although these entrepreneurs lived in different parts of the US, California, and Colorado, I focus on the development of satellite dishes in Florida and particularly in Miami. As a connection city with Central and South America, from Miami satellite dishes

[3] Stecklow, "America's Favorite Dish."

traveled through the Caribbean in a technological trade infrastructure. Therefore, I explore some of the impacts on culture of this circulation of satellite dishes in the Caribbean. The chapter closes with a description of the first attempt at controlling the expansion of this infrastructure. In particular, the convergence of technologies and legal measures over copyright issues make these cases a precedent in future attempts to control content distribution at a global scale.

An amateur history of satellites in television

"Welcome to the world of satellite television." With this phrase, Anthony T. Easton introduced his readers to his book *The Home Satellite TV Book or How to Put the World in Your Backyard*. Written in 1982, and published by Playboy Press, the book offered a set of clues on how to use satellite television signals for private entertainment or public display in places like hotels, taverns, restaurants, and hospitals. Easton explained not only how to put together a typical satellite TV system, but also the rules that governed satellite TV at the beginning of the 1980s. As such he targeted his book to "the home satellite television pioneer, yet it does not require a sophisticated background in electrical engineering" as well as future mini Community Antenna Television (CATV) operators, as part of a condominium association, an apartment building owner, or a trailer park operator." [4] In the end, for Easton, the dynamic new field of satellite television was so exciting that everyone would want to go into business as a satellite television dealer.

Although other authors, like Robert Traister, emphasized the technical aspect of putting together these systems,[5] Easton introduced the reader to the history of satellite technologies. His

[4] Anthony T Easton, *The Home Satellite TV Book: How to Put the World in Your Backyard* (New York: Putnam, 1983).
[5] Robert J Traister, *Build a Personal Earth Station for Worldwide Satellite TV Reception* (Blue Ridge Summit, PA: Tab Books, 1985).

historical explanation began with the work of Russian physicist K.E. Tsiolkowski, who proposed the use of high-energy liquid-fuel rockets but turned to clarify that it was Robert H. Goddard, an American Scientist, who "launched the first liquid-propellant rocket as a scientific experiment." The tensions of the Cold War Spatial race continued in his narration by referring to the first satellite the Sputnik I in 1957 by the Russian government, and the launch, months later of the Explorer I. In these disputes, Easton affirmed, that the process of private and governmental and private organizations "cultivating space" more than an element of national pride" became an economic necessity."[6]

These narratives of the history of satellite television in do-it-yourself manuals, introduced readers to the political jargon, scientific experiments, and military applications of satellite TV and asserted its role in a new era for global communication.[7] They also led readers down a selected historical path, a series of milestones that gave the reader a didactic way of understanding the particular technologies that made possible the broadcast of satellite television. In the case of Rick Cook and Frank Vaughan, who wrote "All about home satellite television" that moment when everything started was in the work of the British science fiction writer Arthur C. Clarke. Cook and Vaughan explained that by the 1940s, "the idea of interplanetary communication was common in science fiction."[8] In contrast to the network of inventors, industrial scientists, engineers, managers, financiers, and workers that composed a system, in this narrative Clark served as the individual inventor as well as the inspiration for the community of amateur enthusiasts of satellite television.[9]

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[6] Easton, *The Home Satellite TV Book*.
[7] Parks and Schwoch, *Down to Earth: Satellite Technologies, Industries, and Cultures*, 7.
[8] Rick Cook and Frank Vaughan, *All about Home Satellite Television.* (Blue Ridge Summit, Pa.: Tab Books, 1983).
[9] Thomas Parke Hughes, *Networks of Power: Electrification in Western Society, 1880-1930* (Baltimore; London:

The idea of DBS television revived the diplomatic concerns about cultural influence and propaganda of the airwave era. Several meetings hosted by the United Nations Educational, Scientific and Cultural Organization (UNESCO) discussed the different approaches in the use of satellites for educational and cultural purposes, that informed projects like SATCOL in Colombia. While the United States government, promoted satellites as a "technology for freedom"[10] expressed in their free flow of information policy, the Soviet Union considered the protection of borders from the undesired incoming signal. However, the concept of DBS Television evolved, and for people like Cook and Vaughan, it referred to a future system, one not aimed only at a distributor but mostly designed for private use at home. As they explain, "Theoretically, you could start broadcasting television programming directly from the satellite to the home tomorrow. It is probably going to be the end of the decade before DBS becomes widespread. There are powerful national and international forces that are working hard to see that it never does."[11]

As such, more than the educational and cultural potential considered by governments and international institutions, the promoters of satellite television saw DBS television as the future of home entertainment. Andrew Inglis, President of RCA American Communications, Inc., shared all this enthusiasm. In the American Exchange lecture delivered to the Royal Society for the Encouragement of Arts, Manufactures and Commerce in London in 1982, Inglis wanted to give the audience a glimpse "of the tremendous revolution in television that has been brought about by

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John Hopkins University Press, 1993), 48. Anthony C. Clark was a british science fiction author, recognized for formulating the idea of extraterrestrial relays to connect the globe. Arthur C. Clarke, *Extra-Terrestrial Relays* (London: Wireless World, 1945).References to his work are mentioned in amateur magazines as well as official documents from Intelsat.

[10] Ithiel de Sola Pool, *Technologies of Freedom /* (Cambridge, Mass. : Belknap Press, 1983).

[11] Cook and Vaughan, *All about Home Satellite Television.*, 159.

satellite." His presentation included not only photos of the lift-off of RCA Americom's Satcom IV on January 1982, but also a description of the characteristic of the US broadcasting system. On one side, Inglis said, the US had financial and artistic resources available for a diversity of programs. The incentive is the diversity of US territory, "a large geographical area is united by a common language; but at the same time, it is a country comprised of tremendously varied ethnic, cultural and interest groups, each constituting a market."[12]

Broadcast and cable television companies used point-to-point service to bring into their systems events from an outside area. Such was the case of Home Box Office (HBO), which on December 13, 1975, became the first network to broadcast via satellite, the "Thrilla in Manila" fight between Muhammad Ali and Joe Frazier.[13] However, as Inglis affirmed, satellite would found their most extensive application in the television industry with point-to-multipoint services. As an example, rather than using satellites for distributing one football game in Los Angeles to an affiliate in Atlanta, Ingris showed a figure of a signal being uplinked from Los Angeles for reception instantaneously everywhere in the United States, meaning that the event "could be received by earth stations located anywhere within spacecraft's footprint."[14]

For this reason, the Federal Communications Commission (FCC) determined the viability of these systems in the United States. For advocates of home satellite television, government

[12] Andrew F. Inglis, "III. Satellite Distribution - the Next Revolution in Television," *Journal of the Royal Society of Arts* 130, no. 5316 (1982): 808.
[13] Marc Leverette, Brian L Ott, and Cara Louise Buckley, *It's Not TV: Watching HBO in the Post-Television Era* (New York: Routledge, 2008), 3.
[14] Inglis, "III. Satellite Distribution - the Next Revolution in Television."

regulation presented a problem. Cook and Vaughan, considered the commission as a historical obstacle in "approving new communication technologies."[15] In their historical narration, they recalled cases from the development television in the 1930s to videotext systems in the 1970s and 1980s. In a particular example, they mentioned how Western Union applied for the first domestic communications satellite, but "it was not until 1972 that the FCC finally reached a decision."[16] Nonetheless, in October 1979, the Federal Communication Commission (FCC) voted to lift the regulatory requirements over antenna dishes for receiving signals, launching a new entrepreneurship opportunity for business, like those described by Easton. As a *New York Times* article explained in October 1979, "At least four manufacturers and dealers are now selling satellite television antennas directly to the consumer, with many more expected to join their ranks."[17]

In an extended article, the *Miami Herald* explained the rules adopted by the FCC. Considering DBS television a new, "potentially far-reaching venture in American television" the *Herald* exposed how the commission voted for the experimental service that would have "the capacity of vastly increasing television service, particularly in rural areas too remote to receive conventional signals or to be wired for cable." The FCC chairman Mark Fowler, who according to the *Herald* "has devoted much of his efforts to deregulation of the broadcast industry," argued that it was up to the public to decide through its viewing habits what it prefers to watch."[18]

Enthusiasts such as Easton and Cook and Vaughan, as well as other entrepreneurs in amateur satellite television, embraced the values of free enterprise. They even considered how

[15] Cook and Vaughan, *All about Home Satellite Television.*
[16] Cook and Vaughan.
[17] Steve Ditlea, "For the TV Viewer Who Wants It All," *The New York Times*, October 28, 1979, sec. Archives, https://www.nytimes.com/1979/10/28/archives/for-the-tv-viewer-who-wants-it-all-satellite-antennas.html.
[18] "FCC Adopts Rules for Direct-Broadcast Satellite," *The Miami Herald*, June 24, 1982.

these technologies could reach other parts of the world, serving as ideological conduits to freedom. Cook and Vaughan, referred to political problems with DBS in the third world, by declaring how uncomfortable it would be for a dictator to "have his people exposed to a channel of information that he cannot control." Referring to the debates around cultural imperialism hosted by international organizations like UNESCO, they considered the initiative of a New World Information and Communication Order (NWICO) as "essentially an attempt to censor the flow of information into and out of every country of the globe at those nations' whims." [19]

However, in this open field for competition, they also expressed the anxieties of giving access to DBS television to European and Third World countries. Concern was expressed not only about the Soviet Union satellites that emitted content to Cuba, but also about the possible uses of satellites by central American and Caribbean nations. For them, "these channels would be beamed at the United States and would carry the most terrible selection of programming imaginable. A selection of X-rated movies could be played right off the cassettes, interspersed with ads for cancer cures, strange ways to make a million dollars, Central America lottery tickets, and medicines to increase sexual potency."[20] Thus, the emergence of DBS television was embedded with discourses of protecting "American Culture," even as it contradicted the claims to the free flow of information satellite entrepreneurs regularly employed.

Engineer Entrepreneurs

Compared with the more recent issues of the magazine *Entrepreneur*, where profile pictures of white-male business people are displayed, the cover of the December 1979 issue shows

[19] Cook and Vaughan, *All about Home Satellite Television.*
[20] Cook and Vaughan.

a satellite in outer space surrounded with the title "Your Pay TV network." This edition of the magazine disclosed the potential business opportunities of Oriental rugs, one of the hottest decorator collector items of the decade, as well as the tactics to become an entertainment czar for less "than you would spend to open a hardware store!" However, the call to construct a TV network referred to all the information needed to build a satellite dish antenna, an "entrepreneur exclusive with incredible potential for profit." Predicting one of the most common uses in Colombia, the article also taught how everyone could even run a subscriber TV station for their neighborhood.[21]

This business opportunity came from a technical examination in the use of homemade antennas to receive the satellite signal, which in less than three years launched a whole industry of equipment for starting a business in DBS television. In the beginning, satellite dishes ranged in size from 5 inches to 22 meters, and for their particular physical appearance, people in the United States started to call them BUDs, an abbreviation for "Big Ugly Dishes." They also had other names like "Satellite Earth Stations" and TVRO for "Television Receive Only."

As described by Stephen Keating in his book about the clash of the satellite and cable television businesses, "one day in 1976, a Stanford University professor named Taylor Howard heard a curious thing from a graduate student analyzing weather data from an Intelsat satellite." As an electrical engineering professor, but also as an "amateur radio buff," Howard realized those signals had the characteristics of the video signals. According to Keating, Howard did not even know about the existence of HBO on cable TV. So, the story goes that Howard took a 15-foot aluminum dish, "once owned by a telephone company for receiving long-distance calls by

[21] "'I Love Lucy' from Outer Space," *Entrepreneur*, December 1979.

microwave," and used to capture the video signal. With experimentations and manual calculations, Howard captured the signal listing satellite coordinates, which "cable companies would then capture, send down their lines, and sell to subscribers." [22]

Experimentation happened in other locations. In the United Kingdom, Steve Birkill, a former employee of BBC, built his receiver in the UK, while in South Carolina Robert Coleman used a TD Bell Microwave gear. In Oklahoma, Robert Cooper, Jr. worked with Steve Richer, who had a private terminal receiver operating who already started building dishes for buyers in Canada. All these names would be remembered later in 1984, on the fifth anniversary of the launch of the satellite industry, why giving most of them the title of pioneers.[23] However, it was Cooper, who would become the most distinguished promotor of Satellite Earth Stations not only in the US but also in the Caribbean and the Pacific. As a journalist, Cooper published and distributed the *Coop's Satellite Digest* (CSD), a magazine especially "written for the home satellite TV enthusiast." [24]

Cooper led the discussions about the technologies, legalities, and possibilities of DBS television around the world. CSD played a prominent role in organizing a community of amateurs, as well as it encouraged the circulation of equipment design information. People in the United States and Canada joined the community by sharing information on experiment taking place in rural areas. David L. Lantz, another satellite dish owner in Renton, Washington, recalled how he followed the technical articles that had appeared in *CSD* since 1981 when he moved from an engineer in the aerospace industry to an entrepreneur in the TVRO industry. However, the letters

[22] Stephen Keating, *Cutthroat: High Stakes & Killer Moves on the Electronic Frontier* (Boulder, Colo: Johnson Books, 1999), 50.
[23] Robert Cooper, "Who Did It First/'First'?," *Coop's Satellite Digest*, October 1984.
[24] Easton, *The Home Satellite TV Book*, 307.

published in the magazine included a broader international network of people in the Caribbean, Africa, and Asia who became interested in accessing satellite signals. People in the US military service asked for the possibility of obtaining US TV channels, in different parts of the world, decrying the lack of access to American culture.

Cooper published its Satellite digest for more than ten years. He originally planned to develop a project for entrepreneurs, those who want to build the world of satellite Earth station. The participants in this community came from different backgrounds, but most of them worked as distributors of electronic parts. In the new movement, one of the strategies involved the switch from electronic distributors to people "with the entrepreneurial spirit." As David M. Fedric, president of one of the satellite technologies companies said in 1982,

> One of our early distributors, in southern Louisiana, is an RCA distributor. They are doing over 50 million per year in RCA products. Then in our next marketing district, 100 miles down the road but out in the rural area of Louisiana, we set up a fellow and his wife who had good business sense and a tremendous will to succeed. After a couple of months of setting in, the RCA distributor was barely moving ten terminal packages per month. The little guy? He was selling 30 every month. We like the individual entrepreneur; he is the right guy for this business, at this time in our industry growth.[25]

While building satellite dishes demanded a particular set of skills, more related to mechanics and forging, satellite enthusiasts in the United States wanted to recruit what they called "entrepreneurial engineers" to the industry. For Fedric, "The point of this is that this equipment

[25] "Dave Fedric. Industry Profile," *Coop's Satellite Digest*, April 1982, 36.

could be made, and it could be sold. And, it is not being made, so it is not being sold." He also sustained that for the industry to continue to grow, they needed to get into new markets. As hardware producers, they had to improve their products, but more importantly, to make it marketable. For him, the industry will open new markets "by making equipment which will make sales possible for people who would not have bought before: to increase the number of people who are watching television." [26]

Some of the people who would soon be watching satellite TV were those in rural areas of the US, many of who were eager to get access to television as they had been previously neglected by other systems. Discussing the relation between television and isolation, Cook and Vaughan realized that "being cut from television in our society means being isolated to some degree. That helps explain why earth stations are so popular in areas where television reception is poor or nonexistent."[27] Previous experiences in delivering television to fringe zones, linked satellite earth stations with other technological interventions of entrepreneurs and amateurs that expanded television in the United States. That is the case of community antenna television (CATV), which originated in the late 1940s and early 1950s "in the hands of individual, independent entrepreneurs without ties to established media corporations and with little scrutiny or regulation of their efforts."[28] CATV advocates, like Cooper, discussed the legal framings about television access in the satellite era from their experience in this movement.

Cooper's transition from CATV to Satellite Earth Stations also describes a change in the

[26] "Dave Fedric. Industry Profile," 36.
[27] Cook and Vaughan, *All about Home Satellite Television.*
[28] Cynthia Chris, Sarah Banet-Weiser, and Anthony Freitas, *Cable Visions: Television beyond Broadcasting* (New York, N.Y.: New York University Press, 2007), 5.

places for the experiments he wanted to conduct and the expansion of Satellite Dishes outside the United States. The cover of Cooper's *Satellite Digest* edition of November 1980 shows Cooper installing an 11-foot antenna for receiving live Satellite TV in the Island of Providenciales in the Caribbean Island of Turks and Caicos. Invited by a friend, Cooper constructed a local television station for the Islands of Turks and Caicos. He considered himself as a pioneer in connecting a former English colony to the stream of media coming from the closest country, The US. "In about a year some," said Cooper, "3,000 English speaking people who grew up under British colonial rule will be watching their first television and listening to their English-speaking local radio."[29] As in the case of rural United States, the Caribbean captured a particular imagination of becoming a founding father of television not in a particular city or town, but more as a national level.

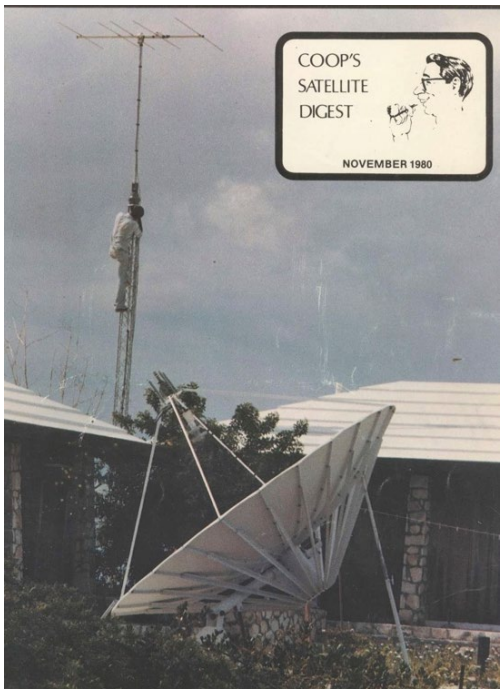

Figure 2.1. *Cover of Coop's Satellite Digest*. November 1980.

[29] "Bringing TV to a New Country [Part I]," *Coop's Satellite Digest*, November 1980, 6.

The trade of technology in Miami

Stecklow's article on satellite dishes for the *Miami Herald* not only recognized the emergent market for these technologies in the Caribbean but also highlighted the trend in middle-income south Florida buyers, particularly sports fans and people, he says, "who are unable to get or are unhappy with their cable service." [30] Stecklow pointed to increasing urban adoption, that made some of the news about the controversial blooming of satellite dishes in the Miami area. Although one part of the controversy referred to signal content, others referred to the presence of satellite dishes in daily life. As an article in the "Neighbors" section of the *Miami Herald* on March 14, 1985, explained, while "officials in many cities say they are unsightly," neighbors of houses with an antenna "worry - un-necessarily, experts say - that the dishes give off radiation and attract lighting."[31]

A military outpost before the twentieth century turned into a tourist resort for wealthy families, Miami emerged as an alternative city for trading and banking in the 1970s. With a massive flow of Cuban exiles after the revolution in 1959, the city oriented itself to an emergent network with the Caribbean and Latin America. Cubans were the first to start the trend toward exports in the Caribbean region, as networks of friends and relatives who had established themselves in Costa Rica, Venezuela, Puerto Rico, and other Caribbean Basin Countries provided the initial linkage to their trade within the region. Advanced facilities in communications, port, airport and business services supported trading, as well as the institutional formation of a free trade zone by the early

[30] Stecklow, "America's Favorite Dish."
[31] "Dishing up a Smorgasbord," *The Miami Herald*, March 14, 1985, sec. Neighbors, 10.

1980s.[32] A portion of this trade, focused in the circulation of electronic and car parts, fashion, merchandise, and other goods. While, the Latin ambience of the city attracted the upper-middle classes of the region to purchase luxury goods, it also constituted petty economies in which informal trading in different parts of the Caribbean and Central and South America.[33]

Figure 2.2. *Ads in Miami's Yellow Pages*. From BellSouth Miami Greater Area Yellow Pages, 1985, p. 2225.

Communication scholars in these years recognized Miami and Panama as two of the locations for the increasing distribution of video recorder movies in the region. As Douglas Boyd, Joseph Straubhaar, and John Lent discussed in 1989; there were "major smuggling networks for

[32] Ramon Grosfoguel, "Global Logics in the Caribbean City System: The Case of Miami," in *World Cities in a World-System*, ed. Paul L Knox and Peter J. Taylor (Cambridge: Cambridge University Press, 2003), 165.
[33] Gina A Ulysse, *Downtown Ladies: Informal Commercial Importers, a Haitian Anthropologist and Self-Making in Jamaica* (Chicago: University of Chicago Press, 2007).

both VCR and videocassettes through Panama, Miami, New York, Colombia, and Paraguay." These networks reached Central America, Colombia and Venezuela, and Miami, and even went further to Argentina and Brazil through Paraguay.[34] Armand Mattelart and Hector Schmucler highlighted the presence of smuggling in the formation of Latin American economies and cultures, and describe how the free zone of Colon in Panama "serve literally as a shop window for the distribution of video cassettes."[35] These contraband networks recorded television programs in Miami, both the network channels (advertising included) and cable station and sold them at low prices "in countries like Colombia, where this type of commerce is particularly flourishing." These networks of smuggling, that as Mattelart and Schmucler clarify are in the same routes of "exception" in which marijuana and cocaine traveled, also served for the circulation of communication devices, which like many other electronics devices had imports restrictions in several countries of Latin American and the Caribbean particularly in these decades. [36]

On top of these transactions, Miami served as the place for the second Satellite Private Terminal Seminar (SPTS) in 1980. The seminar included 25 sessions, in which satellite-innovator would teach the latest in low-cost satellite TV technology. An ad published in Coop's *Satellite Digest* offered "SPECIAL SESSIONS AIMED AT MARKETING the satellite TV service to rural residents of North, Central and South, (with) as special session devoted to the reception techniques required in the far eastern Caribbean, and Central America; a separate session (in Spanish!) to teach reception techniques and requirements in northern South America". Robert "Bob" Behar,

[34] Boyd, Straubhaar, and Lent, *Videocassette Recorders in the Third World*, 186.
[35] Mattelart and Schmucler, *Communication and information technologies*, 34.
[36] Mattelart and Schmucler, 34.

offered his service to "assist attendees from the Caribbean and Central and South American with their communication needs."[37]

Born in Havana, Cuba, Behar's family move to Miami in 1960 when he was 11 years old. Behar dropped out college in 1970 as he joined Miami's WCKT-TV as a master control operator.[38] In 1974 "he and a coworker started their own business, AB Electronics & Communications in CB (Citizen Band) radio sales and installation" located in a garage in Hialeah, FL and 1979 changed the company into Hero Communications in 1979. In 1980, Behar captured media attention when he deployed a satellite system in the backyard of a Miami businessman to watch a boxing match between Sugar Ray Leonard and Roberto "Mano de Piedra" Duran which took place in Montreal, Canada.[39] Since then, Behar became heavily involved with the Society for Private and Commercial Earth Stations (SPACE).

For all this, Cooper considered Bob Behar, a pioneer in developing the business of satellite dishes for more consumers. "By being located in Florida and by having a good, working knowledge of the Caribbean and South American Market, Behar became the leading agitator for the development of super-sensitive systems for offshore installations."[40] As Cooper later recognized, the SPTS event in Miami was crucial for him to understand what to expect on the location of satellite dishes in the South. "SPTS Miami attendees from the Bahamas and the Dominican Republic had pretty well zeroed in on what we should expect." For these reasons, the

[37] "SPTS'80 Report Fantastic New Technology!!!," *Coop's Satellite Digest*, March 1980.
[38] Jaime E Noce and Sheila Dow, "Behar, Robert," in *Business Leader Profiles for Students* (Detroit, MI: Gale, 2002), 35–38.
[39] Fred Grimm, "Big Dish Makes Fight a Technical Knockout," *The Miami Herald*, June 22, 1980, 1B.
[40] Robert Cooper, "International Dimension," *Coop's Satellite Digest*, July 1982, 26.

audience turned to be a new one, as for Cooper "there are fewer technical people in attendance "as a proportion of the whole although their numbers may actually be larger since we are dealing with twice as many people) and certainly many more would-be-entrepreneur who sense in the satellite evolution one or dozen different business opportunities."[41]

In the SPTS'80 Miami, Behar's session concentrated on "Latin American Satellite Opportunities," covering topics like the signals available from the COMSTAR satellite and its footprint over the Caribbean, Central America and Northern South America, and the required equipment. Nevertheless, Behar encouraged experimentations that took the opportunity of satellite systems deployed by Latin American countries, like the Morelos Satellite that distributed the Mexican Channel Galavision.[42] This proximity captured the attention of many experiments with satellite dishes in Miami, like the reception of Brazilian Channel Rede Globo, distributed by INTELSAT, which contained "several sporting events (including a soccer game), news, a feature film, and various short features were watched and enjoyed by a crowd of approximately 100 people."[43]

[41] "Surveying What's Needed. Coop's Comment on Technology," *Coop's Satellite Digest*, February 1980, 2.
[42] "Galavision Viene a Hialeah," *Diario de Las Americas*, October 21, 1979, 23A.
[43] "SPTS'80 Report Real World Marketing Begins," *Coop's Satellite Digest*, March 1980.

Figure 2.3. *Screen capture of Brazil's Rede Globo*. From Coop's Satellite Digest, March,1980.

The experimentations carried the values of free access to television that most of the attendees to these conferences shared and that resounded with the values of entrepreneurs in Central and South America and the Caribbean. In particular, the few audiences of the summer Olympics in Moscow accessed the event despite the cancellation of NBC as a response to the U.S. boycott of the games.[44] Robert Behar discussed his strategy to watch the Summer Olympics from Moscow. In his words, "There is a lot of stuff like the Olympics that I like to watch, but I would not be able to see." Arguing that airwaves are for free, he added: "if anything is up there it is for me to watch." Officials from the FCC reacted and affirmed that despite airwaves are free "some signals are not meant for public viewing," to what Behar replied, "You could take me to court, but

[44] Stephen R. Wenn, "A Turning Point for IOC Television Policy: U.S. Television Rights Negotiations and the 1980 Lake Placid and Moscow Olympic Festivals," *Journal of Sport History* 25, no. 1 (1998): 87–118.

you would have to take a lot of people along with me."[45]

Satellite dishes in the Caribbean

The Caribbean became a new frontier for the expansion of satellite dishes. Under these ideas of spreading television entrepreneurs like Behar extended their businesses to the Caribbean Island, Central and South American countries. The business opportunities came from many locations, not only English but also Spanish and French-speaking countries. Cooper dedicated several articles to narrate his experiences in the West Indies, which included a visit to Haiti, to set up a system for the presidency, under the rule of Jean Claude Duvalier. He described his experience bringing satellite TV to Haiti with almost missionary zeal: "providing television to a new area carries with it a responsibility that can only describe as awesome. I sincerely hope that others who are working with the satellite system are aware that it is they are doing when they install systems for people who have previously been without television service. It is a powerful, powerful medium and tool. And, it deserves to be treated with great reverence."[46]

Peter Kerr, writing for the *New York Times* reported in October 1983 that "some businessmen, who were outside the United States but still within the area reached by United States satellite signals, began to use this new source of television programming that, it seemed to them, was as free as the air."[47] In Jamaica, explained Kerr, for example, "the Government-owned broadcast company last summer showed *Poltergeist, Missing, Victor/Victoria, Rocky III* and other films not yet released in Jamaican movie theaters." The article served as a source for scholars and

[45] Amy Linn, "Antenna Puts Him on Wave Length with the Olympics," *The Miami Herald*, July 22, 1980.
[46] "Bringing TV to the West Indies [Part III]," *Coop's Satellite Digest*, January 1981, 9.
[47] Peter Kerr, "Foreign 'Piracy' of TV Signals Stirs Concern: Foreign 'Piracy' of U.S. TV Signals Stirs Concern," *New York Times*, October 13, 1983.

lawyers who approached satellite television from the frameworks of cultural imperialism, or under the implications of satellite spillover in copyright legislation. It also showed a graphic depiction that illustrated the spillover of the broadcast target area to cover all Central America and the Caribbean Islands, as well as the northern coast of Colombia and Venezuela.[48]

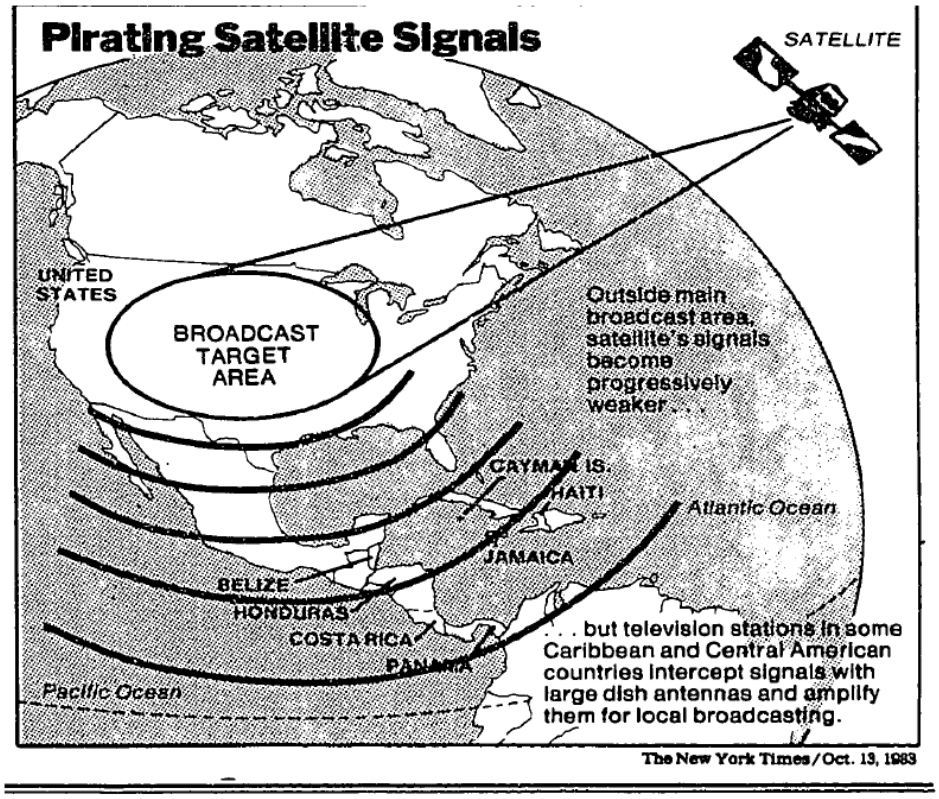

Figure 2.4. *Pirating Satellite Signals*. New York Times, October 13, 1983.

In many countries in the area, the deployment of amateur satellite earth stations constituted the first attempt to build national television systems. As in the case of Providenciales in Turks and Caicos, entrepreneurs established local networks to distribute recorded content or satellite signals. The first move toward US television distribution in some Caribbean countries came with the

[48] Kerr, A1.

introduction of VCR recorders and the circulation of tapes by mail from Miami, which proved to be a lucrative business. However, in comparison to satellite dishes, video cassette circulation relied upon contacts in the market, which had to deal with custom officers and trading authorities. As satellite dishes popularized, some people in the Caribbean, Central America, and Asia took satellite feeds for redistribution or rebroadcast in addition to taping material to sell or rent to the home video market.[49] In cases where the National Television system existed, the distribution of satellite signals helped to launch subscription television services. The article showed the case of local owners of cable stations, like Fernando Batalla, the general manager of Cable Color Television, a cable television system which at the time, had more than 4,000 subscribers in San Jose, the capital of Costa Rica.

Figure 2.5. *Dominican Republic Cable Television advertisement*. From Coop's Satellite Digest, May 1983, p. 96.

[49] Douglas A. Boyd, "Third World Pirating of U.S. Films and Television Programs from Satellites," *Journal of Broadcasting & Electronic Media* 32, no. 2 (March 1, 1988): 13, https://doi.org/10.1080/08838158809386691.

For local businesses the practice of downloading satellite signals from US channels did not represented an infringement but an opportunity for ideological reasons. In Haiti, Walter Bussenius, the director of Tele Haiti, argue about the traditional isolation of people on the island, and he said, "Now when (Ronald) Reagan speaks on television our people see him instantly. It is our window on the world."[50] People like Batalla and Bussenius argued that they were giving the residents of their countries an only chance to share in the abundance of information and entertainment that until recently was available only to more wealthy nations. Similarly, in Belize, two local entrepreneurs, Emory King and Nestor Vasquez, manifested satellite as beneficial Cold War propaganda.

In Belize, right after its independence from Great Britain in 1981, King and Vasquez created a company Tropical Vision, in which they broadcasted taped television shows transmitted via satellite. In an interview for the academic researcher John Lent, King said that "Vasquez, and I decided that with an earth station, we could have television twenty-four hours a day and we could make money. We researched companies and bought a Harris Earth Station. In October 1980, I went to Texas, bought a station, and we set it up".[51] For Vasquez, "showing the US way of life fights communism" while for King "the US is getting its point of view across to the Third World with Reagan and John Wayne on the television sets." [52] As a lawyer, citing Kerr's article puts it, Belizean "broadcasts include programs from the American cable networks, to the point that "many residents of Belize reportedly have become enthusiastic Chicago Cubs fans because of United

[50] Kerr, "Foreign 'Piracy' of TV Signals Stirs Concern," October 13, 1983, A1.
[51] Lent, *Mass Communications in the Caribbean*.
[52] Lent, 64.

Video's satellite feed of superstation WGN in Chicago." [53]

In the expansion of satellite dishes, the case of Belize captured the attention of communication scholars in the Caribbean. A former British Colony, Belize gained its independence in 1981. Without a previous television infrastructure, satellite television exposed Belizeans to programs from stations in two different cultures, the United States and Mexico. For Richard Wilk, an anthropologist who by then was doing fieldwork on a Mayan community, the television invasion was followed by another of foreign scholars and journalist attracted by the drama of TV's sudden arrival. The bulk of their work, according to Wilk, followed a diffusionist paradigm, portraying Belize as a victim of cultural imperialism or the neocolonial world information order, and not recognizing how local afro-descendent populations also found patterns of identity with populations in the United States.[54]

Scholars in the field of communication did acknowledge both the implications of satellite systems in accessing foreign culture and referred to these technologies as a beam for cultural imperialism. Although promoters of satellite technologies emphasized the possibilities of outer space communication, the lack of clear boundaries of satellite signal, brought back memories of propaganda intervention with the use of radio waves. As Jamaican scholar, Aggrey Brown affirmed, "today, the geographic proximity of the region to North America; the strategic political concerns of the United States in the region, especially following the Grenada invasion, and the

[53] David E. Leibowitz, "Bringing Protection for Satellite-Delivered Programming Down to Earth," *Communications Lawyer* 2 (1984): 1–10.
[54] Richard R. Wilk, "Television, Time, and the National Imaginary in Belize," in *Media Worlds: Anthropology on New Terrain*, ed. Faye D. Ginsburg, Lila Abu-Lughod, and Brian Larkin (University of California Press, 2002), 171–86.

irresistible attraction of Caribbean citizens to the new video consumer technologies, have all converged to make the region more vulnerable to external flows of news and entertainment programming."[55]

Brown's reference to the United States invasion of Grenada in October 1983, brought the memories of imperialism not only expressed as a cultural or media influence but the use of military forces in Central America and South America since the 19th century.[56] The discussions about the new information and communication order also carried debates about technological sovereignty in an era that characterized telecommunications as the infrastructure for modernization. As such, an interest in the video technologies acknowledge the role of devices in shaping a new economy; one explicitly related to access media differently. As expressed by Brown, "there is a new information and communication order in the Caribbean, but it is not a new order that has been wooed into existence as a result of the implementation of coherent and comprehensive national or regional communication policies linked to overall social, cultural and economic development objectives." Instead, it was market-led democratization, in which those "with purchasing power are free to choose and those without are left to fend for themselves."[57]

As in the case of video recorders, aimed at high-income populations who could afford them, satellite dishes initially reached local elites. As explained by Joseph Straubhaar and Gloria Viscasillas, in Dominican Republic, systems operated mainly outside of government regulation, using primarily satellite signals intended for American cable TV, with the characteristic that

[55] Aggrey Brown, "Effects of the New World Information Order on Caribbean Media," in *Mass Media and the Caribbean*, ed. Stuart H. Surlin and Walter C. Soderlund (Taylor & Francis, 1990), 257.
[56] Miriyam Aouragh and Paula Chakravartty, "Infrastructures of Empire: Towards a Critical Geopolitics of Media and Information Studies," *Media, Culture & Society* 38, no. 4 (2016): 559–75.
[57] Brown, "Effects of the New World Information Order on Caribbean Media."

segmentation is based on social class that respond to different types of programming. As they stated, “it separates the elite and the upper middle class further from the rest of the population, the general television audience, as it permits that elite to become more internationalized." Regarding the question of why people want cable TV, they conclude “One might expect that access to more news and entertainment would be the main motives, but it seems that instead, people say they see cable as a way to educate themselves and their children, particularly to learn English.”[58]

Protecting United States Culture

An announcement from the Copyright Office of the United States detailed that on October 12, 1984, the Senate ratified the Brussels Satellite Convention.[59] Signed ten years before, the Convention Relating to Distribution of program-carrying Signals Transmitted by Satellite, established the necessary regulations for protecting artists and broadcasting companies from satellite poaching.[60] Although the unauthorized interception and distribution of American programming occurred throughout the Western Hemisphere, the Copyright Office announcement emphasized how it was satellite poaching mostly took place in countries covered by the natural “footprint,” like Canada, Latin America, the Caribbean, and Mexico. The main goal for ratification, according to the office, was to confirm that “foreign program-orienting organizations

[58] Joseph D Straubhaar and Gloria Viscasillas, “Effects of Cable TV in Dominican Republic,” in *Mass Media and the Caribbean*, ed. Stuart H. Surlin and Walter C. Soderlund (Taylor & Francis, 1990), 280.
[59] Douglas A. Boyd, “Third World Pirating of U.S. Films and Television Programs from Satellites,” *Journal of Broadcasting & Electronic Media Journal of Broadcasting & Electronic Media* 32, no. 2 (1988): 155. In this agreement “each Contracting State to take adequate measures to prevent the unauthorized distribution on or from its territory of any program-carrying signal transmitted by satellite”. Colombia only signed this convention until 2013, as part of the Free Trade Agreement deal with the United States.
[60] *International Copyright/Communication Policies: Hearing before the Subcommittee on Patents, Copyrights, and Trademarks of the Committee on the Judiciary, United States Senate, Ninety-Eighth Congress, First Session, on S. 736 ... November 15, 1983.* (Washington, 1984), http://hdl.handle.net/2027/pur1.32754075436117.

are protected against unauthorized distribution in the United States", a model to other nations "which look to the United States for guidance in resolving questions raised by new technologies."[61]

While the US government participated in the protection of intellectual property for content distributed in satellite signals, most of their interest in the context of the Cold War centered on the doctrine of the free flow of information, which emphasized the spirit of freedom of speech and the free and unrestricted access to information as democratic values to promote, which also served as a justification for the expansion of US media and culture abroad. Satellite signals extended the doctrine further, literally reaching new geographies. They also intersected with concerns about international intellectual property law; whereas the US government-controlled copyright infringements in its national territories, internationally, the legal aspects of satellite usage were more complicated. Business interest influenced a switch into telecommunication as the US government demanded "greater freedom for US-based media and telecommunication corporations to explore Southern markets and help build privately owned communication infrastructure as opposed to government telecommunication monopolies." [62]This meant both asserting the "free flow" freedom of US media and telecommunications corporations to do business in countries while also defending US media and telecommunications corporations' monopoly power over their media content, which earth stations might try to freely intercept without paying for rights. As Michael Curtin says, it was during the Reagan era, when an intensive lobbying on intellectual property issues rose to become "one of the leading foreign policy concerns of the American government," to the point that in most US Embassies around the globe "one can find at least one foreign service

[61] *International Copyright/Communication Policies*.
[62] Thussu, *International Communication : Continuity and Change*, 49.

officer specializing in intellectual property.[63]

As several authors have explored, that role was especially fulfilled by the Motion Picture Association under the leadership of Jack Valenti. Valenti became the president of the MPAA in 1966. Since then, he promoted a strategic agenda for protecting US movies overseas at the point of considering himself "a kind of bush-league Henry Kissinger."[64] For Carl Bromley, writing for The Nation in 2000, "During Valenti's reign, Hollywood has established a worldwide hegemony; his office describes itself as "a little State Department." As part of this agenda, the MPAA/MPA organized an international anti-piracy program in the USA in 1976.[65] The Motion Picture Association of (MPAA) pushed the copyright agenda on satellite signals, as cable networks like Home Box Office (HBO), Showtime, On-TV, and The Movie Channel distributed Hollywood movies to US homes. The signal theft from satellite transmission introduced a new perspective in describing cultural and technological exchanges, in which terms like "interception" and "scrambling," entered the lexicon and were promoted by corporate defenders of televisual property.

On November 15, 1983, the Subcommittee on Patents, Copyrights and Trademarks hosted a session to introduce a bill on the "royalty obligations of foreign cable television companies that pick up copyrighted US broadcast signals." The hearing also addressed the "interception" of copyrighted U.S. Satellite signals. In this specific topic, Republican senator Charles McMathias, Jr., highlighted how thanks to the broad geographical reach of "these unscrambled signals, cable

[63] Michael Curtin, "Media Capitals: Cultural Geographies of Global TV," in *Television After TV: Essays on a Medium in Transition*, ed. Lynn Spigel and Jan Olsson (Duke University Press, 2004), 282.
[64] "Pictures: Valenti Sees Foreign Try To Strangle U.S. Pix Biz," *Variety*, October 1, 1975.
[65] Janet Wasko, *How Hollywood Works* (London: SAGE, 2003), 214.

operation through the Caribbean and Central America are able to set up a dish and get programming for nothing that Americans had to pay for.[66] The threat of satellite and broadcast redistribution and the measure in the Bill consider what happened in the hemisphere as "urgent and important." While the bill looked a solution to the problem With Canada, David Ladd, the register of copyrights at the Library of the Congress, urged the government to look beyond Canada. "To the south, we must look beyond the Caribbean and Central America."[67] Both Ladd and Walter J. Josiah, Jr, Vice-president of the Motion Picture Association of America, showed specific case on the poaching of satellite signals in Caribbean countries.

Cable Companies introduced the method of scrambling as a support for the expansion of satellite dishes in the US and neighboring countries. Scrambling explained Crane and Cryan, "is a method of distorting the horizontal lines which make up video picture so as to make viewing impossible, thereby protecting the transmission." [68] As Ramsey Campbell for *The Orlando Sentinel* wrote: "The digitally scrambled picture resembles a television set whose vertical and horizontal holds have gone out of whack." Campbell explained how from January 1986, Home Box Office (HBO) and Cinema would begin full-time scrambling, emphasizing how HBO had spent four years and $15 million developing its scrambling system, as an investment to counterattack the loss of revenues from unlicensed uses of satellite signals. According to Alan Levy, corporate public relations spokesman for HBO, scrambling was not targeting private home satellite owners, but businesses like hotels, restaurants and bars "which use our signals without our

[66] *International Copyright/Communication Policies*, 2.
[67] *International Copyright/Communication Policies*, 47.
[68] James S. Crane and Thomas Joseph Cryan, "Telecommunication Pirates - America's Newest Criminals," *Entertainment and Sports Law Journal* 2 (1984): 172.

knowledge to further their business."[69]

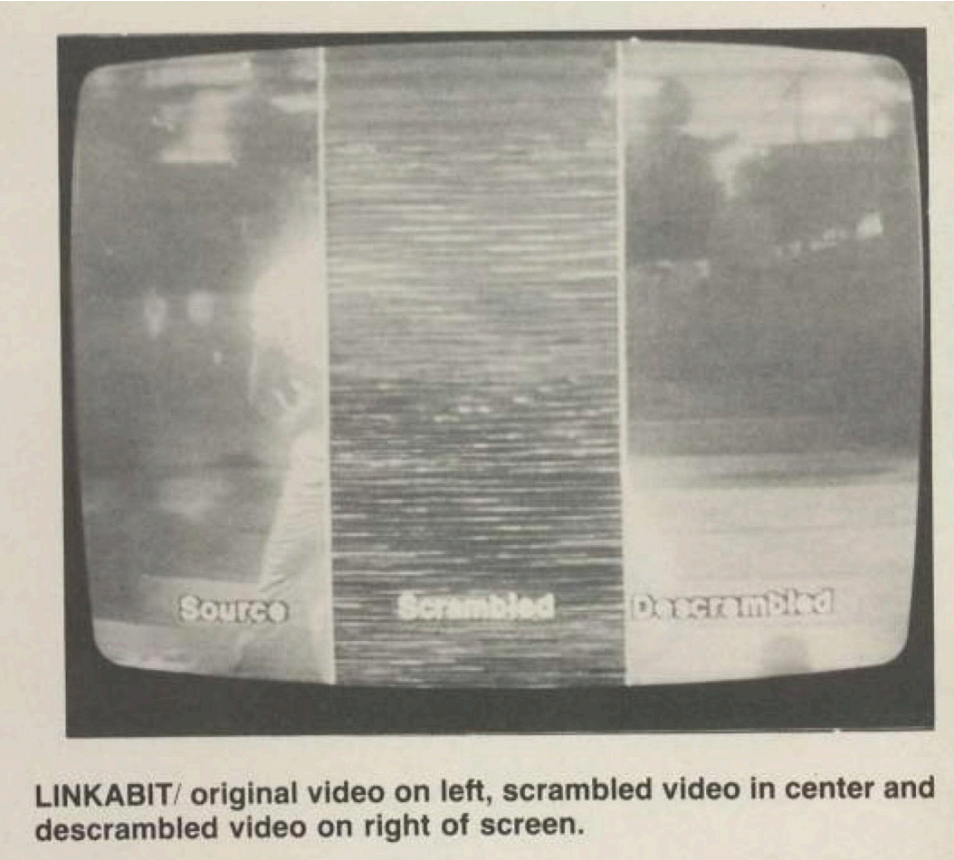

Figure 2.6. *Screen capture comparing source, scrambled and descrambled signals*. From Coop's Satellite Digest, November 1983.

However, as documented by Douglas Boyd, the international open market allowed the circulation of descramblers, despite the US State Department ban on their export without a license because the devices have defense applications.[70] Smuggled versions of the VideoCipherII circulated as soon as the restrictions began in US territory. In the case of Mexico "Many such programs are broadcast unscrambled and are available free of charge but to receive scrambled

[69] Ramsey Campbell, "Movie Channels Turn off Free Viewers," *Orlando Sentinel, The (FL)*, January 27, 1986, 3 STAR edition, B4.
[70] Boyd, "Third World Pirating of U.S. Films and Television Programs from Satellites," 1988, 156.

channels. Viewers here either subscribe through post office boxes they maintain in the United States or buy decoders on the black market"[71]In an interview to Carol Dacres, a manager of a video store in the Cayman Islands, she explained how her boss "flew to Miami and picked up a decoder for two hundred bucks."[72]

If the encryption of satellite signals "made the ownership of original content, and its protection, a byword of US cultural capitalism."[73] diplomacy also helped to shape the conditions for its circulation at a global scale.[74] The Reagan Administration put this protection at the top of the list of its bilateral efforts with many nations, in particular countries that have, according to Harvey J. Winter, a former director of the Office of Business Practices, "historically posed serious counterfeiting and piracy problems."[75] Such bilateral efforts covered part of the Caribbean, under the Caribbean Basin Economic Recovery Act of 1983, which proclaimed "duty-free treatment for all eligible articles for designated "beneficiary countries."[76] Ronald Reagan conceived the Act as a way to guarantee "Peace and security in the Caribbean Basin." The Act included a group of measures that secured the respect for copyright which had to be respected by signatories countries. Among Communist countries or those who nationalized US properties, the government would not

[71] Larry Rohter, "Satellite TV Becoming Mexico's Hottest New Dish," *The New York Times*, October 23, 1987, sec. World.
[72] Steve Brennan, "Pirates in the Sky," *The Guardian (1959-2003)*, September 22, 1986.
[73] Toby Miller, "Foreword," in *It's Not TV: Watching HBO in the Post-Television Era*, ed. Marc Leverette, Brian L Ott, and Cara Louise Buckley (New York: Routledge, 2008), IX.
[74] Marques, "Cloning Computers: From Rights of Possession to Rights of Creation," 141; Honghong Tinn, "From DIY Computers to Illegal Copies: The Controversy over Tinkering with Microcomputers in Taiwan, 1980-1984," *IEEE Annals of the History of Computing* 33, no. 2 (2011): 75–88.
[75] Harvey J. Winter, "The Role of the United States Government in Improving International Intellectual Property Protection," *Journal of Law and Technology* 2 (1987): 325–32.
[76] Gerard Peters and Woolley, John T., "Proclamation 5133—Implementation of the Caribbean Basin Economic Recovery Act," The American Presidency Project, accessed March 29, 2019, https://www.presidency.ucsb.edu/documents/proclamation-5133-implementation-the-caribbean-basin-economic-recovery-act.

consider copyright violators as beneficiaries either.[77] Although this condition emphasized the use of satellite signals by national television systems, the Act also encouraged countries to "prohibits its nationals from engaging in the broadcast of copyrighted material, including films or television material, belonging to the United States copyright owners without their express consent".[78]

Pirates of the Caribbean Revisited

Amateur experiments launched a new venture that expanded access to satellite television not only in the United States but also in neighboring countries. In this chapter, I explore that process by focusing on the expansion into Central and South America and the Caribbean. Knowledge about satellite television became more accessible through books and magazines that encouraged people to build their own satellite earth stations. In exploring how some of these enthusiasts narrate the history of satellite television, it is possible to find references to values of freedom of speech and diversity that characterized the rhetoric of the Cold War era. The deployment of satellite dishes and the creation of Community Antenna Television systems helped to expand these systems in rural areas, to the point that some people still use it.

However, as several covers and reports in magazines like Cooper's *Satellite Digest* show, bringing satellite television into isolated areas served as a self-reference of expanding US cultural borders. Entrepreneurs like Robert Cooper in Turks and Caicos or Fernando Batalla in Costa Rica, emerged as pioneers in the deployment of television infrastructure. In this process, the

[77] United States Congress, "97 Stat. 369 - Caribbean Basin Economic Recovery Act," Pub. L. No. 98–67 (1983), https://www.govinfo.gov/app/details/STATUTE-97/STATUTE-97-Pg369.
[78] Gerard Peters and Woolley, John T., "Remarks at a White House Ceremony Marking the Implementation of the Caribbean Basin Initiative," The American Presidency Project, accessed March 29, 2019, https://www.presidency.ucsb.edu/documents/remarks-white-house-ceremony-marking-the-implementation-the-caribbean-basin-initiative.

denomination of pirate signals emerged as a trope in the region. The legal status of US television programs in the Caribbean and Central America, the lawyers said, was reminiscent of the relatively anarchistic state of the publishing industry in the last century before the United States established copyright agreements with other nations.[79]

In those terms, the region served the interest of other ventures, from financial institutions to black markets, which legal systems allowed particular infrastructures to emerge. The case of satellite dishes shows how "a technical system originates in one place, growing in response to particular ecological, legal, political, and industrial techniques native to that area." But if systems grow into a networked infrastructure, it must move to "other places with differing conditions, technological standards, and legal regulations, elaborating techniques of adaptation and translation."[80] These conditions emerged from a legal void, that nevertheless, became central to the interest of United States trade organizations. While technological devices embodied the idea of enclosed signals as a response to free circulation, similar rhetoric on respecting copyright was enacted through trade agreements.

As such, the expansion of satellite dishes in Latin American encountered different television infrastructural models, most of them supporting development policies. As the people working in the Caribbean usually reported, some distinctive technical adaptations needed to be made if the goal was to capture American television. If the Big Ugly Dishes in the United States measured around 8 feet, to capture some of the signals in the periphery bigger satellite dishes, like

[79] Peter Kerr, "Foreign 'Piracy' of TV Signals Stirs Concern," *The New York Times*, October 13, 1983.
[80] Hughes, Thomas Parke, "The Evolution of Large Technological Systems," in *The Social Construction of Technological Systems: New Directions in the Sociology and History of Technology*, ed. Wiebe E. Bijker, Thomas Parke Hughes, and Trevor Pinch (Cambridge, Mass.: MIT Press, 1987).

the 22 feet satellite dishes built in Medellín in 1982, were needed. This process of adaptation encountered networks of adaptation and translation, ranging from blacksmith and radio amateurs to the entrepreneurs that shared similar values in adventuring in the business of satellite television.

CHAPTER 3: BUILDING AN INFORMAL INFRASTRUCTURE

As satellite dishes expanded, not only entrepreneurs from United States, but also from the Caribbean and central and South American countries travelled to cities like Miami, to explore the possibilities of developing satellite television reception in their countries. Although satellite signals aimed at US territory needed big satellite dishes, in the spillover zones even bigger satellite dishes must be built. Building such "monster" dishes, as Bob Cooper named them in its magazine, required local skills in forging the iron structure that, in connection with the imported equipment, would serve for capturing signals from the US and other countries. But more importantly, the availability of a different television content, would capture the imagination of Colombian pioneers who considered these technologies as a way to decentralize the Colombian television infrastructure, if not to create a new business for giving people access to new channels. Different uses, from its deployment for individual users, to the distribution of television for communities came from the introduction of amateur satellite dishes as part of the television infrastructure in Colombia.

Marco Tulio Zuluaga, a Catholic priest, wrote in *El Colombiano*, a newspaper from Medellín, an article titled "Experimental Transmissions of Amateur TV." Two "genuine

antioqueños, Quixotes of communications," revealed the priest, led the list of innovators of private satellite communication for community service. Those Quixotes were Hector Posada Ochoa and Mario Yepes. Posada Ochoa, an engineer from the Escuela de Minas in Medellín, installed a satellite earth station in Envigado, a town nearby Medellín, which distributed the signal in the ultra-high frequency (UHF) band in collaboration with the Radio Club de Antioquia. Yepes Gomez, an entrepreneur, installed a 12-meter-diameter antenna, operating since 1984, also with the collaboration of the *Liga de Radioaficionados de Antioquia*, in UHF, and later, in very high frequency (VHF) through channel 9. When *Electrónica Fácil* republished the article, Yepes had already suspended his "experimental transmissions" through Channel 9, as the magazine said, "to follow the existent legal norms and request from INRAVISION."[1]

Zuluaga admired the initiative of both Posada and Yepes. For him, they were "showing Antioquia, Colombian and Latin America, the kind of things that a disquiet mind is capable," as they followed trends unseen in the country and ahead of developments in Europe, that for Zuluaga, haven't happened elsewhere in "the expansive world of satellite communications."[2] Quoting an English saying he also stated that "where there is a will, there is a way." Zuluaga, recognized for his fluidity in several languages,[3] described how the Italian centralized model was debunked by an Italian who broke the "hateful monopoly of the RAI (Italian Radio Television)." He mentioned the risks taken both by Italians and Colombians to distribute the signal, and the state actions, which in the case of Italy led to the confiscation of the equipment of these reckless pirates. [4]

[1] Marco Tulio Zuluaga, "Transmisiones Experimentales de TV Aficionada," *Electronica Fácil*, 1982, 5.
[2] Zuluaga, "Transmisiones Experimentales de TV Aficionada," 6.
[3] Luis Álvaro Gallo Martínez, *Diccionario biografico de antioqueños: con información genealógica*, 2010.
[4] Zuluaga, 6.

The benefit, according to Zuluaga, came from the opportunity to see the presence of the Catholic Church in the field of communications. He mentioned the experience of Brazil, where every Sunday "we can watch the Rio Cardenal, talking, explaining and answering the questions raised by the parishioners." He asked himself about the benefits for Colombia if "not anymore from the capital (Bogotá), but from each capital, through regional channels, each Pastor could have a Sunday encounter with their parishioners to share concerns and experiences." As Protestants in the United States took advantage of satellite systems for evangelization, Zuluaga congratulated a local channel, Alfa Vision TV, for broadcasting from Rome the voice and figure of Pope John Paul II. As he finished by thanking Posada and Yepes for connecting them to Brazil and Mexico, he also urged them to always have present a "moral ecology" for choosing the programs, as the US Catholic Church had a battle against pornography and violence in the household. [5]

In this chapter, I explore the emergence of the satellite dish industry in Colombia by tracing the first experiments in the Colombian city of Medellín. As a city with a complicated history in the 1980s, when drug trafficking and violence permeated everyday life, the emergence of satellite dishes revealed a crossroads in which legal and illegal commerce connected Colombia to an increasingly global economy. From the development of infrastructural projects to the constitution of a sophisticated network of smuggling, Medellín represented a case of urbanization in which planned designs were supported by innovative practices of people solving everyday problems, making technological production the space for the emergence of localized designs built out from the networks that converged in the city.

[5] Zuluaga, 6.

Inspired by studies of technology in Latin America, I explore the local practices that permitted the articulation of satellite dishes in the infrastructure of Colombian television.[6] In this articulation, I explore the role of a local publication on electronics and its particular audiences and pedagogical practices, which also reflect the entrepreneurial values of Medellín culture. As *Electrónica Fácil* revealed an increased interest in electronic experimentation and production, I trace the market of electronic parts that supported the construction of satellite earth stations at a local level. The magazine also emphasizes the process to build a satellite dishes, in which local skills on forging and construction had a central role on customizing them. In this process, I highlight the process of construction to emphasize the physical aspects of satellite dishes and their translation not only in language but also as particular practices.

Medellín as an Entrepreneurial Space

Entrepreneurship characterizes the history of Medellín and Antioquia. Located in the central mountain range of the Colombian Andes, "the city of eternal spring," as it is known in Colombia, emerged as a crossroads city, in which gold mining, coffee, finance, real estate, mechanics, forging, and commerce consolidated with the emergence of industries in textiles, soft drinks, tobacco, shoemaking, and matches.[7] As Ann Twinam explored, the economic rise of Antioquia since the nineteenth century focused not only on land accumulation but also on

[6] Chan, *Networking Peripheries: Technological Futures and the Myth of Digital Universalism*; Medina, Marques, and Holmes, *Beyond Imported Magic: Essays on Science, Technology, and Society in Latin America*; Medina, *Cybernetic Revolutionaries*; Marques, "Cloning Computers: From Rights of Possession to Rights of Creation"; María Belén Albornoz, Javier Jiménez Becerra, and Jorge Rojas Alvarez, *Ingeniería, innovación y tecnología social*, 2017; Thomas, *Sur-Desarrollo-Producción de Tecnología En Países Subdesarrollados*; Olga Restrepo Forero, *Ensamblando heteroglosias* (Bogotá, Colombia: Universidad Nacional de Colombia, Sede Bogot·, Facultad de Ciencias Humanas, Centro de Estudios Sociales--CES, 2013).
[7] Martin, 28.

commerce and mining.[8] Such historical role of Antioqueño colonization allowed many comparisons with processes in the United States, making "North Americans" fascinated by "antioqueños," as Frank Safford put it.[9]

In this scenario, smuggling became another source for local revenue, particularly during the decadence of the textile and coffee economies. From the 1950s, Medellín consolidated as an important center for smuggling, regarding both exportation (coffee) and importation (cigarettes, liquor, clothes, and luxury products).[10] In the case of media circulation, such circuits connected Colombia through Miami and Panama, which by the 1950s and 1960s focused on the trading of electric appliances. The routes included parts of Central America and used "airplanes and pilots from the US, as well as bribes to custom officers, marine, army and police officers."[11] For these reasons, among the most dynamic of the forces that would contest that model's replacement in Medellín over the 1980s was "the 'rising class' of traffickers and import-export men, bred by the informal economy."[12]

The history of Medellín reflected a lack of interest in regard to the migrants that had populated the city since the growth of Medellín as an industrial city. Most options for low-income populations gravitated to an economy of "rebusque"—a term difficult to translate, which means the economy of inventing whatever it is in order to be able to make a living. Examples of economies of rebusque are washing car windows at stoplights, selling everything—from fruit to

[8] Ann Twinam, "Miners, Merchants and Farmers: The Roots of Entrepreneurship in Antioquia, 1763-1810" (1979).
[9] Frank Safford, *Significacion de los antioqueños en el desarrollo economico colombiano* (Berkeley, CA: Center for Latin American Studies, Institute of Internaitonal Studies, University of California, 1967).
[10] Martin, *Medellín tragedia y resurrección*.
[11] Martin, 61.
[12] Forrest Hylton, "Medellín's Makeover," *New Left Review* 44, no. March–April (2007): 77–78.

AA batteries and pirated CDs—on street corners or places in the city especially designated for this type of informal economy.[13] Under these circumstances, drug trafficking emerged as one of the most known features of Medellín, which shaped the life of the city for almost forty years.

Like many other cities in Latin America, during the fifties and sixties, migrants built the city, which created notable urban segregation in terms of the population. The flow of people from different regions made Medellín a central location in shaping core aspects of Colombian culture, in its mixture of Catholicism, conservatism, and entrepreneurial cultures. The ambiguity of "the glitzy tastes and brazen violence of this new-rich 'clase emergente' (emergent class)"[14] and "the penny-pinching piety and conservatism of Medellín's traditional oligarchs" influenced how satellite dishes moved around the country, with the seductive characteristic that people in different parts of Colombia either admired or rejected.

In terms of popular culture, Medellín has been a center for the production of music, combining local taste with a cosmopolitan view articulated to the Caribbean. As exposed by Parra Valencia, "between 1950 and 1960, there were more than ten commercial societies that covered the industrial spectrum of discography production," which made Medellín a center not only for national bands but also for orchestras and music groups from all over Latin America.[15] Its crossroad nature, accepted the circulation of different styles, which compared to the culture standards established in Bogota, allow the production of different genres mixing caribbean and

[13] Ana María Ochoa and Carolina Botero, "Notes on Practices of Musical Exchange in Colombia," *Popular Communication* 7, no. 3 (2009): 158–68.
[14] Hylton, "Medellín's Makeover."
[15] Juan Diego Parra Valencia, *Deconstruyendo el chucu-chucu: auges, declives y resurecciones de la música tropical colombiana*, 2017, 55.

andean sounds. Artist did not had the limits imposed by the cold and elusive audience for Caribbean sounds, established in Bogotá.[16] In this constitution of Medellín's cultural centrality, a vast number of recording technologies generated technical expertise only comparable to the initial development in the Caribbean cities of Colombia.[17]

These characteristics of Medellín and Antioquia permeated understandings of technology and techniques. The development of engineering in Medellín since the end of the nineteenth century underscored practical aspects of how knowledge could improve new business opportunities for the emerging industries in the region. The rise of Antioquia's engineering combined an evolving configuration of labor markets for engineers in Colombia and a preference for the United States over France and Britain as the leading political, economic, and cultural power in the region. In the experience of antioqueño engineering the shift joined the ideas of capital accumulation, business promotion and the development of a strong private sector that characterized the modern history of the region.[18] This engineering culture will impact the development of several projects that impacted Medellin landscape.

As a consequence, the region advanced in terms of its infrastructure, mostly in the development of big electrical projects connected to the water resources surrounding Medellín and pushed by the development of the textile industry at the beginning of the twentieth century.[19]

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[16] Parra Valencia, 54.
[17] One particular case is the development of punk music in Medellin, which by the seventies emerged as a contestation to the traditional customs in the city. Punk musicians in Medellin had an intensive exchange with cities int eh US and Europe, and as such they proved a transnational connection in terms of cultural exchange. Ochoa and Botero, "Notes on Practices of Musical Exchange in Colombia."
[18] Andrés Valderrama et al., "Engineering Education and the Identities of Engineers in Colombia, 1887-1972," *Technology & Culture* 50, no. 4 (2009): 819.
[19] David Bushnell, *The Making of Modern Colombia: A Nation in Spite of Itself* (Berkeley: Univ. of California Press,

Medellín acted as a regional central node in the development of networks of electricity, roads, and airports in tandem with the expansionist project of the antioqueño culture. In the 1980s, local elites emphasized a process of internationalization; while in colonial times roads were traced for colonization, mining, and commerce, highways, airports, and communications infrastructures were geared towards transnational commerce.[20] Medellín became the first, and only, Colombian city to build an urban metro railroad system. Both aspects converge in a particular regional style in which engineering and ingenuity project into planned actions but also everyday practices in the city.

Such technical culture also permeated the process of industrialization, which in the context of Latin America emerged not only through technology transfers but also in the process of modifying devices and processes to lower the cost of technology imports. As Hernán Thomas expressed for the case of Argentina, in "railroad repair workshops, probably, there was a technification process that allowed not only the production of machines and parts but also spare parts."[21] In Antioquia, for most of the nineteenth century, forgeries became the first, if not the only, space for learning modern trades. In Medellín, the Escuela de Artes y Oficios influenced the technical preparation of artisans in the region and founded its knowledge in a mathematical basis, "be it elemental and practical." Several repair shops turned into industries, as in the case of the Medellín company HACEB, dedicated to the production of electrical appliances. Jose Acevedo founded HACEB in 1944 when he first built an electric stove. Years before, Acevedo "with a screwdriver and a set of pliers started to repair whatever someone put him in the front."[22] As such,

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1993), 176.
[20] Víctor Alvarez Morales et al., *De caminos y autopistas: historia de la infraestructura vial en Antioquia*, 2014.
[21] Thomas, *Sur-Desarrollo-Producción de Tecnología En Países Subdesarrollados*, 94.
[22] German Jimenez Morales, "Solo hizo la primaria y creó una multinacional," *El Colombiano*, August 24, 2010, https://www.elcolombiano.com/historico/solo_hizo_la_primaria_y_creo_una_multinacional-KVec_97904.

Acevedo embodied the presence of entrepreneurship in Antioqueño culture, as his story, represented an ideal of social mobility in which through effort and work one got into the top of society.

The Market of Electronic Parts

Electronic components entered trading through increasing consumption of home appliances in Colombia. Such was the case of CIBELCO, the company founded by one of the experimenters with satellite dishes, Hector Posada Ochoa. Posada, a graduate engineer, who studied civil engineering at MIT in 1963, created the company with other two other engineers. While initially, CIBELCO was aimed to sell computers, the company moved into the sale of other specialized electronic components, mainly integrated circuits and rechargeable batteries.[23] In an article for Electronica Fácil, Posada stated that "everything started in 1979" when they learned about the availability of electronic equipment for satellite signal reception for less than $50,000."[24] Posada attended the Miami conference in the 1980s and got in touch with Bob Behar, who by then had started to sell several terminals in Colombia. According to Bob Cooper, "Hector had gone home from Miami convinced he could build an antenna that would bring in US satellite signals, and, as such, Posada's experiments reached the pages of Coop's Satellite Digest.[25]

The aspirations of CIBELCO in becoming a distributor of electronic parts spoke for a new business on the horizon that in the case of Latin American countries included a possible development of local production of electronic devices. The development of electronics in

[23] Aurelio Mejia, "Editorial. La Recepcion Privada de La Television Mundial," *Electrónica Fácil*, 1981.
[24] Héctor Posada Ochoa, "Hola Mundo! Las Primeras Señales de T.V. via Satelite Recibidas Directamente y En Forma Privada En Medellin," *Electronica Fácil*, 1981, 5.
[25] "Practical Field Results from 'Deep South' TVRO Testing," *Coop's Satellite Digest*, April 1981.

Colombia included the creation of electronic engineering programs at universities and technical education in schools. The expansion of the telecommunications systems boosted the number of programs in universities, with projects such as the Chocontá center and its expansion as a crucial area of work for professional electronic engineers.[26] However, the impact of electronics also became visible at a lower scale through a considerable number of companies dedicated to electrical and metal mechanics. Non-formal education institutions and repair workshops found an excellent market for expanding their original businesses.

Figure 3.1. *Advertisement for CIBELCO*. From Electrónica Fácil,

[26] Gabriel Poveda Ramos, *Ingeniería e historia de las tecnicas* (Santafe de Bogota: COLCIENCIAS, 1993), 230.

The perspective for the development of electronic industries in Colombia seemed feasible by the end on the 1980s. In 1989, Adolfo Mora Villate, an electrical engineer from the National University, expressed how the electronics industry, as well as informatics and telematics, could represent an improvement in productivity and productive process flexibility as well as the quality of products and services and presence in the international market. According to a census of electronic sector producers in 1987, 96% of the electronics sector was concentrated in Bogotá, Cali, and Medellín. Mora Villate emphasized how since the mid-seventies, hundreds of small companies aspiring to consolidate in the field emerged, but by the end of the eighties, "those that survived barely had been able to grow."[27] Among the difficulties, Mora Villate mentioned the problems in acquiring electronic components locally due to the reduced market as well as the poor quality of metal mechanic components manufactured in the country. More importantly, companies changed from being manufacturers to distributors of the equipment by importing them, particularly with the introduction of free-market policies and the trade agreement at the end of the 1980s.

During the 1980s, and under the influence of the import-substitution model, public policies tended to ignore entrepreneurship by focusing mainly on either small agricultural producers in rural areas or large industries, principally manufacturers in urban areas. In terms of public policy, this meant maintaining support for the "large industry" as the primary source of labor demand as the main policy target and fostering small units of production as subsidiaries of this policy. For these reasons, the development of electronics was small but had a particular impact in the design of local devices and solutions, such as in the case of satellite dishes. Microenterprises during these years

[27] Adolfo Mora Villate, "La Industria Electronica y Su Importancia Para La Economía Del País," *Ciencia, Tecnología y Desarrollo* 13, no. 1–4 (1989): 102.

were locally oriented (retail vendors mainly in the neighborhood where they are located), and, as such, they tended to be considered informal.[28]

Companies such as CIBELCO started in the context of urbanization and increasing levels of consumption. By 1970, urban unemployment and the social pressure associated with it started creating public concern around Latin-American societies. Several local businesses from video rentals to taxi services became tales of success during those years.[29] As historian David Bushnell shows, the eighties saw the rise of the "clase emergente (emerging class), made up of people who had risen rapidly in economic status, not necessarily through legitimate means." Although the formal industry experienced a great recession, "the 'informal' sector of unregistered small firms and individual workers taking piecework to do at home, correspondingly expanded."[30] Bushnell remarks how scholars and casual observers often failed to notice how population itself was changing in ways not always readily perceptible to political or economic analysis. In the writing of the history of entrepreneurship, Colombians must confront the tension between legality and illegality that crossed the rise of this emergent class during the eighties.

Therefore, as Hernán Thomas has shown, in order to see technological transitions such as in the case of satellite dishes, it is necessary to move on from the study of the global planning of national production, characterized by the involvement of development agencies to "a level of pragmatic response of isolated local producers."[31] As multiple sub-sectors aimed at automation in industries and the use of electronics in health as well as the automation of city spaces, from traffic

[28] Rodríguez, "Entrepreneurship and Its Analysis in Colombia."
[29] Hollmann Morales, *A Puro Pulso* (Santafé de Bogotá, Colombia: CÌrculo de Lectores, 1996).
[30] Bushnell, *The Making of Modern Colombia: A Nation in Spite of Itself*, 271.
[31] Thomas, *Sur-Desarrollo-Producción de Tecnología En Países Subdesarrollados*, 124.

lights and building doors to ambient music systems, repair shops also found a broader set of opportunities to produce electronic devices or infrastructures, as in the case of satellite television systems. Mora Villate called this branch "consumption electronics," and it covered personal use and entertainment devices such as radios, television sets, recorders, audio equipment, digital calculators and clocks, video recorders, microwave ovens, and electronic games.[32]

In this direction, satellite dishes were part of a growing industry of devices for urban spaces. From home intercoms and CCTV systems in the residential sector to automated lighting and ambient music systems in offices and public spaces, electronic device production filled a gap in people's electronic needs. Customized entertainment devices, mostly sound systems, were primarily designed to fit into local tastes, uses, and needs. The process of technological recycling in the history of Latin American, following the work of Hernán Thomas, extended the timeline to moments in which national industries could not afford machinery from other countries, and available machinery was reoriented to create new products, processes, or machines.[33] As such, some of the media devices produced during the 1980s created an urban media landscape that differs in many ways from the experience in other cities around the world.

In consequence, trading agents, or "suitcase entrepreneurs" such as Posada or Yepes, became historical agents in the constitution of media cities contributing to the media infrastructure in urban and rural areas. While suitcase entrepreneurs "use a low cost but an extensive network of trains and buses to reach retail and wholesale markets in this wider territory," they also have been

[32] Mora Villate, "La Industria Electronica y Su Importancia Para La Economía Del País," 93.
[33] Thomas, *Sur-Desarrollo-Producción de Tecnología En Países Subdesarrollados*, 22.

accompanied by "movements of illegal migrants from Africa into Europe and from Latin America into the USA."[34] Mario Yepes, exemplified this suitcase entrepreneur, as he not only traveled to the satellite television conventions in the US but also promoted several brands with headquarters in the US. In an article describing the core elements of satellite earth stations, Yepes mentioned the use of COM-3 satellite receivers, manufactured by AVCOM. AVCOM, a Virginia company founded in 1976, differentiated itself from the competition with its unique "Scan-Tune" functionality, which allowed the receiver to be turned back and forth across all transponders every three seconds. AVCOM continued to develop and produce a variety of receivers and satellite accessories throughout the early 1980s.[35]

The creation of free trade zones played a central role in this circulation. Armand Mattelart and Héctor Schmucler demonstrated how in the 1980s the electronics industry, and its search for cheap labor and new markets, drove the relocation of the productive infrastructure in the world economy. Free trade zones in Latin America had a central role in the expansion of communication technologies through the diffusion and the production of components and finished devices.[36] They also highlighted the role of the free zone of *Colón* in Panama, where imports from Japan, the United States, Taiwan, and Hong Kong helped the development of electronics enclaves in Central and South America. As an example, in issue 33 Electrónica Fácil published the addresses of Japanese companies in Panama, most of them distribution companies, such as Harman-Lloyd's Sansui, JVC, Nivico, Sanyo, and Silver. Sony and Toshiba had their headquarters in Panama City.

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[34] Ravi Sundaram, *Pirate Modernity : Delhi's Media Urbanism* (London; New York: Routledge, 2009), 82.
[35] Mario Yepes G, "Revolucion de La Television y Las Comunicaciones," *Electronica Fácil*, 1981, 28.
[36] Armand Mattelart and Héctor Schmucler, *Communication and Information Technologies: Freedom of Choice for Latin America?* (Norwood, NJ: Ablex Pub. Corp., 1985).

More importantly, free trade zones met the networks of smuggling, and as such, both confronted the legality of trading, supported by economic development initiatives.[37]

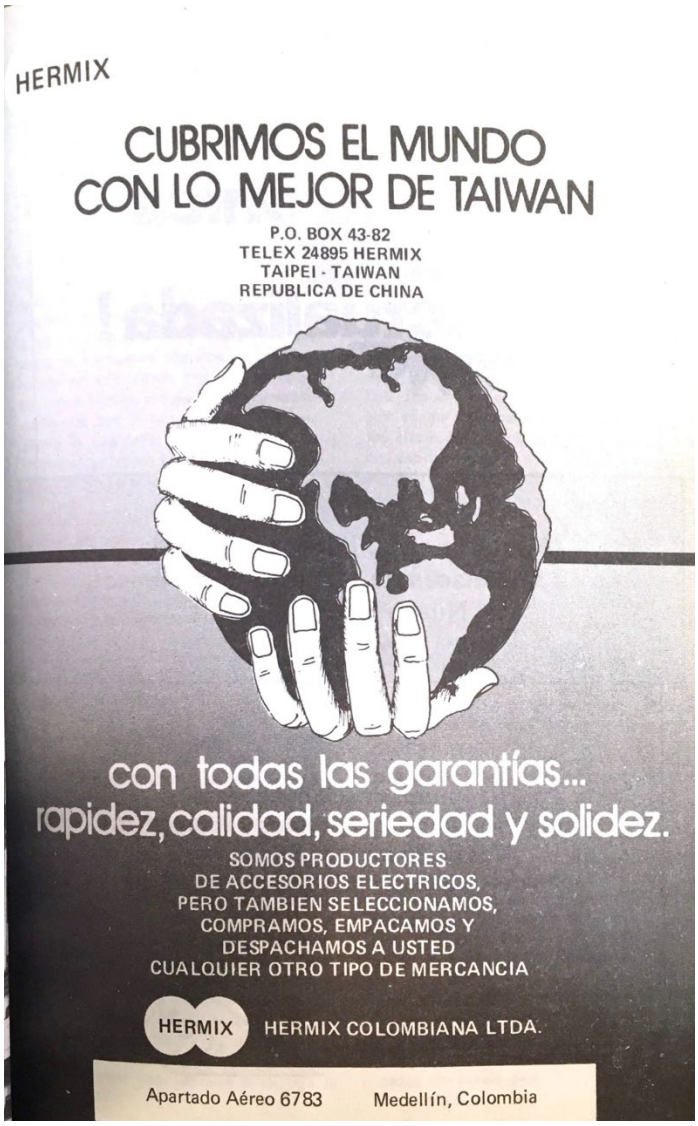

Figure 3.2. *Advertisement for Hermix*. From Electrónica Fácil

The network extended to East Asian countries, such as in the case of Hermix, a Taiwanese electronics distributor that had a local distributor in Medellín managed by Jaime Mejia. An

[37] Mattelart and Schmucler.

advertisement published in *Electrónica Fácil* described the company as emphasizing the production of electronics accessories but also as a company that would "select, buy, and pack any other type of merchandise" with "all the guarantees, speed, seriousness and solidity." The editors of Electrónica Fácil had a connection with Hermix as well as with more well-known Japanese Companies, such as Toshiba and Sony, as can be seen in the public acknowledgement of Steve Liu, the owner of Helix Taiwan, who donated money to an institution for orphans and helpless girls in Medellín.[38] Multiple visits from Japanese technicians and public thanks for making available the devices' technical manuals show some of the networks established during those years.

Electronica Fácil: A Magazine for Those Who Do Not Know Electronics

Technological developments relied not only on importing equipment but also on local adaptations. As an article in *Semana* explained in 1986: "At the beginning, while the Creole technicians adapted and get the hang of it, the antennas were not only expensive but unmanageable due to their size. Now the matter has been simplified: new antennas are almost manual, and their prices are not high, if one takes into account, especially, that it is a service that many times dozens of families in a residential unit share."[39] Studies of hobbyist culture have shown that actors outside the commercial production can powerfully revise or produce technological artifacts. As Honghong Tinn had explored in the case of microcomputers in Taiwan, the modification of technological artifacts and the subsequent transition of meanings of the artifacts "not only helped to expand the

[38] "Agradecimiento Público," *Electrónica Fácil*, March 1988.
[39] "Con Las Antenas Puestas," *Semana*, December 2, 1986.

technological systems of microcomputers to Taiwan but also was connected to the broader Taiwanese political economy." Tinkerers, functioning as "technological mediators," fostered the material existence of the new technological system.[40] For this reason, the process of "getting the hang of" satellite dishes involved several interactions with amateur cultures, in particular with radio amateurs.

Similarly to other cities in Colombia, the amateur clubs were made up mainly of men belonging to privileged intellectual and economic sectors of the main cities of the country, who were motivated to form institutions in which the taste for and development of the radio were encouraged.[41] Studies on ham radio, computers, video games, television, and software have emphasized the vibrant exchange of documents, from magazines, newsletters, xeroxed copies of diagrams, step-by-step instructions, code, and other printed media across spaces. Access had a different bar, revealing some of the entry points to technology linked to artisan knowledge as well as technical education. This aspect is particularly relevant in Colombia, as the distinction over technical knowledge had been reinforced at times by social hierarchies that put engineers at a top level, and technicians at the bottom.[42]

The circulation of Electronica Fácil, the magazine in which both Henao and Yepes published articles on the first experiments with satellite dishes, covered a vast region of Spanish-speaking countries. The network included approximately twenty distributors in Ecuador and

[40] Tinn, "From DIY Computers to Illegal Copies: The Controversy over Tinkering with Microcomputers in Taiwan, 1980-1984."
[41] Catalina Castrillon-Gallego, "'Hacer Del Radio Entre Nosotros Algo Más Que Una Entretención Vulgar' Los Radioaficionados Como Precursores de La Audiencia Radial Colombiana, 1928-1940," *Historia y Sociedad*, no. 20 (2011): 113–32.
[42] Victor Manuel Gomez Campo, *La educación tecnológica en Colombia* (Santafe de Bogota: Universidad Nacional de Colombia, 1995).

another twenty located in Colombia, Costa Rica, El Salvador, Guatemala, Panama, Dominican Republic, Peru, Venezuela, and a person named Nelson Careaga in Uruguay. The magazine also enumerated several sources and other literature recommended for reading. That was the case of Popular Electronics, a magazine published in Clinton, Iowa, Practical Electronics from England, and Revista Transistor and Revista Española de Electronica from Spain, which in some cases sent articles for publication in Electronica Fácil.

The role of printed media in the development of technical knowledge in Latin America is considerable and, in particular, the role played by translators as part of the publishing industries dedicated to scientific and technical literature. Since Colonial times, the Caribbean served as a space for publishing technologies, despite the strict control of the Spanish crown in the case of Spanish colonies.[43] In changing geographies of book production, Spanish publishing keep its primacy after independence, but later it encountered the rise of national industries. The Caribbean offered that space for circulation, with strong industries from Mexico and Argentina, but with a permanent presence of Spanish publisher. [44] This circulation also involved to other media exchanges, particularly in the emergence of Caribbean music, and in the technological circulation central in amateur culture, from devices and technical manuals to translated magazines. As Ochoa has shown, in the case of the early years of punk in Medellín, fans "acquired mainly through personal trade that took place through the mail."[45]

Electrónica Fácil was a collection of forty issues presenting basic notions of electronic

[43] Jose Luis Guevara Salamanca, in *Tecnologías de La Comunicación: Una Breve Historia Material*, ed. Sandra Beatriz Sánchez López and Jimena Zuluaga Trujillo, Primera edición (Bogotá: Universidad de los Andes, 2019).
[44] María Fernández Moya, "Editoriales Españolas En América Latina. Un Proceso de Internacionalización Secular," *ICE, Revista de Economía*, no. 849 (2009).
[45] Ochoa and Botero, "Notes on Practices of Musical Exchange in Colombia."

components and devices. Its editor was Aurelio Mejia Mesa, an entrepreneur who published several books on topics ranging from television receptors, specialized dictionaries, and computer user manuals. As such, Aurelio Mejia is a recognized pioneer in the spreading of electronics knowledge in Medellín. In the homage section in another electronics magazine published in 2007, the interviewer showed how out of ingenuity, Mejia wrote a documentation manual for automated machinery at a Medellín Brewing company. He then collaborated with amateur radio operators to write another reference document, and as the sales increased, he decided to publish Electronica Fácil.[46] Following the idea of *Popular Electronics* and other magazines, *Electrónica Fácil* focused on the electronics hobbyist who worked with electronics kits.

Figure 3.3. Cover of the first issue of Electrónica Fácil.

[46] John Fredy Restrepo, "Don Aurelio Mejia Mesa: Todo Un Pionero," *Taller de Electronica*, February 2007, 30.

Electrónica Fácil is an excellent example for following the tensions between scientific journals and popular science that are part of the constitution of expertise in technical fields of knowledge, especially in the field of electronics. As Carolyn Marvin explored in the case of electricity at the beginning of the twentieth century, "in expert culture, popular forms of knowledge such as telling tales—indeed, oral forms in general—were at war with the proper, or restricted, practices of scientific textuality."[47] Such is the case of Argentina, where scientific journalism in Argentina shaped what Beatriz Sarlo called a "technical imagination," an imagination opened within a lettered culture that gave access to technical knowledge for different types of readers.[48]

As such, Electrónica Fácil presented itself as an attempt to translate "electrical experts as accredited interpreters directly to lay audiences, generally of the middle class," with a promise of learning the basics of electronics.[49] In the first Issue of Electronica Fácil, Aurelio Mejia stated that it was a magazine for those who do not know electronics. He explained that "We will avoid academic explanation and the use of mathematical formulas, which most of us do not know, those of us who like things that we can practice, touch, see, etc."[50] The introduction had two photos, one of a woman reading the magazine and another of a man working on a table full of electronic components. While Electrónica Fácil wanted to promote itself as an easy way to learn electronics, the magazine also publicized other books and magazines that used a similar approach to learning.

Interestingly, parallels of punk music and the electronics amateur are attached to ideas of literacy explored in access to particular materials and alternative networks linked to practices of

[47] Carolyn Marvin, *When Old Technologies Were New.* (Oxford University Press, 1988), 41.
[48] Beatriz Sarlo, *The Technical Imagination: Argentine Culture's Modern Dreams* (Stanford, CA: Stanford University Press, 2008).
[49] Carolyn Marvin, *When Old Technologies Were New* (Oxford University Press, 1988), 13.
[50] Aurelio Mejia, "Introducción," *Electronica Fácil*, 1976.

do-it-yourself cultures. In an interview for Taller de Electronica, the interviewers recognized the international connections of founder Mejia Mesa and the compilation nature that Electronica Fácil. Mesa "took the publisher's address of the magazines he bought and asked for information, which in most cases, he got what he needed." That was the case of Marcombo, a Spanish publishing company founded in 1945 specialized in technical and scientific books. Moreover, this included Japanese and Taiwanese companies who not only distributed devices and parts but also offered to publish translated parts of their documentation on videocassette recorders and television sets.

Hobbyist publications, as Electronica Facil or Coop's Satellite digest offered practical lessons for groups and informal socio-technical networks, that started in the field of satellite television. But over time, the articles became more technical as they started to focus on a selected readership of theoretical and entrepreneurial electricians addressed by both professional and technical literature.[51] A similar situation happened with Electronica Fácil, where the scales in which amateur satellite television seemed themselves to surpass some of the leisure intentions attached to amateur culture as it converted into monetized knowledge. Specifically, Electrónica *Fácil* turned to promoting the construction of satellite dishes by inviting Mario Yepes and Hector Posada to describe the process of satellite dish building as well as the places to find the electronic equipment to set up television stations.

Forging a Satellite Dish

The last issue of *Electronica Fácil*, published in 1988, was dedicated to the process of building parabolic antennas. According to Mejia, readers asked him to teach some of the ways to

[51] Kristen Haring, *Ham Radio's Technical Culture* (Cambridge, MA : MIT Press, 2007).

build a satellite dish. Following the ideas of Posada and Yepes, he encouraged electronics and mechanics amateurs to "install in their region a system the allows communities to watch education and cultural programs, and movies which are out of their reach, because of the absence of a local public channel or adverse circumstances of the location."[52] Mejia argued that humans had made use of natural elements without knowing their chemical composition or physical properties. That was also the case in electronic communication, as there many people "which are in the capacity to build and design antennas, transmitters, receivers, and complete distribution networks, without having to know the composition of space, atom structure, light speed, electromagnetic laws or microwave properties." The procedures for building electronic devices were the same as those procedures found on cookbooks. In the case of satellite dishes, said Mesa, "if you buy the adequate electronic equipment and you follow the procedures illustrated in these issue articles, anyone could build their reception station."[53]

During the first years, building a satellite dish in Medellín presented several challenges. As Posada Ochoa said in Electronica Fácil, "all the information we had, referred to small antennas from 3 to 5 meters in diameter, that worked in US and Canadian territory." As the signal could not reach Colombia, Posada worked on a design for an 11-meter-diameter antenna that later was replaced by an 8.50-meter antenna, which offered "a sufficient size for dealing with multiple difficulties in its construction and deployment stages." [54]

In comparison with the "big ugly dishes" that disrupted the Miami landscape, the original

[52] Aurelio Mejia, "Antenas Parabolicas. Nociones Basicas," *Electronica Fácil*, 1988, 21.
[53] Mejia, 22.
[54] Posada Ochoa, "Hola Mundo! Las Primeras Señales de T.V. via Satelite Recibidas Directamente y En Forma Privada En Medellín," 6.

Colombian satellite dishes surpassed the size of the American devices. In June 1982, Coop's Satellite Digest published a picture of "an 11-meter monster" designed and constructed by Mario Yepes, which, according to the magazine, "may be in commercial manufacture shortly."[55] For Bob Cooper, "Mario has been building large parabolic antennas and developing knowledge in this area of the world for several years now. His latest antenna is a huge 11-meter unit he has designed and fabricated on his own; no small project."[56]

Mejia explained his basic notions on parabolic antennas in regard to how signals are transmitted, the role of repeaters to cover longer distances, and the use of the geostationary orbit. He defined human ears as parabolic reflectors by illustrating how some long-range microphones used a parabolic receptor to amplify the signal.[57] The article included a translated illustration from the December 1984 edition of *Popular Science* showing the essential elements of the system: the satellite, the satellite dish, the coaxial cable, and the receiver as well as the television set. More specific elements were the feedhorn, a motor-driven actuator, and the pole mount.

The illustration came from an article that announced 44 satellite antennas you could buy now, ranging from $1,000 to $4,000. A part of the article specifies the material characteristics of these dishes. As explained by Mejia from a translation of the article, "the dish's curved surface collects the satellite signals and reflects them to a central focal point. The smoother the dish surface and the more precise the parabola, the better. Solid-metal and fiberglass (with metal embedded below the surface) dishes hold their shapes better than mesh dishes, say most experts. Perforated

[55] Bob Cooper, "F3R/F4/W4 EIRP Footprints," *Coop's Satellite Digest*, June 1982, 6.
[56] Bob Cooper, "Hello Mario Yepes," *Coop's Satellite Digest*, December 1982.
[57] Aurelio Mejia, "Introduccion a Los Reflectores Parabolicos," *Electronica Fácil*, 1988, 30.

aluminum, the newest dish type, combines the see-through benefits of mesh with the stability of solid metal."[58]

While the articles in Coop's Satellite Digest and Electrónica Fácil focused on the description of these electronic parts and systems, one article in issue 40 of Electrónica Fácil exposed the metalworking behind the construction of the structure of one 21-foot satellite dish.[59] Cesar and Felipe Loaiza, the owners of Industrias Surtidor, a company dedicated to forging and the production of mechanic water pumps, wrote the article. From the beginning, the Loaiza brothers emphasized a distinction between the mechanic and electronic components of the earth station. "When we say that we are going to build a parabolic antenna, we just refer to the mechanical process, to the making of the concave dish which will collect in one point, called focus, all the electromagnetic waves proceeding from the direction to which is focused."[60] The article then goes through a detailed description of the necessary setting for building an antenna and the steps to assemble it.

[58] Susan Renner-Smith, "44 Satellite TV Systems You Can Buy Now," *Popular Science*, December 1984, 95.
[59] Cesar Loaiza and Felipe Loaiza, "Arme Una Antena Parabolica Para TV Satelite," *Electronica Fácil*, March 1988.
[60] Loaiza and Loaiza.

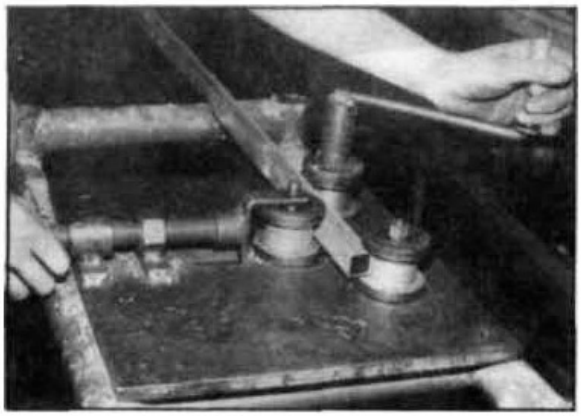

Foto 1. Doblador de tres rodillos. Ajustando el tornillo del rodillo central se controla el grado de curvatura de los perfiles para las cerchas (costillas).

Fig. 17. Proceso de doblado de una contracostilla (refuerzo posterior y apoyo para los travesanos de las costillas del plato). Aunque bastaría con 2 carretes, se utilizan 2 adicionales para hacer el otro doblez del ducto, y conseguir de esa manera uniformidad en el conjunto.

Fig. 24. En Industrias Surtidor se improvisó una base de armado de antenas en un piso bien nivelado, y el poste central se soldó a una platina circular previamente anclada en el piso.

Fig. 34. Vista completa de la antena que hemos armado con base en las indicaciones de este artículo.

Figure 3.4. *Photos of the process of building a Satellite Dish*. From Electrónica Fácil, 40, 1988.

Contrary to the smooth process of construction proposed by Mejia in the introduction of the issue, the authors stated the need for "good experience as a mechanical amateur and electronic experimenter," as well as to have "spare time and space for installing the antenna." After days and hours, the rewards of making a big satellite dishes would come after building the first antenna, as

"you will learn very much, and you will enjoy tremendously working long days, and nighttime hours, Saturday and Sunday journeys, without rest or pay, as it happens to every fan of experimentation."[61] Following the essence of the magazine, they also stressed how this knowledge could turn into a business.

On rare occasions, stated the article, "only one person has the skills and capacity" to manage the financial, mechanical, electronic, and building aspects of the antennas. However, the author referred to metaphors and symbols to give readers an idea through body parts, kitchen procedures, and familiar examples.[62] The recommended procedure was to make a tubular structure with aluminum, building curved "ribs" or trussing following the outline of a parabola, which later is coated with a metallic grid that reflects the waves, but with a small hole to leave the wind to pass. Not only this use of language helped to make the process more understandable but also described the engagement with the material, which in the case of repair and maintenance could be associated with healing practices.[63]

The Loaiza brothers also emphasized the skills for designing precise dish concavity, as any "dome or twist in the ribs by millimeters affects the signal notably." All these descriptions precede the step-by-step procedures for building all parts. In this guide, mathematical formulas to calculate the focal distance and the curvature of the aluminum or soft iron tubes are mixed with manual procedures to transform the tubes into the satellite dish's "ribs." For example, making the base of piles started by drawing a circumference on the floor, "using a piece of wire of 3.25 meters in

[61] Loaiza and Loaiza, "Arme Una Antena Parabolica Para TV Satelite," 45.
[62] Julian E Orr, *Talking about Machines: An Ethnography of a Modern Job* (Ithaca, NY: ILR Press, 1996).
[63] Liliana Gil Sousa, "Quick-Fix as Innovation? Thoughts from Brazil," in *The Maintainers II: Labor, Technology and Social Orders* (Maintainers II, Hoboken, NJ, 2017).

length, fixed by the end to a point on the floor and that has a punch or pencil on the other end." Then by putting a nail and attaching the wire, the circumference could be drawn with precision. Such techniques for precision also indicated physical tasks and tools used to achieve a good final product. "Once this work is finished, the rib is brought to the test table, and there the final adjustments are made so that it adapts, as exactly as possible, to the original drawing of the parabolic curve, using the rubber or wooden hammer to give it knocks where it is needed."[64]

The knowledge about forging demonstrated by the Loaiza brothers deserved more observation as Antioquia developed an iron industry that supported the industrialization process of the twentieth century. Although by the 1970s the metal mechanics industry had consolidated and started a process of heavy and precision mechanics, previous stages in which maintenance and repair, an assemblage of imported parts and the local manufacture and local fabrication of parts still happened in Colombia. Central in this expansion was the car industry, from which the government planned to stimulate the production of "national" parts to support the technological development of multiple industries.[65]

Moreover, the presence of iron is central in the study of infrastructures, not only in these affordances but also in the "affinity between the industrial process that produces iron, the aesthetic spaces the material can bring into being, and the new forms of display central to a consumer society."[66] In comparing iron with stone for building structures, Siegfried Giedion emphasized how "iron can be stretched and drawn, holding tremendous weight to create soaring open

[64] Loaiza and Loaiza, "Arme Una Antena Parabolica Para TV Satelite."
[65] María Teresa Lopera Chaves, *El desarrollo de la industria metalmecánica colombiana hasta 1970* (Medellín: Universidad de Antioquia centro de inv .economicas, 1983).
[66] Larkin, "The Politics and Poetics of Infrastructure."

spaces."[67] As minerals had entered media theorization,[68] in this approach, iron makes present the local history of industries in the development of satellite dishes. Moreover, while in this genealogy the supply chain value is extended to the global scale of mineral extraction, mostly associated with the electronic devices necessary to create a satellite earth station, here it is also related to the surrounding environment that historically served for building an industrial city such as Medellín.

Can the Copy or the Retransmission of Television Programs be a crime?

In September 1982, the government found that experiment with television, made use of the electromagnetic spectrum to distribute satellite signals through channel 9 between 186 and 192 Mhz of in the VHF high-band, as reported by the Llanogrande station in Medellin.[69] Before that day, when the government closed the earth station in San Javier neighborhood in Medellín, Mario Yepes conceived his idea of decentering the infrastructure of television as he built his antenna to "capture world television," which he finished it in mid-march of 1981. Yepes recognized the difficulties of building the antenna in technical terms, but he more importantly, he described obstacles in providing television to people coming from the legal restrictions on accessing television in Colombia. As a project, he proposed to build a television station with the capacity to generate local programs and to rebroadcast what was received directly from the satellite, with a signal strong enough to obtain a quality image for Channel 3 in the area of Aburrá Valley, the Valley in which Medellín is located. The project would have a cost below twenty million pesos in equipment, most of it imported from the US and Asia. Despite the "astronomic" cost, explained

[67] S. Giedion, *Building in France, Building in Iron, Building in Ferroconcrete* (Santa Monica, CA: Getty Center for the History of Art and the Humanities, 1995).
[68] Jussi Parikka, *A Geology of Media* (Minneapolis; London: University of Minnesota Press, 2015).
[69] Ramirez R, *Memoria al Congreso*, 268.

Yepes, it could quickly get revenues from particular businesses as a high investment return would be obtained.[70]

To overcome the state monopoly over television, Yepes proposed new laws to allow individuals to mount their own stations to generate television signals, which in consequence would generate "a multiplying effect of generating new jobs and companies, and to keep up to date in a field that 'changes dizzily.'"[71] Yepes summarized his opinion in three points in an article published in *Electronica Fácil*: First, that in Colombia the technology was sufficient for achieving regional television at a low cost; second, that regardless, "we are far behind this field"; and third, that it is urgent to frame a law that "gives us a right to mount and operate broadcasting television stations."

Later, in Issue 21, Yepes extended his arguments on how the state framed decentralization in Colombia by mentioning the changes in regional television introduced in 1982, when the government, through the television law of 1985, decided to create programs in the province, to be transmitted from Bogotá, as well as the obligation of including news from other parts of the country. Yepes believed that by 1986, private earth stations would push Latin American regionalization and internationalization as more people in Colombia would watch more foreign than national TV channels. He predicted that around 230 TV channels would be available through satellite, and at least 15 would be visible in Colombia with relatively cheap and small antennas. For his experiment, he also projected the availability of three channels from Brazil, Argentina, and Russia, with 7-meter-diameter antennas.[72]

[70] Yepes G, "Revolucion de La Television y Las Comunicaciones," 26.
[71] Yepes G, 26.
[72] Mario Yepes G, "Algo Mas Sobre Antenas TV Satelite," *Electronica Fácil*, 1981, 8.

Figure 3.5. *Yepes with a RF modulator. Advertisement of Low-Power TV magazine* From Electrónica Fácil, 21, 1981, p.28.

In describing the experiment, Yepes referred to the use of translators, a TV frequency transmitter that received a signal in one channel and retransmitted it through another; it is used in isolated areas, where television reception is hard or "simply did not get there." Translators, introduced since the 1940s in the United States, were used to repeat the signal from a full-power TV station in areas that the original signal did not reach, reaching around 1500 in the mid-1950s, mostly in rural areas. By 1980, the FCC proposed the creation of a special category of low-power television stations, LPTV. These stations could use the VHF and UHF band but only to cover a certain area, to provide both access to and programming for both urban minorities and relatively

isolated rural inhabitants.[73] As part of the process of deregulation, they ended in some cases, owned by bigger companies, like in the case of Hispanic networks expanding in the US.[74]

In Yepes' design he explained how to deliver television to other zones in Antioquia, such as in Concepción, a town in Antioquia, very close to Medellín, with a topography that made reception difficult. A translator located in Rionegro, Yepes said, could deliver excellent-quality TV to this town for under $20,000. As he described these possibilities, he argued how the television infrastructure could be extended to fringe zones. He positioned himself among a large number of people—journalists, politicians, businessmen, and everyday citizens—who were pushing for the creation of regional TV.

The design of those alternative systems relied on a connection with amateur cultures, in particular, amateur radio leagues in Medellín. As a member of the Radio Club de Antioquia, Hector Posada Ochoa worked together with members of the club in the deployment of his parabolic antennas in Medellín. In an article on the use of television bands for radio amateurs, Posada narrated an experiment in which he described the possibility of using the Medellín amateur radio to bring homes the never seen before signals of faraway events."[75] This intention matched the ideas of Yepes in expanding the current network of television. For him it was essential to highlight that the main goal was to experiment and develop a series of techniques from which Colombia could achieve in the short-term, to carry the signal of INRAVISION to remote sites in Colombia

[73] Robert L. Hilliard and Michael C. Keith, *The Hidden Screen: Low-Power Television in America* (M.E. Sharpe, 1999), 10.
[74] Hector Amaya, "Latino Broadcasting in the United States," in *A Companion to the History of American Broadcasting*, ed. Aniko Bodroghkozy (Hoboken, NJ : John Wiley & Sons, Inc., 2018), 245.
[75] Héctor Posada Ochoa, "Transmisiones de TV En Bandas de Radioaficionados," *Electronica Fácil*, 1982, 10.

where nobody has seen a televised image. This experimental nature contributed to set the boundaries of amateur television and its commercialization. In Posada's idea, the infrastructure of amateur television would carry the same values that moved amateur radio in deploying a non-profit television service for humanity.[76]

If the decentralization proposed by Yepes redefined some of the legal aspects of television distribution in Colombia, the arguments about the legality or illegality of satellite signal, that started with the increasing presence of satellite dishes in Colombian cities. In this perspective, despite the government interest on satellite technologies for television, there was not any legislation on their reception by personal devices like satellite dishes. As presented by Semana, not only the antennas surprised pedestrians who started to see them in public space but also the government who could not find legislation for this new mode of communication. The article referred to the prohibition of antennas in Medellin, where they developed as a business that collected money from suscribers.[77]

The private use of the electromagnetic spectrum regulated by the Colombian government, a process "occurring outside the official authorized spaces of the economy", will make these satellite dishes visible as informal and illegal. Despite new experiments took place with the use of coaxial cable to distribute the signals, new concerns emerged from an increasing access to international content, both through videocassettes and satellite signals. In this debate, Aurelio Mejia advocate for the opportunities opened by these infrastructures. For Mejía, the government

[76] Posada Ochoa, 10.
[77] "Con Las Antenas Puestas."

shouldn't consider a crime, something that is not contemplated in the current legislation, which is the retransmission by cable, to third persons, of TV signals received by satellite."[78]

Due to its international nature, satellite signals are free, just as it happened in the case of shortwave radio, to which he argue that "in a free country as ours, nobody can prohibit you to hear or watch what other talk or expose to your presence." Incidental television signals are free for those who received them, while encoded communication that included "military communications, telex, the future videophone, and other services that imply information reserve" should be out of reach for these systems.[79]

Yepes idea of decentralization and Mejia's arguments on the legality of satellite signals, supported the use of satellite dishes as hub for television distribution to multiple subscribers. For Mejia, with the current legislation, people can use them at a personal level. However, he said, "we think that, in the same way we can freely dispose of wind, solar energy, and rain which fall in our houses, in that same way we should proceed with the information that, uncontrolled by its sources, fall by chance in our antenna". Control and regulation should, for Mejia, should operate over content especially if it "attack the family, morality, and social stability, motivating sexual freedom and violence". Moreover, he criticized movies in which "divorce is an easy thing", canned programs and movies in which assassination is the common denominator". In the spirit of Electrónica Fácil, he advocated for an educational use of television, that helps to diminish unemployment, that could develop a regional television with television programs that help the

[78] Aurelio Mejia, "Puede Ser Un Delito La Copia o La Retransmision de Programas de Televisión?," *Electronica Fácil*, 1984.
[79] Mejia, 7.

peasant "the methods for made land more productive".[80]

Assemblages with Spare Parts

The rise of satellite dishes in Medellín exemplifies a long history of technical experimentations and entrepreneurship occurring in this Colombian city. This chapter has explored some links with these legacies encountered at the crossroads of one the most difficult moments in the history of the city. Although the links with drug trafficking need to be explored in a more detailed way, it is also possible to unlink this trajectory by associating their emergence with another historical process that took place in the city. From the development of iron blacksmith's workshops in the nineteenth century and the engineering culture in the region, to the encounters between the Caribbean coast and the Andean cities, reducing the development of satellite dishes to one variable, that of drug trafficking, served as a way of neglecting a particular history of technology design and use.

Evidentially, the development of the initial industry owed much to the networks in which people such as Hector Posada or Mario Yepes moved. Their contacts in Panama and Miami bring to the front a less known circulation, not of video recorders and television sets but more importantly of spare parts and electronics components to assemble local designs. If the study of technological recycling had recognized how local designs emerged from the reuse or reorientation of machines, here it is also critical to recognize the globalized network that made possible some of these practices. due to the scale of deployment, satellite dishes changed the distribution system of television, defying the idea that infrastructures are essentially static, "normalized," and "black-

[80] Mejia, 8.

boxed." These mediating technologies, as defined by Kathryn Furlong, are "relatively simple additive technologies that, when appended to the peripheral nodes of an infrastructural network, can alter established socio-technical relationships in significant ways."[81]

Also critical is the political understanding of the possibilities offered by these technologies. What seems important in some of the ideas of Mario Yepes is an understanding of infrastructure. From a technical perspective, the satellite earth station made him aware of the necessary resources to build a network for television distribution. In this "technical imagination," alliances with radio amateurs and publishers such as Aurelio Mejia helped to imagine alternative networks. However, his perspective of infrastructure also included the legal requirements that at the time were restricted to national television. In that political perspective and echoing the words of the Catholic priest Marco Tulio Zuluaga, the decentralization model should operate at the level of the community.

Satellite dishes will move in that direction as the business flourished all around Colombia. If in the beginning, Pablo Escobar showed them as a symbol of luxury, years later, the deployment of the community network would increase the level of decentralization. As such, the model will challenge the development of subscription television developed by media companies in the 1980s. In this competition, the ambiguity over the way they are born will serve as a mark of distinction, not only in terms of social class but also as a reminder of the power of naming something as informal.

[81] Furlong, "Small Technologies, Big Change."

CHAPTER 4: THE PUBLIC DISPLAY OF SATELLITE DISHES

The local design of parabolic antennas increased their use in urban spaces in Colombia during the 1980s. What initially started as an eccentric good, turned to be adopted by people in different cities in Colombia. That was the case of Colombia's capital city where people mostly from high income residential areas started to build them for individual and communal use. As a city in the middle of the country, Bogota served as a center of the television network, which impacted the type of content that circulated since the 1960s. However, since the introduction of cinema and mass media, the control over media consumption started to be pushed by emergent networks of distribution. By the 1980s, access to videocassette recorders signaled a first wave of the expansion of audiovisual content in the city, reinforced a few years later by the construction of satellite dishes across the city. However, the presence of parabolic antennas in public space symbolized aspirations of people in the city, linked with an increased mobility of middle classes, and the articulation of foreign media content in local popular culture.

By the end of the decade, satellite dishes could be seen from everywhere. In 1994, Villegas

Editores released a book called *Bogotá desde el aire* (Bogotá from the air).[1] The book included almost one hundred and fifty photographs showing different parts of the city from a bird's eye view. Divided into chapters that highlight the five coordinates that historically have been used to refer to the city (center, north, south, west, and east), *Bogotá desde el aire* offered a new point of view for its residents. The photos, as one urban academic mentioned present a great documentary interest but are also based on "an aesthetic visual game (with geometric or colored effects) that could lead the author to privilege certain views from this criterion and not from that of the characteristics of the represented object." The pictures ranged from images of colonial quarters in the center of the city to habitational spaces in the West and self-constructed houses in the south. The book became a success, as the photos allowed some people from Bogotá to see the city in a new fashion. For example, a photo of the zone called International Center displayed showed the Bullfighting arena, the emblematic entertainment place from colonial times, surrounded by financial buildings.

This interplay between the old and the new became explicit in the first words of then mayor of Bogotá, Jaime Castro. In speaking about the present time of the city, Castro enumerates the problems of Bogotá: lack of water, mediocre public transport, "streets of clay and dust, aggressive mendacity and the Franciscan poverty of their edifications."[2] In an exercise of historical imagination, he turned then in the more quiet times of the past, one hundred years before, when, according to him, the city characterized itself by absolute tranquility, the bohemia of their people, the polish language of its neighbors, their solidarity, the idyllic beauty of its landscape, and the

[1] Benjamín. Villegas Jiménez, Jeremy. Horner, and Enrique. Santos Molano, *Bogotá desde el aire* (Bogotá, Colombia: Villegas Editores, 1994).
[2] Villegas Jiménez, Horner, and Santos Molano.

domestic economy made of "small gratifications." Such nostalgia for those idyllic times included a justification to the renaming of the city back to its colonial name of Santafé de Bogotá.

The view from above, as Michel de Certeau explains, lifts the viewer from the city´s grasp.[3] That was the case of Castro, who invited the reader to see the future expressed in a qualitative leapfrog observable in the city development of roads and extensive transportation system, in industries and malls pushed by the free market and economic internationalization. The book, said Castro, will be obsolete in the next year, as "the Bogotá that we see in this book is the city beforehand the megaprojects," one of which public space will be a priority. While the mayor urges the reader to focus on these infrastructural changes, a closer look a some of the photos reveals a series of white dots, covering the roof of individual buildings. Despite a presence in urban space, these white dots that referred to satellite dishes infrastructure did not came out of from the planning strategies of the government.

Figure 4.1. *Photo of the northeast side of Bogotá*. From Bogotá desde el aire, 1989.

[3] Michel de Certeau, *The Practice of Everyday Life.* (Berkeley, Calif: Univ. of California Press, 2013), 92.

In this chapter, I explore the arrival of satellite dishes in Colombian capital city, as a force that encountered the urban changes experienced by the city in its transition to the 1990s. This chapter emphasizes the process of dissemination of access to satellite television, from individual users who could afford a private satellite dishes to its expansion to buildings, "closed housing projects" and, finally, into traditional neighborhoods and informal settlements around the city. While in their first versions a lack of guidelines allowed their expansion, by the end of the decade rules about the presence of satellite dishes in public space inaugurated the era of regulation of these infrastructures. At the same time, licensed subscription television services emerged, competing and pushing for stricter rules for the use of satellite dishes.

In this transition, a look at debates about the role of television expressed the anxieties of local elites for increasing circulation of foreign content. By the 1980s, with an increasing presence of commercial programs, cultural critiques blamed television for the decadence of national culture. The tension increased with the arrival of video cassette recorders, and later satellite dishes for receiving international television. Following the increasing adoption of community television systems attached to satellite dishes, the aesthetic aspects of these devices disrupted the urbanistic ideas of the "old" Bogotá. In this development, the act of building a satellite dish moved into creating a local network which had a different purpose from the sole consumption of international content to a process in which communities oriented the infrastructure for circulating local production.

Mass and international culture in Bogotá

"Love of television is a singular facet that has modified importantly everyday routine in

Bogotá." This phrase addressed one of the most significant changes in the last twenty years, according to Volume 4 of the *History of Bogotá*, published for the 450th anniversary of the city's foundation.[4] With a prologue written by the first elected mayor in the city, Andres Pastrana Arango, the last volume focused on everyday life, which for the mayor called the attention "to remember unfairly unrecognized characters who became the indisputable protagonists of good behavior, ready to find correct answers and to whom the city owed remembrance and gratitude."

Compared to the abundance of studies about the culture that emerged in the nineties[5], the chapter on everyday life relied on a few facts of changing customs and memorable spectacles. Regarding changing customs, the chapter mentioned the increasing participation in gambling, initially in horse racing and soccer, to the legalization of "*chance*" a game based on the numbers of the official lottery which the government regulated in the 1980s. After those references, the chapter mentioned the two papal visits, the satellite broadcasted visit of Paul VI, and the visit of John Paul II in 1986, called by the authors as "the biggest popular concentration in the history of Bogotá." Music, in particular, reveal the aspect of culture that interested the authors, as they refer to the creation of the Philharmonic Orchestra, and the first presentation of Verdi's Requiem in 1978 in Colombia.

Between the particularly of events and the proliferation of entertainment, the authors addressed the irruption of the mass, and as such of popular culture in the city.[6] That sense of "the extraordinary multiplication of people in the city" affected two important characteristics in the

[4] Fabio. Puyo Vasco, Benjamín. Villegas Jiménez, and Fundación Misión Colombia., *Historia de Bogotá*, Primera edición. ([Bogotá]: Villegas Editores, 1988).
[5] Gómez Bustos, "Políticas culturales."
[6] Martín Barbero, *Communication, Culture and Hegemony: From the Media to Mediations*.

field of culture according to the authors. Firstly, the massification of culture and the impossibility of the state to reach all citizens, making that "in these days, culture has more relation with mass media, than other means of diffusion." That massification had a particular impact on the architecture and urbanism of the city. The authors acknowledge the depersonalization in the neighborhood styles, as the "neighborhoods with a proper personality," a product of the 1930s and 1940s, "shine by their absence." With more than 114 neighborhoods "without control" in 1975, the authors projected that by the end of 1988, these urbanizations would over one thousand. These irregular urbanizations, the chapter emphasized, are known as "pirate neighborhoods."[7]

Bogotá, as many other capital cities in Latin American, experienced an increase in population since the end of the second world war. In the case of Bogotá, migration increased after the technification of agriculture and the political violence in rural areas of the 1950s. By the eighties, the city continued that trend but with a slower pace. Accelerating primacy, spatial polarization of social classes, and high informal employment constituted the central features of Latin American urbanization.[8] However, changes in the city were propelled by a generational change, as the city-born population found in city style a way to trace a distinction with older generations that came in the first waves of immigration from rural areas.

Migrants and new generations challenged once more the order that prevailed in Bogotá since its colonial foundation. A Spanish settlement in the middle of the Eastern Mountain range, Bogotá consolidated its political power after independence, and as the capital of a centralist model

[7] Puyo Vasco, Villegas Jiménez, and Fundación Misión Colombia., *Historia de Bogotá*, 256.
[8] Alejandro Portes, "Latin American Urbanization during the Years of the Crisis," *Latin American Research Review* 24, no. 3 (1989): 7–44.

of government by the end of the Nineteenth Century. As Edna Von der Walde as described, it was in the politics of Regeneration, that Colombia in general, and Bogotá in particular, shielded to any contact with any nation. In this process, media from cinema to radio, and later television played a crucial role in cracking the walls of this lettered city, at the point to be the channel that allowed Latin American masses to access modernity.[9] In parallel, as Marta Lucía Bustos-Gómez explained the country and, in particular, the city became closer to the "world" through mass media, which democratized taste and fashion in different public spaces."[10]

The government reinforced cultural institutions during the 1970s, despite the lack of resources to sustain them. Theaters, houses of culture, offices, schools and officials that come with these policies perpetuated a vision of culture, where the notion of "fine arts" played an essential role as it limits the term to the creation and consumption of arts and centers public management in the production, circulation, and consumption of cultural products and services. The policies also impacted the training of people, as they emphasized elements for the recognition and enjoyment of the arts through a Eurocentric "aesthetic experience.[11]

Control over international television and its impact of culture influenced the first attempt to create a private channel in Colombia. When Teletigre started in 1965, it captured the attention of bogota's youth people. With a high number of US television shows, Teletigre increased the presence of international content, limiting its local production to news programs.[12] A critic in 1968,

[9] Erna Von der Walde Uribe, "Limpia, fija y da esplendor: el letrado y la letra en Colombia a fines del siglo XIX," *reviberoamer Revista Iberoamericana* 63, no. 178 (1997): 71–83.
[10] Gómez Bustos, "Políticas culturales."
[11] Gómez Bustos.
[12] Camargo Uribe, García Rozo, and Gonzalez Scobie, "El Estilo tecnológico del sistema de televisión en Colombia," 261.

complained how the new channel reduced the number of live programs to include "six detective programs and four of cowboys, but none of the great plays of the universal theater (as there were before)". He also complained about the hairy rock singers and twist dancing of Shindig!, a musical variety series produced by ABC.[13] After five years, INRAVISION did not renewed Teletigre's contract, arguing that "the channel had competed unfairly because of foreign investment and the ability to sell advertisement in blocs of time."[14]

Figure 4.2. *Advertisement for Tv9 - Teletigre* from El Tiempo, January 14, 1966, p. 9.

[13] Instituto Nacional de Radio y Televisión, *Historia de una travesía*, 151.
[14] Fox, "International Relations and National Policies of Latin American Broadcasting," 211.

Despite its impact in popular culture, intellectuals had blamed television for several reason including harming national cutlure. A mixture of moral indignation and aesthetic disgust characterized colombian television critique until very recently.[15] During the 1980s, such critiques focused on changes in programming pressured by new technologies that allow people to access other audiovisual content. Such was the case of *Judgment on Colombian Television*, a collection of essays edited by the journalist Cristina de la Torre debated the 1985 Television Law, to express the nonconformity of Colombian television viewers. In her view, "precisely because lots of Colombian pass to television without assimilating the culture of the book," there must be a control to make it serve for democratic values. For Jorge Ali Triana, a renowned theater director, the enslavement to television generated a new path for the circulation of a "massive and populist" art, and not to the democratization and qualification of culture." As the term "CULTURE" created a hostility for advertisers, Triana said, their attitude "had destroyed a good Colombian television tradition which had produced a certain development of national character programs sustained in national and Latin-American dramaturgy and the recovering of historical values."[16]

Television troubled the idea of national identity at different scales. Movies and television coming from different countries helped to define new identities in Bogotá. According to Marco Palacios, young people “reluctant to play the part of ‘the masses’ which a moralizing prefabricated elite culture sought to impose on them, defined the symbols and rituals of the street, bound together in erotic poses on the dance floor, they revolutionized body language and overthrew the prevailing

[15] Jesús Martín-Barbero and Germán Rey, *Los ejercicios del ver: hegemonía audiovisual y ficción televisiva* (Barcelona: Gedisa, 2004), 15.
[16] Abelardo Forero Benavides, *Juicio a la television colombiana* (Medellín: Nikos, 1985).

dullness of popular clothing."[17]Later, as Palacios acknowledged, the increasing influence of satellite television added changes in taste and fashion to the point that by 1993, around one-third of Colombian viewers had access to foreign channels. The access to audiovisual through videocassettes and satellite dishes did not rely only on the educational and cultural purposes but also in the exploration of other content, in particular adult entertainment. While a considerable controversy happened with the released of an erotic-historical soap opera in National television in 1988, the access to pornography also captured the attention of a journalist who wrote about the increasing consumption of porn movies, especially from the US[18].

However, the elitist view also had its critiques from people in the field of media and television. In *Judgment on Colombian Television*, Hernando Martinez Pardo and Patricia Anzola Wills proposed that the real fear to be confronted was the fear of the television viewer. They argued how the control of emotional overflow was under scrutiny, an overflow that not only produces "fear but also a scandal." They critiqued the lettered culture that represented itself with books, paintings, music, theater sculpture, and cinema," all of it produced by genius. In their perspective, elites worried from what media other people could be learning, and technologies, like the Betamax, could liberate those experiences of cultural access privileges. German Castro Caycedo, a Colombian journalist, also echoed that argument; by adding that "against the dictatorship of channels, the Betamax or VHS, are establishing the answer: to implement their TV channel, with the programs they want and anytime they want." Betamax, he added "is freedom, do not repeat, or

[17] Palacios, *Between legitimacy and violence: a history of Colombia, 1875-2002*, 239.
[18] "Al Rojo Vivo," *Semana*, April 16, 1990.

repeat as the user wanted."[19]

Movies also shaped the taste of young gangs in the country, in which the development of narco culture, as a visual as well as violent spectacle, relied on its interaction with media, in particular, U.S. action movies.[20] In *Born to die in Medellín*, a classic work on youth culture in Medellín, one of the interviewees told how he learn from movies, "Chuck Norris, Black Cobra, Commando, Stallone, and we look at how the use the guns, how to make assaults and how to leave the scene."[21] As audiences experiences can be multiple, an idea that emerged during these years in Latin American communication studies, other sources explained the fascination with the international signal, as emerging from the simultaneous novelty and convenience of encountering diverse media texts. "the novelty of being able to turn the button of the channels and that unintelligible languages and strange images are screened in the TV." Moreover, "what most attracts these viewers is the possibility that at any time of any day they just turn on the TV for something to appear."[22]

Violence and media in Bogotá

In 1988, the Monaco Building, owned by the famous drug trafficker Pablo Escobar, was bombed, destroying most of it. The report from *El Tiempo* newspaper served as an inventory of the luxuries he owned—paintings, including a signed poster dedicated to Escobar's wife by Colombian painter Fernando Botero, one of the seven copies of Rodin's *Thinker*, a Minh Dynasty

[19] Forero Benavides, *Juicio a la television colombiana*, 75.
[20] Juan Sebastian Corcione Nieto, "Narcoestética: El gusto narco en Colombia en la década de los años ochenta y noventa" (Magíster en Estética e Historia del Arte, Universidad de Bogotá Jorge Tadeo Lozano, 2018).
[21] Alonso Salazar Jaramillo and Colin Harding, *Born to Die in Medellín* (London: Latin America Bureau, 1992).
[22] "Con Las Antenas Puestas."

vase, and several US contemporary artworks. A stuffed polar bear was also in the list. To the journalist, outside the building of opaque white marble, it looked like a not-very-ostentatious construction, without any exterior luxury showing any sign of pretension. However, "The most apparent luxury, almost normal in the *El Poblado* neighborhood, was a parabolic antenna, from which remains only its metallic structure."[23]

Figure 4.3. *Photo of the Monaco Building attack* From El Tiempo January,13, 1988, p. 1A.

Bomb attacks characterized a form of violence that took place in urban spaces in Colombia

[23] "Había Obras de Arte Hasta En Los Baños," *El Tiempo*, January 14, 1988.

during the 1980s. Its mediatization is central to the construction of ideas about urban violence, but at the scale of the transnational business of drug trafficking. The integration of urban violence to media characterized several moments in the histories of colombian cities, as news reporting attacks mixed with other forms of violence. In the case of Bogota, the essay on everyday life published the history of Bogota highlighted the security problem in the city. The chapter described the changes in the 1970 when the National Department of Statistics, reported a 60% increase of criminality in 1974. The milestone in Pastrana's administration, highlighted in this history, was the creation of Fast Response Units in neighborhoods in 1987. The narrative of violence mixed the assassination of political leaders by drug trafficking cartels, the "guerrilla" actions of 1979 and 1985, and the killing of 20 people by an ex-Vietnam soldier in an Italian restaurant in December 1986. The publication echoed what Ravi Sundaram had called the "technologies of civic liberalism", refered to the knowledges and techniques deployed to manage, map and understand the urban crisis of a contemporary city, in his case Delhi. As he explained "plunging into the new media, these technologies suggest an out-of-control urban experience, needing radical new points of perpetual intervention."[24]

Despite the presence of violence in many forms, different actors from older and new sites of power intervened in acknowledging violence in Colombian society. Such intervention reached the role of television in society and nurtured an increasing debate about violence and television. As Carlos Eduardo Jaramillo wrote in a debate on violence and television in Colombia, editorials referring to the topic tend to find in television a scapegoat, to the point to conclude that

[24] Sundaram, *Pirate Modernity: Delhi's Media Urbanism*, 22.

"recreational television, with elevated doses of violence, united to news that only highlight the bad, with particular doses of sadism, is making to dig our own grave"[25]. In one of the referred editorials, the writer urged to "exit the rampant being schmaltzy or about those environments filled with a wealth proper to drug traffickers than the products of a stylized society. more programs like the one's made by Eduardo Lemaitre or Naturalia, is what we need in national television."[26]

Years later, understanding television included those process and situations that made people more confortable to stay in private space. In the words of Jesus Martin Barbero, if television attracts, is because the streets expells.[27] As media studies have emphasized the importance of television in the development of residential living in the US and Europe,[28] in Latin American this process encountered the rapid urbanization, population growth, and an increase in crime in crime and in locals' perception of crime.[29]

The new experiences on consumption for the new-middle class in Bogota had controlled under a "new and dire filter of physical insecurity, which struck at the root of interpersonal relations," in a mix of murders, assaults, and robberies accompanied by a "delirium of soccer, beauty pageants, and musical festivals." [30] For Zambrano, *parabólicas* despite being "pirated cable

[25] Comisión de Estudios sobre Televisión y Violencia, *Televisión y violencia : informe presentado al Ministro de Comunicaciones por la Comisión de Estudios sobre Televisión y Violencia* (Bogotá, Colombia: COLCIENCIAS, 1988).
[26] Comisión de Estudios sobre Televisión y Violencia.
[27] Jesús Martín Barbero, "Los laberintos urbanos del miedo," in *Entre miedos y goces: comunicación, vida pública y ciudadanías* (Pontificia Universidad Javeriana, 2006), 150.
[28] Lynn Spigel, *Make Room for TV: Television and the Family Ideal in Postwar America* (Chicago; London: University of Chicago Press, 1992); Raymond Williams, *Television : Technology and Cultural Form* (London ; New York: Routledge, 2003); David Morley, *Home Territories Media, Mobility and Identity* (London: Routledge, 2008); Roger Silverstone, *Television and Everyday Life* (London: Routledge, 2007).
[29] Pertierra and Turner, *Locating Television*, 102.
[30] Palacios, *Between legitimacy and violence: a history of Colombia, 1875-2002*, 239.

television," allowed many television viewers "the reception of international channels, and at the same time compare living conditions in other countries and get to know through ads the material culture of other countries. Colloquially nicknamed as perubolicas, they marked an epoch in many neighborhoods in the capital."[31] However, access to this particular television went through different stages, revealing the geography of technology deployment at different scales and under the class factors that as Palacios said: "put all rites and expressions in their place" of the Colombian social ladder.[32]

From north to south

The most successful video rental store in the eighties in Bogotá was *Betatonio*. The name is a portmanteau of Betamax, the most successful videocassette format in the country in the 1980s, and Antonio, the first name of its founder Manuel Antonio Alzate. Alzate, who migrated to the city to start a footwear business, ended building a video store close to the intersection of Carrera 30 and Avenida de las Americas. Both avenues, created to connect the scattered neighborhoods in the south and southwest of Bogotá, create a different centrality for accessing cultural services. Alzate expressed that he succeeded after choosing the right spot for his video club. "So that point served to serve those who had a video recorder, from the east to the south. Customers came to me from Teusaquillo, Chapinero, La Soledad, Palermo, Santa Isabel, Olaya ~ Restrepo and now from the West, from Kennedy, Normandy, Mandalay, Paulo VI and others. People ran the voice and

[31] Fabio Zambrano Pantoja, Eugenio Gutiérrez Cely, and Julián Vargas Lesmes, *Historia de Bogotá.*, vol. III (Bogotá: Alcaldía Mayor de Bogotá : Villegas Editores, 2007).
[32] Palacios, *Between legitimacy and violence: a history of Colombia, 1875-2002*, 239.

clients who were relieved that they did not have to go that far to satisfy a family."[33]

As in the case of video stores, the expansion of satellite dishes adheres to a dominant division of class and space present in the city.[34] Their adoption followed path of technological adoption over the axis that characterized Bogotá's expansion since the 70s: the north-south axis of the city. The north, according to Portes, compared itself with the best residential areas of U.S. cities. In this zone, the emergence of shopping centers resembled the ideas of suburban life. In the south and southwest areas, a group of established working-class neighborhoods and so-called pirate or unregulated settlements, where poor-low paid workers, informal artisans, and vendors, and domestic servants lived. Despite a general conception of these neighborhoods as illegal, as Portes put it, local authorities recognized that "unregulated settlement represented effective solutions to the demand for popular housing" allowing the expansion of the city and the extension of urban infrastructure to them.[35] Middle classes occupied in-between areas, particularly in the area known as Chapinero, and on the west side of the city, where building companies started to build houses and apartments.

In the eighties, an urbanistic trend in the city came from the replication of "closed housing projects" which became a central development in Bogotá's space during this decade. These gated communities or *conjuntos cerrados*, referred to "a group dwelling that is organized around, or within, outdoor communal grounds and closed to the public by a single guarded entrance."[36]

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[33] Morales, *A Puro Pulso*.
[34] Arlene M. Davila, *El Mall : The Spatial and Class Politics of Shopping Malls in Latin America* (Oakland, California: University of California Press, 2016), 99.
[35] Portes, "Latin American Urbanization during the Years of the Crisis."
[36] Juan Garcia-Wernher, "Domestic Escapism: The Bogotá Closed Housing Project and the Fabrication of Reality." (National Library of Canada = Bibliothèque nationale du Canada, 1999), 3.

Despite this type of construction simulating the gated communities in countries like the U.S., closed housing projects in Bogotá spread in the metropolitan area, and developers offered them not only to upper but also, and mostly, to middle-income populations, becoming a "bestseller in speculative housing market."[37] The trend expanded in all Latin America, as middle-class areas became increasingly segregated from poorer urban spaces.[38] In this process, television played a key role in holding middle-class practices together, by locating social life within the family home and allowing a constant interaction with the broader world.[39]

With this characteristics, closed housing projects in Bogotá propelled the deployment of electronic devices and networks, as they became part of the amenities offered to the emergent middle-classes that moved to the north side of the city. They served as a model for wiring communities and created local networks for satellite television distribution.

Compared to the advertisement of satellite dishes in the US and Britain,[40] in Colombia satellite dishes did not promote themselves as a service in newspapers, but mostly through word of mouth. A look at Bogotá's 1990 yellow pages revealed more than 50 companies announcing their services. [41] The ads offered multiple services. In the case of Ares Electronica Americana, the ad offered antennas to satellite reception, collective and individual antennas, Closed-circuit television, and "collective Betamax." Cibelco and Industrias Terrígeno from Medellín had offices in the city, but local companies also started the production of satellite dishes and the import of

[37] Garcia-Wernher, 10.
[38] Caldeira, *City of Walls : Crime, Segregation, and Citizenship in São Paulo*; Angela Giglia, "Gated Communities Mexico City," *Home Cultures* 5, no. 1 (March 2008): 64–84.
[39] Pertierra and Turner, *Locating Television*, 105.
[40] Brunsdon, *Screen Tastes : Soap Opera to Satellite Dishes*.
[41] *Directorio telefonico: Santa Fe de Bogota. 1990* (Santa Fé de Bogotá: Publicar S.A., 1989).

electronic equipment. Not only because the different number of new companies emerging, but also because instead of building personal satellite dishes, the main business was to offer International television as an amenity for middle-class urban neighborhoods and new apartment complex.

Figure 4.4. *Antennas section* from Directorio telefónico: Santa Fé de Bogota. 1990, p.73.

As such, most companies offered more than satellite reception systems. Such is the case of MARPED Manufacturas, which previous experience in building VHF, UHF and amateur radio antennas, used in getting access to national television channels. Another group of companies had experience in repair and maintenance of television and sound system, like the case of Joe Slim &

CIA, a company that also produced electronic voltage stabilizers and computer installation services. Other companies, like JAP antennas, offered to install lightning rods, internal phone systems, and CCTV systems, all them used in closed housing communities. Geographically speaking, while most of the companies dedicated to repairing and maintenance located their shops close to the traditional area of electronic supplies trade in the city, the ones offering services for closed housing projects located their companies in the north side of the city.

The promotion of closed housing projects emphasized the services and amenities developed to create a sense of security and self-sufficiency that captured middle class taste in Colombian cities. While initially, the amenities included elevators, internal phone systems, and security, gradually the building companies offered a networked system to distribute color television for one antenna. With the availability of satellite dishes, buildings replaced antennas for local reception, and, in most cases, they located on the top of buildings, as seen in the images of *Bogotá desde Arriba*. Moreover, in some ads, it is the satellite dish that makes the difference compared to other closed housing projects.

Figure 4.5. *Ads for apartments* from El Tiempo, 1986-1988.

The increasing number of newspaper ads for housing revealed the increasing offering of international television as an added service. Also, the wiring of closed-circuit television for closed housing projects matched the particular design of cable systems. As Armand Mattelart proposed, the new networks of cable television, although having democratic potential, turned also into

systems of surveillance; as cable also allowed the rise of closed-circuit television.[42] In the case of the cable systems designed for satellite dishes, such control aimed at the selection of particular television channels by the community, but also to the surveillance possibilities offered by the companies that deployed the systems.

Satellite dishes as community antennas

Contrary to the cases studied by Joseph Straubhaar in the Caribbean, not only the high-income population, got access to the satellite dishes.[43] Instead their expansion followed a pattern of technological deployment particular to the city in these decades. After selling them to new residential areas and older middle-class neighborhoods, the business turned to working class and communities settled on the outskirts of the city in which the emerging licensed subscription companies did not offer any coverage. As expressed by Charlotte Brundson, the act of getting a satellite dish can "legitimately be read as an act which signals a desire, a connection with something that these dishes are understood to mean or connote or promise."[44] However, in the case of Bogotá as well as other cities and towns, that aspiration was communal and framed under previous ways of accessing infrastructure through community action.

These new uses of satellite dishes made the government to declare some rules regarding a shared access to this service. Decree 1026 of 1987, stated that all co-owners must agree in the shared use of a satellite dish.[45] As such, many apartment complexes submitted new permits for

[42] Armand Mattelart, *Agresión Desde El Espacio; Cultura y Napalm En La Era de Los Satélites.*, [2. ed. (Buenos Aires] : Siglo Veintiuno Argentina Editores, 1973), 41.
[43] Straubhaar, *World Television*.
[44] Brunsdon, *Screen Tastes : Soap Opera to Satellite Dishes*, 152.
[45] Alcaldía de Bogota, "Decreto 1026" (1987), https://www.alcaldiabogota.gov.co/sisjur/normas/Norma1.jsp?i=2857.

installing a communal antenna. However, in other cases, primarily traditional neighborhoods, the community had to organize as a Community Action Board for asking for the permit. Such was the case of Niza Sur, a neighborhood built in 1968, as one of the first in the north side of the city.[46] For having access to the satellite earth station, the community organized through the parish and created the community action board. However, this was not the case of many other neighborhoods which created their community action boards several years before as part of their constitution as formal neighborhoods in the city.

The expansion of satellite dishes to different neighborhoods in Bogotá followed a transition from closed housing projects to traditional neighborhoods in the city. Such was the case of Country Sur, a neighborhood located in the South East side of Bogotá. Country Sur appeared as a new habitational space for workers, in the southeast side of the city, a historical zone known for the development of informal neighborhoods.[47] During 1970, the community of Country Sur created a Community Action Board to encourage neighbors' sense of political participation. In 1991, the house of the Community Action Board held the satellite dish and all the decoding devices for distributing the signal to subscribers, who paid a small monthly fee for accessing five Latin American channels, three "American," and three national channels with better quality. The construction company called Comunicaciones Punto Azul also offered a channel for community service. The Board decided to use it for broadcasting the Sunday mass, under the lead of Alirio Lopez, a recognized Catholic priest in the city.

A similar experience happened in 1997 when residents of Palenque also organized

[46] *Urbanización Niza Sur Primera Etapa*, Concurso de Historias Barriales y Veredales (Bogotá, 2000).
[47] Alfonso Torres, *La Ciudad En La Sombra: Barrios y Luchas Populares En Bogotá, 1950-1977* (Cinep, 1993).

themselves to buy a satellite dish for distributing television signals in their neighborhood. Palenque emerged in the 1960s as an informal neighborhood attached to the urban development of Ciudad Kennedy, a building complex sponsored under the United States Alliance of Progress policies in the South West side of Bogotá, When Palenque legalized as a formal neighborhood, they created a Community Action Board. As in other neighborhoods in Bogotá, Community Action Boards contributed to the expansion of urban infrastructures, mainly water, and electricity. For that reason, all the procedures to bring the Community Antenna Television into Palenque relied on the work of the members of the Board.[48]

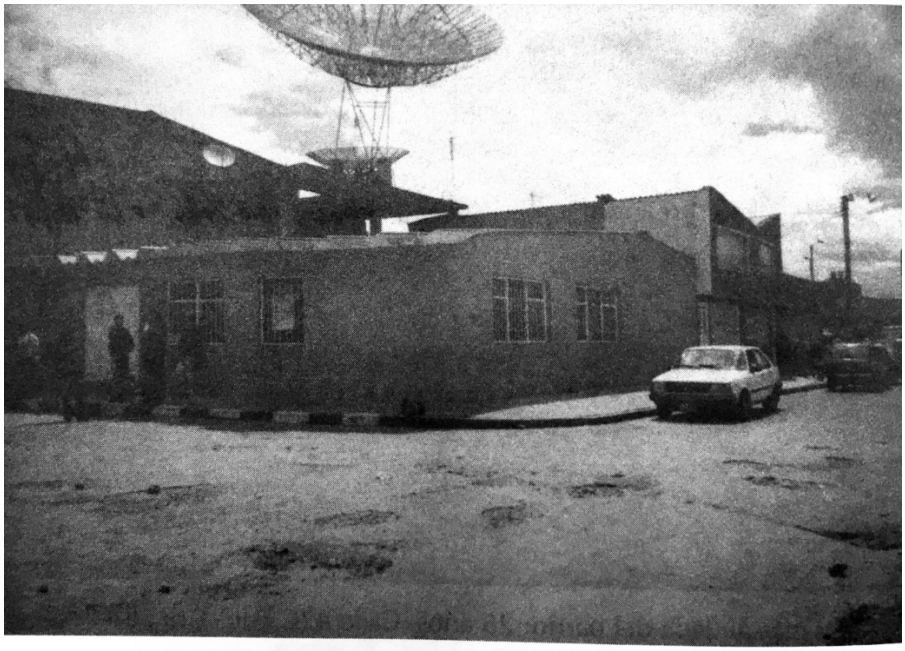

Figure 4.6. *Photo of the Palenque Community Center*. From Primer Concurso de Historias Barriales de Kennedy, 2003, p. 211.

In Palenque, the board also located parabolic antenna in the community center. With the

[48] *Primer Concurso de Historias Barriales de Kennedy* (Fondo de Desarrollo local de Kennedy, M&H Consultar, 2003).

first installment of 150.000 pesos per household (around 200 dollars) and a monthly maintenance fee of 10.000 pesos (12 dollars), the people had access to 25 channels, some of them coming from encoded signals of US TV networks.[49]

Interestingly, the role of community action boards was central to how this infrastructure worked at a local level, following the original idea of managing social relations at the scale of the neighborhood from their original conception in the seventies. As this aspect will be crucial in the transition to community television, it is essential to highlight how such regulating practices happened at this micro scale. On one side, as in the case of the direct broadcast satellite systems, the erection of these satellite dishes symbolized a consumer who has bought into the supranational entertainment space and that who will not necessarily be available for the ritual, citizen-making moments of national broadcasting.[50] However, the particular act of the erection of these satellite dishes reoriented their use through the mediation of local authorities, mainly priests, that used these networks also as a way of controlling culture consumption at a microscale. At that scale, it also supported popular interest and community social development initiatives connected to community life.

In these narrations, the deployment of satellite dishes became a milestone in their community life. In the history of Alameda Sur, Luz Alcira Sierra narrated "the force of the community urge for the parabolic antenna system." The community, she said, manifested the will

[49] In the process of formalization explored in chapter 5, the service decay and after six years, in 2003, the board decided to move all their subscribers to a bigger local company called Telekennedy, bought later by another more prominent company CableCentro. Later, in 2008, Cablecentro became part of Claro Colombia, a company owned by the Mexican group América Móvil."Desaparecen Del Mercado Las Marcas TV Cable, Superview, Cablecentro, Cablepacífico y Satelcaribe," *Dinero*, February 26, 2008.
[50] Brunsdon, *Screen Tastes : Soap Opera to Satellite Dishes*.

to build a non-profit organization that could build the "dream of kids and adults to enjoy a different alternative to television" with a new channel and "scientific and cultural programs to contribute to the formation and creation of our social character."[51] In legal terms, the process started with a registry in the Bogotá Chamber of Commerce, that created the Alta Blanca Association for Parabolic Antennas (ASOALAP). As she explained, "we organized, ruled, programmed and managed the signals by television captured in an earth station and bringing the signal to every residence of founding members and subscribers." At this point, the satellite dish had a more complex presence in everyday life. In this affective side of infrastructures, the process of building an infrastructure for international television access intersected the participation of people in building Latin American cities, mostly with an increasing number of people moving from rural areas in the 1930s and later in the 1960s.[52]

This intersection exemplifies "autoconstruction" (self-construction) a practice of creole technology that has served to characterize technology practices in so-called megacities. While most narrative on megacities emphasizes apocalyptic and dystopian scenarios, the historian David Edgerton uses it as a way to explore the creativity in the shantytown, not "the lack of technology" but what it is used and adapted to local circumstances.[53] These novel systems of buildings, of sanitation, or supply of water, of food and all the other necessities of life, are integrated into the planned systems usually considered as infrastructure. As explored in chapter 3, questions of design require consideration of multiple forms of of knowledge and professions, as well as materials and

[51] Luz Alcira Sierra, "Alta Blanca. Historias comunes y vivencias propias," in *Bogotá, historia común: II concurso de historias barriales y veredales. 1: Menciones de honor*, ed. Blanca Cecilia Pineda, Judith Cabrera Cabrera, and Jorge Alberto Orjuela Cobos (Santa Fe de Bogotá: Acción Comunal Distrital, 1998).
[52] Torres, *La Ciudad En La Sombra: Barrios y Luchas Populares En Bogotá, 1950-1977*.
[53] Edgerton, *The Shock of the Old : Technology and Global History since 1900*, 40.

techniques. Edgerton's emphasis on "*autoconstrucción*" in which populations "built houses in vast numbers, well outside the standard networks of modernity," is also evident in this case of the deployment of media infrastructures in the built environment.

The materiality of these dishes in space, that include the built environment made out of bricks and cement, make these infrastructure unrecognized as they are discarded because they are no longer part of contemporary techno-utopian discourses, despite these materialities are necessary for its operation.[54] In this case, the construction of satellite earth stations brought questions about the use of space for hosting the electronic equipment for signal distribution. The location in the urban space of these satellite dishes showed a connection with the political histories of these neighborhoods and towns.

Subscription Television

In 1982, the same year when the first amateur satellite dish was made for transmitting over Medellín, proposals for introducing cable television in Colombia started.[55] That year, the Ministry of Communication stopped the license for creating a first cable system, arguing that the government owned the monopoly on radio communication that implied the inclusion of the circulation of video signals.[56] Nevertheless, by 1984, the Colombian government started the process of regulation and thus rationalization of cable television. The creation of subscription television became part of the "new structure for Colombian television" and further detached "the

[54] Edwards, "Infrastructure as Modernity: Force, Time and Social Organization in the History of Sociotechnical Systems."
[55] "Ordena Decomiso Del Equipo Que Trasmite Por Canal 9 En Medellin."
[56] "El Gobierno Congela Licencias de TV Por Cable," *El Tiempo*, October 7, 1982, 6B.

most powerful instrument of social communication yet invented and development by humankind" from the government.[57]

In the mid-1980s the Colombian government launched a study of the most-advanced countries' diverse existing systems for television transmission through a coaxial or optical fiber, as well as their technical and legal regulations, which envisaged cable's coexistence with other public services and state surveillance of the uses and reach of the system. In particular, the government report highlighted the state's role in analyzing the incidence and influence in the development of values and behaviors and the willingness to study all the needs for deploying the benefits of modern techniques. The government includes regulation of the content available in the new subscription services, which comprised cultural series, sports events, stock markets information, civic events, distant learning, and movies. However, their broadcast was limited to "everything that could infringe the fundamental chart, laws, moral and good customs."[58]

In this direction, the government signed Decree 666 on April 6, 1985, to set the rules of subscription television.[59] Following these orders, on December 27, 1985, the Ministry awarded the provision of television service to seven firms. The government oriented the service to the biggest cities in Colombia, and as such, it included not only Bogotá but also Cali, Medellín, Barranquilla, Bucaramanga, Tunja, and Cartagena. The decree considered "the viability to broadcast programs produced in any part of the world and any language, to extend the cultural horizon of our nationals." The service would include at least 5% Colombian programs in addition

[57] Noemi Sanin Posada, *Memoria al Congreso* (Bogota: Ministerio de Comunicaciones, 1985).
[58] Sanin Posada, 10.
[59] Presidencia de la Republica, "Decreto 666" (1985).

to “cultural series, sports events, stock information, civic events, distance education, movies.”[60] However, in 1986, the Justice Supreme Court declared the concessions unconstitutional, because the State according to current laws, only the State could provide television service. The Ministry had to develop new rules to regulate the service, which included chapters on protecting author rights whose works circulated in satellite systems.[61]

The decision slowed the process but by December 1987, most of those who obtained the licenses to operate subscription television started. In terms of infrastructure, Decree 666 authorized the private use of the electromagnetic spectrum for the subscription television service, as well as physical lines by the use of coaxial cable or optical fiber. As such, TV Cable, the company created for covering Bogotá, initially used the UHF band to broadcast four channels. With an investment of more than 900 million Colombian pesos, the use of UHF allowed the company to cover "a good part of Bogotá" and "immediately offer the service to any part of the city" while avoiding the initial cost of wiring the city. TV Cable first broadcast started on December 18^{th,} 1987. For two months the company offered a trial version accessible to any person who had a television set that could capture the UHF bands. According to *El Tiempo*, “after two months of non-paid trial, most of the capital inhabitants received with sadness the news will be codified. In other words, that for continuing enjoying the service, they will have to pay.” The article added that for watching TV Cable, there must be an antenna and a decoder, for 41.000 pesos, 20.000 and a 6000 pesos monthly

[60] Sanin Posada, *Memoria al Congreso*, 9.
[61] “Tumban Mas Normas de La Ley de Television,” *El Tiempo*, October 10, 1986. In Colombia, Law 23 of 1982 gave authors the right to earn economic benefits derived from the use of their works, but as mentioned before, the development of rules was at an early stage which were mutually constitutive with the expansion of satellite signal reception in Colombia.

fee. In their first year, the company reached 4.500 subscribers.[62]

The model found inspiration with the rise of cable television in the United States. In Colombia, the introduction of subscription television found support both by *El Tiempo* and *Semana*, who endorsed it not only for their economic benefit but also claiming it as another technology to modernize Colombia.[63] Colombian newspapers and magazines emphasized the success of cable television in the United States, by emphasizing the increasing number of subscribers, and the risk for big national channels, like ABC, NBC and CBS.[64] Moreover, *Revista Semana* explained the US concerns about intellectual property regulation, including a reference from the *Wall Street Journal* to the initial subsidies over the copyright of works of traditional television stations, and highlighted how traditional channels and the Motion Picture of America pushed the government to include the payment of copyrights over cable television.[65]

Satellite dishes represented a considerable competition to subscription TV. For example, the companies licensed for developing subscription television in Barranquilla and Cartagena, discarded the installation.[66] The first General Manager of TV Cable, Fabio Guzman, stated that parabolic antennas, not only were illegal because decoders like the *VideoCipher,* that can only be used in the United States, were smuggled and hacked in Colombia for getting access to US Channels. In this emergent battle on the illegality of signal distribution in Colombia, newspapers, and magazines started to countdown the days of satellite dishes. Forces started to align for cable,

[62] "TV Cable: Se Acabaron Las Transmisiones de Prueba," *El Tiempo*, February 2, 1988.
[63] "En La Onda Del Cable," *Semana*, November 2, 1987.
[64] "Cablemania," *Semana*, August 21, 1989.
[65] "En La Onda Del Cable."
[66] "Cablemania."

as represented by one article entitled “Parabolics on Target,” which asserted that TV Cable had made strong investments for delivering the services to customers, and it paid for copyright and national taxes. Satellite dishes, according to the article, paid neither taxes nor for the use of copyrights.[67]

For these reasons, in February 1988, the government enacted stronger regulation over the use of satellite earth stations. In the Decree 225, under the name satellite earth station, the Colombian government defined in 1988 the assemblage of a specific set of devices: a satellite dish, a low noise amplifier, a television reception system and control system for the antenna.[68] From then on, any new proposer should register the earth station in the Ministry of Communication, except for those deployed by the National Telecommunications Company (TELECOM), the National Institute for Radio and Television (INRAVISION), and the operator of subscription television. It also made mandatory for the existent satellite earth stations to register two months after the decree release. The decree also emphasized the notion of private use as the core of the use of satellite earth stations, emphasizing that they will be only allowed to receive the signal for private use, without the possibility of retransmission or circulate directly or indirectly to third parties neither to commercialize the signal. However, the government allowed the use of one satellite dish for multiples households for "exclusive private use of their owners."[69]

The government associated satellite signals with the expansion of cultural horizons, even though only wealthy private users could afford to buy the costly private and personal satellite

[67] “Las Parabólicas En La Mira,” *Semana*, March 12, 1991.
[68] “Reglamentado Uso de Antenas Parabólicas,” *El Colombiano*, February 6, 1988.
[69] Presidencia de la Republica, “Decreto 225” (1988), http://www.suin-juriscol.gov.co/clp/contenidos.dll/Decretos/1051143?fn=document-frame.htm$f=templates$3.0.

dishes or the cable systems. These smaller satellite dishes on buildings thus came to symbolize a luxury good, a culturally new and unstable object purchased by both the military, politicians, drug traffickers and, in general, high-income populations from Colombia, who would become familiar with them from Miami suburbs or hotels. This elephant in the room became visible only after several years when the presence of satellite dishes in Colombian cities was framed as a problem with public space use.

Aesthetics of the media city

By the end of 1986, *Semana* declared it the year of the invasion of satellite dishes. While the article linked satellite dishes to drug trafficking, the journalist suggested they had now moved from eccentric to communal as "practically, there is no middle-class housing development or apartments building which do not include in their plans and budget one of those antennas." What impacted the most were the numbers, and the way they landed in public space. The antennas "are seen by dozens not only in the big gardens of doubtful taste house but also in elegant towers, three-starred hotels, sophisticated offices and in the stretched spaces of asphyxiated condominiums, where it is preferred this link with technology rather than swings and sandbox for children."[70]

Changes in infrastructures, as displayed in *Bogotá desde el aire* or narrated in the history of Bogotá looked for a representation of Bogotá's future. As Graham and Marvin examined how new systems of telecommunications reconfigured urban space and how infrastructures bundle together water, energy, people, and streets into a series of networked infrastructures that define

[70] "Con Las Antenas Puestas."

modern life,[71] cities like Bogotá also attempted to develop such systems as a way to aspire a global city status. Bogotá was no exception, as and such, as Armando Silva pointed technologic infrastructure was expressed in so many ways "that it became part of a new urbanization."[72] Theme parks, new shopping mall with entertainment machines, virtual and gambling machines shops, most of them produced for low-mid income population.

However, at this level of urban life, we also have to consider how the expansion of infrastructure in a city like Bogotá, owed significantly to pirate urbanism, which "existed parasitically with official infrastructure." As Ravi Sundaram showed in the articulation of Delhi as a media city during the 1980s' older models of media access control became increasingly inoperable "as production and distribution of media commodities proliferated to multiple sites (small factories, pirate workshops, gray market networks), enmeshed with the broader proliferation of production under pirate urbanism."[73] These experiences in which media transformed private and public spaces shared a "very special delirium" comparable with cities like Mexico, Karachi, Lagos and Delhi, during the eighties.

In the case of Colombian cities like Medellín and Bogotá, the frenzy of the visible in the urban hyper stimuli brought together the colonial visual culture of Catholicism, the permanent presence of the government in managing television infrastructure, and the multiple channels opened by the increased circulation of goods. The narco-aesthetics, as a set of values prevailing in Colombia since these years, also has a consistent presence in this approach to the media city. As

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[71] Stephen Graham and Simon Marvin, *Splintering Urbanism: Networked Infrastructures, Technological Mobilities and the Urban Condition* (London: Routledge, 2009).
[72] Armando Silva Téllez, *Bogotá Imaginada*, 1. (Bogotá: Convenio Andres Bello : Universidad Nacional de Colombia : Taurus, 2003).
[73] Sundaram, *Pirate Modernity: Delhi's Media Urbanism*, 89.

Colombian scholar, Omar Rincon argues "the "narco" is not only traffic or business, but also an aesthetic, crossing and overlapping Colombian culture and history, and it manifested in the music, television, language, and architecture."[74] For him, such narco-aesthetics represent Colombian taste, and as such, it can be considered the way dispossessed communities entered modernity.

As smuggling became a significant force in Medellín's history, it shaped a particular taste and in Bourdeiu's terms "distinction" that reflected a "new" and potentially illegally-moneyed class during the years of satellite dishes' arrival, that "also provoked a transcendental social phenomenon." Examples included the proliferation of unnumbered commercial activities to satisfy an increasing demand of services and consumption of the most varied products, from "flower shops and sophisticated boutiques to the multiplication of San Andresitos (informal markets) and the proliferation of shopping malls. It also encompassed car shops, car repair workshops, spare-parts shops, bars, restaurants, agricultural products, construction materials, and saddlery."[75] New professions, such as airplane pilots, interior designers, architects, bodyguards, models, hairstylist, painters, and horse racers, also appeared.

As a writer for *El Tiempo* wrote later in the mid-1990's "the looks of Bogotá in the 1990s is very different from the eighties and seventies, very far to the sixties and fifties and, abysmal, sadly abysmal, to that of the forties". In his view, the capital architecture of the last ten years surprised its citizens with works which are out of the general context, mostly because rather than looking to Europe, Bogotá "pretends to be Miami but even more outlandish."[76] Most of these

[74] Omar Rincón, "Narco. Estética y Narco. Cultura En Narco. Lombia," *Nueva Sociedad* 222 (2009): 147–63.
[75] Mario Arango Jaramillo, *Impacto del narcotráfico en Antioquia*, 1988.
[76] Mauricio Silva Guzman, "Lo Bonito de Bogotá," *El Tiempo*, July 6, 1997.

concerns referred to the exaggeration, expressed in shopping centers with palm trees, and "ray ban" style buildings that celebrated the polarized glass introduced as a way to protect people from being identified. In Ravi Sundaram terms, "a powerful mix of urban crisis and expanding media sensorium produced a feeling which was exhilarating for some, but equally terrifying and violent for others"[77] amplified in Colombia with the presence of drug trafficking money.

The invasion of popular style framed the concerns about the spread of satellite dishes in Bogotá, in particular, their presence in public space. Emphasis on public space became central to the administration of the city in the turn of the nineties. Interest in reforming public space regulations existed for a long time, but it was not until the explosive growth of the city slowed down that it was possible to transform this concern into policy.[78] Public space, especially in the transition from the 1980s to the 1990s played a particular role in defining ideas of cultural citizenship, that helped the government in advancing an agenda of equality based on open access for the enjoyment of public spaces. Before 1988, the president appointed Bogotá mayors and their negligence on preserving public space referred to a failure of the Colombian president. Later, the elected mayors' recovery of public space became a visual symbol of their ability to install "the rule of law" and "public order."[79] However, "anxiety over defending public space from invasion by dirty or dangerous elements served as a code for the expansion and exercise of state power," attached to increasing protection of citizen space from the "culture of informality."[80]

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[77] Sundaram, *Pirate Modernity: Delhi's Media Urbanism*, 67.
[78] Juan P. Galvis, "Managing the Living City: Public Space and Development in Bogotá" (University of Washington, 2011).
[79] Michael G. Donovan, "Informal Cities and the Contestation of Public Space: The Case of Bogotá's Street Vendors, 1988—2003," *Urban Studies* 45, no. 1 (2008): 9.
[80] Stacey Hunt, "Citizenship's Place: The State's Creation of Public Space and Street Vendors' Culture of Informality in Bogotá, Colombia," *Environment and Planning D: Society and Space* 27, no. 2 (2009): 331–51.

As an article in *Semana* explained, "elements like sidewalks and front yards could be considered as public space, but what is public space is the street." In this occasion, the argument for advocating for public space referred to an increasing worry on how the antennas expanded in other parts of the city. The article explains how a satellite dish "strategically installed in the center of a block and by carefully choosing the cable path, could carry the signal to all the inhabitants without touching public space, provided that the installation service is shared." Neighborhoods like Niza and Pablo VI in Bogotá, "only one antenna can connect almost 1000 houses at a relatively low cost. This because on the communal antenna of 8.5 meters with capacity to capture four channels, cost ten and a half million pesos, which divided by 1000, representing almost 100 thousand pesos." [81]

Here the turbulent ecologies of the wiring[82] had a particular expression in how the infrastructures of satellite dishes preceded the licensed deployment of cable in the city. As an article in *Electronica Fácil* explained, "the satellite receptor is located in the leading extreme of the system, which is the point where all signals are combined before being distributed." The possibility of wiring spaces came from the availability of coaxial cable as a way to distribute the signal over multiple reception stations. With the use of the electromagnetic spectrum, the use of cable was permitted despite, initially, it could not use the utility poles in the city for mounting the cable. In the case of Bogotá, it was only until 1995 when TV Cable started to switch from the use of the UHF frequencies and started to cable the city, in a mixed-use of coaxial cables and optical fiber. TV Cable branded the service as the future of television consumption in the city. As an article

[81] "Las Parabólicas En La Mira."
[82] Starosielski, *The Undersea Network*.

from *Semana* explained, "In Colombia, for the first time it will be possible to talk about on interactive television. Subscribers would be able to order a movie through their remote commander; and they will have a birthday greeting"[83].

In this perspective, the previous legislation over public space served as a way to clean it to allow the arrival of new ventures. This practice, framed under the fight against the "culture of informality" also touched the street vendors, who became subject of policing in this turn to the defense of public space. In retrospective, the central aspect introduced in the decree 1026 of 1987, the major of Bogotá published a decree on the urbanist's norms on the location of "special installations." By special installation, the decree referred to as an integral part of buildings, and the volume and location must carry out the norms of height, particularly, satellite dishes, broadcasting antennas. The decree 1026, considered the urban environment and public space as a common heritage for the development of social, public, and economic activities of the community. It also considered the establishment of norms to regulate "the massive and uncontrollable appearance of Special Installations in the building of the special district of Bogotá, which is a source of discord among individuals and a threat to visual and functional degradation of urban public space."[84]

Public space then played a central role in people's intelligibility of the infrastructure needed to get access to satellite television. As many projects in Bogotá, as well as other cities, selecting the place to deploy the satellite dish infrastructure represented a particular aspiration for centrality,

[83] "Cables Cruzados," *Semana*, July 8, 1996.
[84] Alcaldía de Bogotá, Decreto 1026.

a way to network local communities. In these ways, in which people got involved in deciding about infrastructure, technical functioning matter, but also aesthetic and semiotic values.[85] In a way, people learned about the new sense of public space, with the deployment of telecommunication infrastructures. Moreover, in labeling it as informal, a sense of piracy.

The invasion of satellite dishes

Since the first experiments at the beginning of the 1980s to their deployment in neighborhoods in Bogotá at the beginning of the 1990s, the history of satellite dishes in Bogotá encountered a city in transition. Access to media content transformed urban landscape at various levels, one in which regulation moved in different ways. Initially, regulation focused on a more general approach to the role of television in culture. In this perspective, a general critique characterized the audiences as a mass of illiterate receptors of content, which in the case of cultural institutions in the city, looked for an elitist idea of controlling the experience of watching television. While several studies focus on the cultural offering of the arts, mostly regarding theater, music, cinema, and fine arts, looking at the regulation over content also shows the anxiety for taming media consumption.

Scholars recognized the potential of video cassettes, and in their perspective, that experience would liberate people from the ruling of the centralized television model. As satellite dishes arrived, they joined these trends. Nevertheless, another layer to those changes was the gradual use of cable systems for wiring neighborhoods and communities. While in the beginning, the model replicated the ideas of satellite direct broadcasting, that later will expand with companies

[85] Larkin, "The Politics and Poetics of Infrastructure," 329.

like Direct TV and Sky, in the development of new habitational spaces and in modernizing middle-classes buildings and neighborhoods, the development of local infrastructure prevailed as a model for communal access. The use of this infrastructure, then, connected with local histories and aspirations, and acquired different purpose, from the sole purpose of delivering media content to the circulation of local productions.

The model replicated and intersected the previous experiences of communities that organized themselves to ask for access to urban services. The role of community action boards then gave the satellite dishes a new meaning, as it turned to project that involved a previous model of organizing social relations from the era in which Bogotá expanded dramatically. At this level, framing the construction of infrastructure for satellite signal distribution can be framed under the *autoconstrucción* processes that characterized the historical development of the city, as it will also share the label of piracy. In this direction, the informal nature of the emergence of these neighborhoods met the informal and sometimes illegal framework that will play a role in the decade of the 1990s when this infrastructure also moved to different parts of the country, particularly in small towns and rural areas.

As a journalist from *Semana* summarized this process in 1991,

"What is happening with the satellite dishes is what happens in this country with almost everything. First, something is discovered that is something new and entertaining, and everyone wants to have it. Then appear those who begin to use it, and that usually are those who have the financial means to afford it. Then there are those who popularize it. Moreover, when everyone is enjoying it,

someone remembers that they have to regulate it. However, since the system is already implemented and almost institutionalized, dismantling it is a national political problem."[86]

Dismantling these satellite dishes, then, took a long process, which helped to redefine the television system in Colombia. Ambiguous manifestations of media infrastructures, both informal and almost institutionalized, both legal and illegal, also represented people's attitudes toward them. As exposed in the next chapter, they will be connected to the process of television privatization, one of the main goals of the Colombian government since the end of the 1980s.

[86] "Las Parabólicas En La Mira."

CHAPTER 5: THE FORMALIZATION OF SATELLITE DISHES

While satellite dishes presence in urban spaces called the attention of the government for their presence in public space, their use expanded in small towns and rural areas, also under the communal use of the antenna. This transition happened when the government introduced new mechanisms to control television systems and emphasized the control of signal distribution by enforcing license payment for encoded satellite signals. Despite, for some people these parabolic antennas systems were illegal, more nuanced negotiations over the role of these systems, converted them in a service called community television. As such, they captured the attention of different institutions that considered this as an opportunity to democratize television access for populations that lived in the fringe zones of Colombian television.

One of this attempts happened in 1997, when a group of universities, public sector institutions, and NGOs came together to work on a strategic plan for developing community television in Colombia. Fundación Social, a non-profit organization, hosted the meeting. Founded in 1911, when the Jesuit priest José María Campoamor created in Bogotá the Circle of Workers of San Francisco Javier, Fundación Social promoted a model of assistance close to the ideas of social

development.[1] During the seventies, it created several businesses that included a television production company called CENPRO, which produced content for Colombian national television. As part of their social advocacy, several communication scholars joined the social projects to support studies and deployment of communication initiatives aimed at low-income populations. As a result of the 1997 meeting, they publish a book called *Señales de humo* (Smoke signals), in which they exposed proposed a model for community television in Colombia.

For this project, Fundación put together a group of experts in communication for development, as well as legal advisors to look for ways to promote community building through the use of television. In the words of the VP for development Maria Eugenia Querubín, *Señales de humo* will "provide to social actors that have embraced this form of communication, within a local context, an instrument to share updated information and encourage interlocution and debate."[2] In that sense, the publication highlighted "the real communitarian sense of television," and invited people from different regions of the country to join the initiative. The idea of community television looked promising under the changes happening in Colombia after the constitutional change of 1991. Nevertheless, as María Teresa Herrán stated in her essay in *Señales de humo*, despite everyone in Colombia supporting the idea of community, she pointed, in practice, there are powerful sectors that plot against its execution. She reminded the legal tribulation of community radio but the opposition by commercial radio. In the case of television, community channels "had proliferated in a disordered and savage growth" but also, "they became a local popular culture

[1] "Los Banqueros de Dios?," *Dinero*, May 1, 1993.
[2] Fundación Social, *Señales de humo: panorama de la televisión local y comunitaria en Colombia* (Santa Fe de Bogota: CINEP, 1998), 1.

recipient and in an immense source of possibilities for us to reencounter as Colombians."[3]

In this chapter, I explore the multiple transformations to satellite dishes and earth stations during the intensification of the free-market economy in Colombia. As the new Constitution offered support for a new understanding of free enterprise, the companies that manufactured satellite dishes expanded their business from urban settings to towns and rural areas in Colombia. However, in the transition to a free market economy and with the establishment of international trade agreements, the government opted for regulating and rationalizing the market for television distribution with new legislation that created a national authority that established different categories for television distribution systems. Satellite dishes moved into these different categories pushed by ideas of privatization and formalization that targeted satellite dishes' use of public space and incidental satellite signals. As such, the process of negotiation followed an increasing monitoring of earth stations around the country. While some earth stations opted to become part of subscription television companies, others claimed their role as community television serving the local population.

Following the idea of a convergence of democratic and free-market policies that characterized Latin America in the 1990s,[4] I explore the conjunction of market expansion and the state's expanded control over public space and copyright, alongside initiatives like those promoted by Fundación Social which helped justified the gradual process of formalization, by promoting

[3] Fundación Social, *Senales de humo*.
[4] Alejandro Portes et al., *Ciudades latinoamericanas: un análisis comparativo en el umbral del nuevo siglo* (Buenos Aires: Prometeo Libros, 2005); Ankie M. M. Hoogvelt, *Globalization and the Postcolonial World: The New Political Economy of Development*, 2nd ed. (Baltimore, MD: Johns Hopkins University Press, 2001).

the rights and freedoms of communitarianism, in which televisual technologies played a key role.[5] Nevertheless, definitions of community arose from different experiences most of them rooted in the local histories behind the infrastructures of satellite dishes. Beyond the distinction of good and bad practices, emerged a set of experiences that help to reveal the encounter of technologies with local politics, maintaining a residual infrastructure usually overlooked by the political calculations of progressive urban political parties.

Spectrum Invaders all over the country

In September 1992, *El Tiempo* posted a newspaper article called the "Spectrum Invaders."[6] The tagline for the news article explained the case of Telecinco in Barranquilla, when a group of entrepreneurs "acquired a 10 watts transmitter in Philadelphia and antenna in Chicago, to broadcast television from satellite signals on channel 5 of the Colombian electromagnetic spectrum." The owners of the system justified their venture under the changes introduced by the new Colombian Constitution of 1991. In a letter submitted to the Ministry of Communication, Luis Carlos Mantilla, the owner of Telecinco, argued that article 20 on freedom of expression and article 38 on the right of free association allowed them to build a private channel for the city. [7]

The comments about Telecinco from *Semana* emphasized how the proliferation of TV channels coming out from satellite earth stations opened a new chapter in the debates about television privatization in the country. The difference, they said, was "that in this occasion, the

[5] James Hay, "The New Techno-Communitarianism and the Residual Logic of Mediation," in *Residual Media*, ed. Charles R. Acland (Minneapolis: University of Minnesota Press, 2007).
[6] "Invasores de Espectro," *El Tiempo*, September 22, 1992.
[7] "Se Privatizó La TV?," *Semana*, July 21, 1992.

debate moves from theoretical to practical ground, making it possible that facts anticipated law."[8] The article also stressed the lack of capacity from the government in regulating the operation of pirate TV stations, considering it an "uncatchable" tendency, to the point that in Ibague, "the municipality is the promoter of the TV Station." For these reasons, the path for designing a clear legal definition on private television seemed far, as the only way to decide if Telecinco and other TV station were pirate, relied on legal decisions of the Constitutional Court. More importantly, the article said, "the worst would be the proliferation of channels that creates a huge disorder of interferences and signals, because of the scarcity of the electromagnetic spectrum."[9]

This “invasion” of the electromagnetic spectrum happened all around Colombia, from neighborhoods who owned their earth stations to towns in rural areas which had for the first-time access to television. As such, both articles used the events of Telecinco in Barranquilla to emphasize the operation of more than “200 pirate earth stations, basically dedicated to retransmitting through the electromagnetic spectrum, signals received from satellite dishes.” While satellite dishes in Colombia spread because of their promoted access to international signals at an affordable price, they also circulated locally produced content. Enrique Rodriguez Caporalli argues that "the success of international television in rural communities and municipalities came from the sales strategy of satellite dishes," which also offered local administrations and media producers the possibility to broadcast public interest messages.[10] For these reasons, the promotion of satellite dishes as communal service allowed the establishment of local television stations in different parts

[8] “Se Privatizó La TV?”
[9] “Se Privatizó La TV?”
[10] Fundación Social, *Senales de humo*.

of the country.

Despite the anxieties about the proliferation of television stations, for some people, these experiences represented examples of local entrepreneurship. Such was the case of *Teleplatino*, a Television station in the town of Condotó, in the department of Chocó. On January 13, 1990, Alfonso Carvajal, a correspondent for *El Tiempo*, published an article entitled "jungle miracle." Describing Condotó, like a forgotten and beautiful corner in the Colombian Jungle, the journalist, enumerated a list of tv shows, from Italian soccer to a press conference of the Peruvian president. The article describes this "technological miracle" as the work of an Italian Salesian priest, Gervasio Fornara, who proposed to the local major to "create a local channel with cultural and pedagogic purposes." The budget was 12 million pesos, and included the purchase of a satellite dish, a repeater, two cameras, a character generator, and a Betamax."[11]

Con la emisión de Teleplatino

Milagro selvático

POR ALFONSO CARVAJAL
■ *Enviado Especial de EL TIEMPO*

Condoto

Estas son algunas cosas que los condoteños pueden ver en directo: un partido entre el Nápoles, de Maradona, y el Milán, de Gullit; una sorpresiva rueda de prensa del presidente peruano Alan García; o a su propio Alcalde anunciando las últimas resoluciones municipales.

El milagro tecnológico ocurrió en mitad de la selva chocoana. En 1986, el padre italiano Gerwasio Fornara propuso al alcalde, Amín Escobar, la creación de un canal local con objetivos culturales y pedagógicos.

El proyecto fue acogido por el Concejo y nació Teleplatino. Se compró una antena parabólica, una repetidora, dos cámaras, un equipo interno de transmisión, un generador de caracteres y un betamax, que costaron alrededor de 12 millones de pesos. Y se instaló el canal de la selva en la casa parroquial de los salesianos. la cobertura de la parabólica alcanza 25 kilómetros a la redonda.

El experimento ha tenido curiosas repercusiones. Captan las dos cadenas nacionales y transmiten un noticiero entre las 8 y 9 p.m., donde se hace un recorrido por las veredas, las actividades de la alcaldía, sucesos locales y expresiones culturales.

Teleplatino aspira a transmitir cuatro horas diarias. Cuenta con un periodista, un camarógrafo —el registrador municipal—, un coordinador de comunicaciones y el director.

CONDOTO, un olvidado y hermoso rincón de la selva colombiana, cuenta con su propio canal de televisión.

Figure 5.1. *Article on TelePlatino*, from El Tiempo, January 13, 1990, p.

[11] Alfonso Carvajal, "Milagro Selvático," *El Tiempo*, January 13, 1990.

Over this time, both the price of satellite dishes and also the technologies for producing videos dropped. As Enrique Rodriguez-Caporelli explained, "since the beginning of the nineties, access to low-cost audiovisual equipment for home or industrial use, made popular their consumption, which can be traceable to the sales of video cameras in San Andresito shops."[12] For this reason, several local television channels, born out of the deployment of a satellite dish, created their content, as in the case of *Telecandelaria*, a channel in the department of Valle that produced two hours of daily programming about the major activities and general interest. In Sevilla, Valle, Jaime Peña a graduate from the International School of Cinema and Television in Cuba became the programming director. Before and after national channel news, it broadcast "one daily hour of own programming about environmental, legal, sports and opinion topics."[13]

As mentioned in the previous chapter, one of the first attempts to stop the proliferation of satellite dishes happened through an increasing reference to their accused encroachment on public space. As such, restrictions mostly targeted big cities like Bogotá, Medellín, and Cali, but the unhindered spread of satellite dishes in rural zones and small towns concerned the competing licensed subscription companies in those areas. As the article on "Parabolicas en la Mira" explained "the problem is that, while the government defines what is public space, parabólicas had extended de facto. Entire neighborhoods and even small towns - with major approval - had seen the flourishment of parabólicas." The article discussed a flyer distributed by a company called Cable Vision, which asked for a monthly installment of 20000 pesos for maintenance, which was

[12] Enrique Rodríguez Caporelli, "Algunas anotaciones para una posible historia de la televisión local y comunitaria en Colombia," in *Señales de humo: panorama de la televisión local y comunitaria en Colombia*, ed. Fundación Social (Santa Fe de Bogota: CINEP, 1998), 15.
[13] Ricardo Gómez, "La T.V Comunitaria En Colombia," *Signo y Pensamiento*, no. 24 (1994): 29.

considered by subscription companies as "a simple front to hide the selling of the service."[14]

A different set of actors rooted in different histories of communal life made the emergence and deployment of satellite dishes a new way to understand local politics, modernization, and the presence of neoliberalism in spaces which are not usually considered technological.[15] While most of the academic work distinguished among good and bad uses,[16] what is important to highlight is how satellite dishes represented aspirations that transcended urban tastes, and advocated for an idea of communal life, in the middle of the Colombian conflict. Local authorities, religious communities, and NGOs helped to define different versions of community that fit the democratic definition introduced by the 1991 Constitution. Until that moment the state was the one in charge, almost exclusively, of the provision of public services. However, the Constitution of 1991 allowed individuals and organized communities to participate in its provision: in article 365 it was established that these services could be "provided by the State, directly or indirectly, by organized communities, or by individuals."[17]

The affordances of satellite earth stations played a central role in the uses developed by the community. Diagrams of community antenna television (CATV) systems published in 1980 in the US and Colombian electronics magazines showed the possibility of communal TV. While, as

[14] "Las Parabólicas En La Mira."
[15] In the case of the United States, Ronald R Kline, *Consumers in the Country: Technology and Social Change in Rural America* (Baltimore: Johns Hopkins Univ Press, 2002). For the case of Peru, and a broader sense of technology in the periphery Chan, *Networking Peripheries: Technological Futures and the Myth of Digital Universalism*.
[16] Fundación Social, *Senales de humo*; María Patricia Téllez G., *La Televisión Comunitaria En Colombia: Entre La Realidad y La Utopía* (Bogotá: Ministerio de Cultura, Comisión Ncional de Televisión, 2003); Gómez, "La T.V Comunitaria En Colombia."
[17] Jhonny Moncada Mesa, Carolina Pérez Muñoz, and Germán Darío Valencia Agudelo, "Organized Communities and Potable Water Public Utilities in Colombia: Advocacy for the Third Economic Option Based on the Common-Pool Resources Theory," *Ecos de Economía* 17, no. 37 (December 2013): 125–59.

mentioned before, the business of satellite dishes targeted individual users, later it turned into multiuser systems for apartment buildings and neighborhoods. With the increasing circulation of coaxial cable, the proliferation of satellite dishes allowed the establishment of CATV systems at a large scale in Colombia. In this way, satellite dishes compete with national TV and the expansion of cable television, as the construction of CATV systems developed new ways to circulate television, from international signals, recorded programs and movies, and local content produced by the community. This use of community access television for local consumption characterized the excitement of communication scholars who worked to design the sustainability of these channels in the middle of the process of television privatization and the rise of cable television companies in Colombia during the 1990s.

Formalizing the informal

In 1989, the Ministry of Communication exposed the future of the upcoming changes in Colombian television. According to him, "faced with the reality of the constant and vertiginous change of television technologies, the country must prepare for their advent and incorporation into national television. This initiative requires large investments that the State cannot afford alone."[18] These investments needed the participation of private companies, he argued, as the state could not afford the development of infrastructure. As another ministry explained, “the country had witnessed a new phenomenon which had enacted, in practice, the loss of the state monopoly, by the presence of other service operators.” The minister expressed his concern about the owner of parabolic antennas, despite the lack of resources to “make effective the prohibitions ordered by the

[18] Enrique Daníes Rincones, *Memoria al Congreso* (Bogota: Ministerio de Comunicaciones, 1990), 30.

State."[19]

Despite concerns about US copyright infringement, the availability of television signals over Colombian territory expanded as more channels in the US and other Latin American countries used satellites for reaching broader zones. While subscription channels focused on a few channels, the offerings with satellite dishes included multiple signals. Venezuelan, Mexican, Brazilian, and Peruvian channels captured the attention of satellite television owners. This turn to available signals happened especially when US companies started to codify their signals, making them more difficult for satellite dish owners to receive (without payment). Considering the breadth of satellite signals and the ability of dishes to receive them, the government considered that "television signal reception via satellite, could not be prevented with administrative or policy measures."[20] From the perspective of the government, new technologies from High Definition Television and Direct Satellite Broadcasting should be included in the offer for television distribution. In this increasing competitive market, the government also considered opening the use of the electromagnetic spectrum for Colombian television networks to make more competitive, which would require investment in technology and content production.

The government argued that the process of economic opening, or *apertura,* which started in 1989, required "for its successful development, new and better telecommunications services." In this regard, the Constitution of 1991 meant a radical change in the rules of the game and the investment patterns in financial and public service infrastructure.[21] As described by a study of the

[19] Carlos Lemos Simmonds, *Memoria al Congreso* (Bogota: Ministerio de Comunicaciones, 1989), 14.
[20] Daníes Rincones, *Memoria al Congreso*, 30.
[21] Israel Fainboim Yaker and Carlos Jorge Rodríguez Restrepo, *El Desarrollo de La Infraestructura En Colombia En La Década de Los Noventa*, Reformas Económicas 51 (CEPAL, 2000), 5.

Economic Commission for Latin America and the Caribbean: "private investment, reached its peak since 1995 in the roads and telecommunication sectors." The wave of privatization targeted telecommunication companies, especially with the introduction of new services, like added-value services and mobile telephony.[22]

One of the most remarkable aspects of the spread of satellite dishes in Colombia had to do with the impact of the introduction of such technology to the social organization in many towns in Colombia. While references to globalization privileged the changes in capital cities, globalization entered rural areas with a force shaping their landscape, most of them by the introduction of new businesses oriented to global exports, particularly agro-businesses and multinational exploitation of petroleum, charcoal and gold. These forces influenced a new process of displacement and reorganized peasant lives.[23] Telecommunications infrastructure not only offered a promise of security, mostly for investors and grant-land owners but also became a target in the middle of the internal war waged mostly in the Colombian countryside. As these significant trends shaped the life of rural populations in Colombia, the role of satellite television demonstrates an indifference in developing infrastructure other than that motivated by resource exploitation.

Despite the initiative of the government, the process of television privatization took several years. In 1991, the government of César Gaviria reduced the number of television production companies and located the remaining in the two private channels owned by the government. The

[22] Fainboim Yaker and Rodríguez Restrepo, 12.
[23] Cristina Rojas, "Colombia's Neoliberal Regime of Governance: Securitization by Dispossession," in *Post-Neoliberalism in the Americas*, ed. Laura Macdonald and Arne Ruckert, International Political Economy Series (London: Palgrave Macmillan UK, 2009), 231–45, https://doi.org/10.1057/9780230232822_15; Forrest Hylton, *Evil Hour in Colombia* (London: Verso, 2006).

government gave the justification that it wanted to test the competition among channels "similar to the one in a privatized future."[24] However, the Ministry of Communication highlighted that television privatization was a phenomenon already happening "in a regional way and unorganized manner, through practical action." According to him, in Colombia, "there are more than 200 towns, without counting big cities, in which parabolic antennas receive and distribute international signals. Moreover, lots of them are distributing local programs without any rule, through small broadcasting devices."[25]

The proposal of the Ministry included the creation of an autonomous entity to "restore order in the diffusion and reception of the signal, being coherent with economic openness, and obey the constitutional mandate."[26] To put an end to what they saw as a chaotic, unregulated situation, the government proposed the creation of an independent institutional authority to look over the transition to a privatized television system in Colombia. In June 1995, the government instituted the National Television Commission (CNTV), to set the rules for the creation of new local and regional channels and subscription television companies, and, as an article from *El Tiempo* mentioned "to put parabolic antennas in its place."[27]

The CNTV managed the process of privatization, in which channels and not programming spots were now owned by the biggest media networks in Colombia, signaling a switch from a state-oriented television to a free-market model. The government kept the three public channels,

[24] "Al Agua Patos," *Semana*, June 17, 1991.
[25] "Al Agua Patos."
[26] "Al Agua Patos."
[27] "Arranca Comision Nacional de TV," *El Tiempo*, June 13, 1995.

but it conceded two private channels to Radio Cadena Nacional and Caracol.[28] The privatization involved a change in the responsibilities of INRAVISION, which since 1996 focused on producing and broadcasting of cultural and educational television. The market-oriented television model, as expressed by Milcíades Vizcaíno, also included the services of direct satellite broadcasting, from Direct TV and Sky Colombia. The commission, then defined two types of television services: open and closed. In closed television, the user gets the signal from a "physical distribution medium," compared to the open that used the electromagnetic spectrum managed by the government. As such, cable television and direct broadcasting companies joined community TV, a newly defined service that included "42 closed television systems and 657 incidental signals earth stations." [29]

This role of the government in regulating opened up new understandings of television both as a public service and a business. At that time, the government faced the paradox of either considering this spontaneous creation of satellite dish networks as illegal or designing strategies to integrate them. A large part of the transformation of these infrastructures happened in the process of legalization. In this regard, the plans for satellite earth stations joined the free market policies promoted by the process called "*apertura economica*"(economic openness), on the one hand, and democratization on the other, which characterized the arrival of neoliberalism in Latin America.[30] The 1991 Constitution recognized new rights and introduced language about environmental

[28] Milcíades Vizcaíno G, "La legislación de televisión en Colombia: entre el Estado y el mercado," *Historia Crítica*, no. 28 (2005), http://www.redalyc.org/resumen.oa?id=81102806.
[29] In DirectTV Colombia took part, Carvajal, Santo Domingo Group, the Cisneros Organization from Venezuela and Hugues Electronics. In Sky Entertainment, Casa Editorial El Tiempo, Televisa from Mexico, Globo from Brazil, The News Corporation Ltd and Telecommunication International. "Llega la televisión del cielo," *El Tiempo*, April 27, 1997.
[30] Portes et al., *Ciudades latinoamericanas: un análisis comparativo en el umbral del nuevo siglo*.

protection, provided fiscal support for municipal autonomy, and included new rights for ethnic minorities.[31] In terms of political participation, the Constitution in its article 311 included the "local promotion of community participation as part of the new role assigned to the municipal regime.[32]

A New Sense of Community

A first draft to legalize community television took place in August 1992, when Gustavo Rodriguez Vargas passed a bill on the rule for delivering television service. According to *El Tiempo*, the initiative looked for the possibility to make legal community channels as part of the privatization of Colombian television.[33] In this process, different interest from organized communities to stations that wanted to keep them as a business.[34] As the government shutdown several stations, some of them turn into the discussion over community and local television, as a space to revoke the suspension of the service. Such was the case of represents of Telepacho, a parabolic antenna system localized in Ibague, built a gift of the elected major Francisco José Peñalosa, for "hundreds of people" from the city who could not paid for the authorized system.[35]

With the introduction of the CNTV in 1995, the government established the categories that

[31] Palacios, *Between legitimacy and violence: a history of Colombia, 1875-2002*, 249–51.
[32] Article 311. As the fundamental entity of the political-administrative division of the State, it is the responsibility of the municipality to lend those public services determined by statute, to build the projects required for local progress, to arrange for the development of its territory, to promote community participation, the social and cultural betterment of its inhabitants, and to execute the other functions assigned to it by the Constitution and the statutes. Miguel Antonio Ceballos Arévalo and Gerard Martin, *Participación y fortalecimiento institucional a nivel local en Colombia* (Bogotá; Washington, D.C.: Centro Editorial Javeriano, Pontificia Universidad Javeriana ; Georgetown University, Center for Latin American Studies, 2001), 30.
[33] "Proponen Canales de TV. Locales y Comunitarios," *El Tiempo*, September 4, 1992.
[34] Téllez G., *La Televisión Comunitaria En Colombia: Entre La Realidad y La Utopía*, 26.
[35] "Invasores de Espectro."

defined the service of community television. In terms of the territorial coverage, the Law 335 of 1996 established the existence of non-profit community TV but it this law there was not a specific name to the service.[36] A year later, in a new agreement, the CNTV defined it as "a television service offered by organized communities for non-profit, to self-service of national and international television and the production developed by them."[37] The community service must act as closed television system, and as such, it needed to use physical cable, and it had to distribute its production as well as the three national channels and incidental signals from the satellite dishes that they used, and distribute coded signals, by paying the corresponding copyrights.[38]

If on one side, privatization seemed the best channel to formalization, the idea of creating a community television service would exemplify another way of developing the culture of participation embedded in the new Colombian Constitution of 1991. One path followed by multiple CATV systems that used parabolic antennas was to sell their infrastructure to new companies that invested in the process of formalization. Such was the case of the parabolic antenna in the Palenque neighborhood in Bogota, showed in chapter 4. Although its initial success, the service decay and after six years, in 2003, the community board who managed it, decided to move all their subscribers to a bigger local company called Telekennedy, which later was sold to another bigger company CableCentro.[39] CableCentro and Superview emerged as subscription companies who started to buy smaller companies and consolidated a network with even greater coverage than

[36] Fundación Social, *Senales de humo*, 54.
[37] Comisión Nacional de Televisión, "Acuerdo No.29" (1997).
[38] Téllez G., *La Televisión Comunitaria En Colombia: Entre La Realidad y La Utopía*, 27.
[39] "Desaparecen Del Mercado Las Marcas TV Cable, Superview, Cablecentro, Cablepacífico y Satelcaribe."

the licensed companies.[40] Later, in 2008, Cablecentro and superview became part of Claro Colombia, a company owned by the Mexican group America Movil.[41]

In this perspective, Community television emerged from the intersection of different interests that delayed and transformed the concept of illegality during these years. As media economies are dynamic rather than static,[42] in Colombia, the process of categorizing the television system and formalizing it took more time than expected by intellectual property advocates as Guillermo Zea. As *Semana* pointed "Parabólicas as street vendors and Betamax are easier to expel in theory than in practice," and in most of the cases, they were necessary to the system to grow.[43] Satellite dishes, in other words, emerged as an active participant in the process of privatization.

Community media in Colombia would play a significant role in serving communities in many ways. As Clemencia Rodriguez had illustrated "in 2008 the Colombian mediascape included 651 community radio stations, 553 community televisions, and 26 indigenous radio stations," most of them as the result of the work of Colombian media activists and their "tenacious efforts to democratize the airwaves."[44] According to her, community radios and television stations "come in every style and form," from banal replicas of commercial radio and television to fascinating experiments in citizens; media and participatory communication." For her, many of Colombia's so-called community radio and television stations are nothing modern than loudspeakers for a local priest or political lord."[45]

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[40] "Pelea Por TV Por Cable," *El Tiempo*, May 5, 2000.
[41] "Desaparecen Del Mercado Las Marcas TV Cable, Superview, Cablecentro, Cablepacífico y Satelcaribe."
[42] Lobato and Thomas, *The Informal Media Economy*.
[43] Cristina de la Torre, *Alvaro Uribe o el neopopulismo en Colombia.* (Medellín: La Carreta, 2005).
[44] Clemencia Rodríguez, *Citizens' Media against Armed Conflict: Disrupting Violence in Colombia* (Minneapolis: University of Minnesota Press, 2011), 28.
[45] Rodríguez, 31.

The framing of the use of community TV for communication and development inspired the work of NGOs as *Fundación Social* who, according to Maria Patricia Téllez, made this type of television, to emerge from "anonymity and initiated its adulthood", in their process of "being recognized as a citizen with "rights and duties".[46] In the search for "good practices," the history of community television began at the moment when some of these parabolic antennas acquired formal licenses by the Colombian government. In this line of thinking, to support a community initiative it was necessary to differentiate "the non-profit, cultural and local character of some this channel to facilitate their legalization and strengthening." As Ricardo Gomez expressed, the legalization of local community channels "must be based on the non-profit character of its purposes and supported by a significant percentage of local and national production." In other words, he said, "we must *desparabolizar* (cut the use of distributing international signals) the local T.V., and obtain mechanisms that ensure its sustainability and guarantee its quality."[47]

Under a communication for social change framework the reasons for explaining the emergence of community television, could not be reduced to a response of communities' lack of expression, the instrumentalization by political institutions, the logic of the market or the role of communication practitioners. Instead is a new dimension of mediation, a reduction in the distance between producers and receptors, "when their face to face exchanges are experienced on an everyday basis, the mediation of television is radically other."[48] This improvement converged with a political renovation, as through these channels, the local gained legitimacy as the new scenario for politics, making it more accessible than national media and as such a space for participation,

[46] Téllez G., *La Televisión Comunitaria En Colombia: Entre La Realidad y La Utopía*, 33.
[47] Gómez, "La T.V Comunitaria En Colombia," 26.
[48] Fundación Social, *Senales de humo*, 21.

discussion, and agreement.

However, control over face to face interactions did not only relied in the progressive agenda of participation claimed by advocates of communication for social change, as it also appealed to other forms of understanding community. The distinction of good practices did not contribute to made evident the role of community television in different parts of the country. Especially, because the same model of mediation, theoretically developed from an ideal of communication, also characterized the "right-wing communitarism" that strengthen in these years. Promoted during those years by the Antioquia Governor Alvaro Uribe Velez, in the concept of the Communitarian State, "community is the reason of the State," and direct contact with citizens was indispensable.[49] As narrated by Plinio Apuleyo Mendoza, in the town of Jericó, the Athens of Southeast Antioquia, Alvaro Uribe staged a community council, years before he became the president of Colombia. Acting as a governor, Uribe staged the council "in the large brick church where hundreds of town people waited for him. They are seated in stools and banks displayed across of the vast nave. The big screen that covers the altar, the additional screens suspended in each column, the big table occupied by the governor, their secretaries, the microphone, the reflectors, the lectern, the flags, made us think of a conference room." The dynamic is that of the business owner and the executives and stock owners of a company.[50]

[49] Torre, *Alvaro Uribe o el neopopulismo en Colombia.*
[50] Plinio Apuleyo Mendoza, "El Revolcón Paisa," *Semana*, August 18, 1997.

Figure 5.2. *Slogan of Jericó Television*. From Jericó Television in YouTube.

The council reflected the dialogues with inhabitants of Medellin and turned into community councils when Uribe Velez was governor of Antioquia. Meetings in which he listened to the problems or complaints of the inhabitants of each municipality and undertook to resolve them. Over the years, and his eight years as the President of Colombia known for militarism and neoliberalism, this dynamic became his most effective communicative tool.[51] From this perspective, while the scholarly models of analyzing community media recognized the role of community television in legitimizing local powers, the value for local autonomy, and the permeability to more directed participation, its framing of the popular heavily promoted its emancipatory possibilities, but neglected its possible appropriation and use by reactive forces, as evidenced by this Colombian historical example from which the infrastructure emerged.[52] The

[51] Lucia Camargo Rojas, "Uribe Tevé," *Cien Dias, CINEP (Colombie)* 70 (2010).
[52] Valeria Coronel and Luciana Cadahia, "Populismo Republicano: Más Allá de «Estado versus Pueblo»," *Nueva Sociedad*, no. 273 (2018): 72–82.

definition of the community played as an empty signifier with different meaning in a new wave techno-communitarianism.[53]

The role of copyright

In the process of privatization, copyright played a central role in the discussions on the legal requirements for television services. At this level, international institutions like the World Intellectual Property Organization (WIPO) and the Motion Picture Association of America(MPAA) pushed the Colombian government to strengthen its measures toward copyright protection. In the case of satellite dishes and community television, in the beginning the MPAA and the government agreed that "it would be impracticable to take measures such as confiscating, for example, the antennas that receive the signals, or sanctioning each of the parabolic owners."[54] Despite the legal and technical measures introduced in the 1980s to control signal piracy in the Caribbean, the Miami Herald still reported the presence of signal piracy in the 1990s. As reported by the *Miami Herald*, "Latin America's fascination with the parabolic satellite receiver has grown keen enough to inspire hymns," like the song "La Parabólica" by the Colombian cumbia band La Sonora Dinamita.[55]

In 1988, when the government ruled the use of satellite dishes, concerns about copyright did not stopped the process of satellite dishes expansion. While on the one hand, the definition of private use helped to emphasize the monopoly of the state over television service and the rights of subscription television operators, the government also asserted the private rights of intellectual

[53] Hay, "The New Techno-Communitarianism and the Residual Logic of Mediation."
[54] "Cambio y Fuera," *Semana*, October 4, 1993.
[55] "Dish Antennas Spread like a Rain Forest in Latin America," *The Miami Herald*, April 25, 1993.

property owners. In preparation for the decree 288, in August 1987 the Ministry of Communication consulted with the WIPO, regarding the regulation of satellite dishes.[56] According to the response of its general director, "if equipment only serves the reception for private purpose, there will not be any author rights infringement," making the decree compatible with the Berna, Rome, and Satellite conventions. For the WIPO established that the use of distribution systems, received by "an antenna of bigger dimensions than those used for individual reception" could cover "a small group of apartments and building, under a strict interpretation of the concept of neighborhood, and without any profitable end."[57]

However, such definition will change as the government organized television services in the 1990s. At this moment, owners and managers of cable television companies legally settled in Colombia trusted that "the situation can change radically, thanks to the new Television Law and the application that the newly created National Television Commission can make of it." As they recognized parabolic antennas as rivalry, they made claims for a stronger mechanism to secure free and fair competition. Trusting in the gradual enforcement of legal and technical measures, a business owner explained "Even the business is no longer so profitable for the 'parabólicas' because the so-called incidental signals are becoming less, due to the coding that the same international chains have made of their services."[58] However, on the other hand, they considered the creation of a "legal parabolic culture with a social flavor" because the lower income communities would then have access to their packages.[59] As in 1993, the government estimated

[56] Fernando Cepeda Ulloa, *Memoria al Congreso* (Bogota: Ministerio de Comunicaciones, 1987), 16.
[57] Cepeda Ulloa, 327.
[58] "Los Enredos Del Cable," *Dinero*, August 1, 1995.
[59] "Los Enredos Del Cable."

that around 4 millions people accessed television through these services, and generated direct and indirect jobs for around 2000 families.[60]

The key argument of how informal economies impact competition by avoiding taxes, labor and trade regulations, and offering lower prices, reached the demands not only of local but also foreign firms. As a study from CEPAL concluded, "the future profitability of the business will depend on the way the CNTV officializes illegal cable operators and parabolic antennas, who steal the satellite signal." The study compared the 10000 pesos (7 US dollars) paid by community television subscribers to the 50000 pesos (35 US dollars) of cable and DSB companies subscribers. The risk, for the researchers was "that the government legitimizes the *parabólicas* as communitarian non-profit channels."[61]

The impact of globalization combined with an expanding informal economy has led to a challenging environment for formal business in developing counties, and in some cases, perverse incentives for the government to encourage formalization.[62] While from a policy perspective, formalization suggests "removing the negative aspects of the informal economy while ensuring the protection of the opportunities for entrepreneurship and livelihood that informal work provides," it is also an opportunity to set up new agendas of modernization and the regularization of the market to allow for corporate expansion. In the case of public space, policing increase as

[60] "Cambio y Fuera."
[61] Fainboim Yaker and Rodríguez Restrepo, *El Desarrollo de La Infraestructura En Colombia En La Década de Los Noventa*, 39.
[62] Kevin Fandl, "Beyond the Invisible: The Impact of Trade Liberalization and Formalization on Small Businesses in Colombia" (Doctor of Philosophy in Public Policy, George Mason University, 2010), 44.

tools for formalization "became institutionalized as a way to move informal economy from public space." In many ways, the claim over public space intersected with an increasing presence of private investment and corporate growth in cities like Bogota.[63]

Arguments about "the culture of informality" also played a role in framing the particular environment for this competition. As one subscription television company owner explained, accessing parabolic antennas was a cultural problem, "Almost what is more a mental problem. Very few people can be taken out of their heads that if for decades they have seen almost free television (only buying the device and paying the light bill) now they have to come and pay for that privilege."[64] Copyright gradually entered the definition of illegality. In an investigative report that compared paid television to a jungle without rules, José Fernando Hoyos and Guillermo Franco, described how legal subscription television paid taxes, copyright licensing fees, a 10 % to the National Commission, as well as a lease to energy companies for the use utility poles.[65]

In this perspective, Law 182 of 1995, copyright infringement mattered more than satellite dishes location in public space. As the article 25th expressed "Prior authorization and payment of the corresponding copyright, and by the concession granted by the Ministry of the Law or by the National Television Commission, public, private and community operators and television space concessionaires may receive and distribute coded signals." If anyone violated such rules, illegal reception and reception, it would be considered an offender and a borrower of a clandestine service and as such will be subject to the penalties." On the other hand, this article also defined and thus

[63] Hunt, "Citizenship's Place: The State's Creation of Public Space and Street Vendors' Culture of Informality in Bogotá, Colombia," 341.
[64] "Los Enredos Del Cable."
[65] José Fernando Hoyos and Guillermo Franco, "TV Pagada: La Ley de La Selva," *El Tiempo*, February 22, 1998.

recognized the reception of incidental signals "as that transmitted by satellite and that is intended to be received by the general public of another country, and whose radiation can be picked up in Colombian territory without the use of decoder equipment being necessary."[66]

In the words of the Association of Television Operators by Subscription, "While a basic package of channels costs a legal dealer more than $ 15 a month, they can perfectly charge three dollars a year for the same offer."[67] Ramiro Bejarano, a former director of the Colombian intelligence agency and lawyer, conceived that the business of parabolic antennas an aberrant fact, and mention how the "the violation of the rights of the author and intellectual property occupies the second line in importance in the relations with the United States, after the drug trafficking.[68] His metaphor goes deeper in comparing the selling pirate signal, to selling drugs in public space. In this respect, as proposed by Alexander Dent, defenders of intellectual property easily could "activate ideologies of material purity in the locations where it is instituted - ideologies associated with long-standing approaches to sexuality, subjectivity, and cleanliness."[69]

Mentioning how Guillermo Zea had managed to "bring to the courts 21 informal operators of subscription television for piracy," the article concluded that only the MPAA, represented by Zea, was the only force capable of ordering this chaos. As early as 1984, the MPAA had a presence in Colombia, with the support of Guillermo Zea Fernandez, an influential lawyer in the development of copyright in the Country. That year, Zea led a campaign to "reorganize y reorient the market to a legitimate product," referring to the Betamax distribution and the payment of

[66] República de Colombia, "Ley 182" (1995).
[67] Hoyos and Franco, "TV Pagada: La Ley de La Selva."
[68] Hoyos and Franco.
[69] Dent, "Piracy, Circulatory Legitimacy, and Neoliberal Subjectivity in Brazil."

royalties to producers.[70] By then, the MPAA strengthened its strategy to Latin American countries, and in the case of Colombia they helped form a video union with local licensees, as well as conducted civil and penal raids on retailers and duplicators."[71]

As an article in October 1993 explained MPAA and the Colombian government coincide that it will be unpractical "to confiscate, the antennas or sanction each one of the satellite dish owners."[72] The government chose the National Television Commission as the entity to carry the inspection, tracking, and control of television. An institutional and legal infrastructure emerged to check on the operation of different operators, especially this of subscription, satellite, regional organizations, and community television. Technically speaking, the Ministry of Communications acquired a "modern and new control system of the electromagnetic spectrum, unique in Latin America." The system will allow the authorities to keep a register of the authorized user of the spectrum, as well as to detect non-authorized signals, control the legally established ones, and "in general, manage and plan the rational use of the electromagnetic spectrum from a computerized control unit,[73] tasks conducted on an everyday basis in the intensive format a national level.[74] However, on the other side, the National Commission served as a platform for several institutions in charge of policing television distribution in the country. One of these institutions was the Office of the Attorney General of Colombia, created under the Constitution of 1991 to "prosecute offenders, investigate crimes, review legal processes and accuse penal law infractions against

[70] "Guerra al Betamax," *Semana*, December 17, 1984.
[71] Peter Besas, "Homevideo: MPEA Tackles Latin Pirates," *Variety*, March 19, 1986.
[72] "Cambio y Fuera."
[73] Juan Manuel Turbay Marulanda, *Memoria al Congreso* (Bogota: Ministerio de Comunicaciones, 1996), 13.
[74] Turbay Marulanda, 22.

judges and courts of justice."[75]

Figure 5.3. *Article headlines on Parabolic Antennas.* From El Tiempo, 1992,1993 and 2004.

At the same time, during these years, educational campaigns against copyright infringement covered the country. According to the chief of licenses division of the National Direction of Authors' Rights, the ignorance of the authors' right law was "in almost all spheres of society, and it is causing abuse and inadequate use of literary, informatics and artistic production." Despite the campaign targeting mostly software use, in which the policing included "surprise" police operation in small businesses, the campaign against movies and music records included spectacular confiscations and public display of destruction of piracy. IP policing requires coordination between politicians, law enforcement, urban planners, and lawyers, a coordination that is frequently carried out with a combination of brutality and relish."[76] In the case of satellite dishes, the actions also acted through this "surprise" police operations, targeting only some of the satellite earth stations and small companies, under a different set of arguments combining public

[75] Article 249. *Colombian Constitution*. From: https://www.constituteproject.org/constitution/Colombia_2013?lang=en#1279
[76] Dent, "Piracy, Circulatory Legitimacy, and Neoliberal Subjectivity in Brazil."

space and copyright infringements.

Initially, the process of confiscation relied on arguments about the use of public space. A sentence of the Constitutional court explained the process in which TV Cable sued Alvaro Luis Bayona owner of Antena Siete, a system for the reception of incidental television signals in the closed housing project of Capri Cedritos. The earth station that started in August 1988, was visited by two inspectors from the Ministry of Communications but later officers from the Intelligence Unit and anti-narcotics unit came to check the earth station. In May 1990 the General Secretary of the Ministry ordered the suspension of the service, because "it was encountered in a green communal zone," which led to the confiscation of the equipment by almost sixty police officers. Despite Mr. Bayona's petitions, the main argument was the use of cable crossing public space.[77]

By the end of the decade, the pressure over copyright protection of satellite signals reached the top, when the US government pushed the Colombian government to make more specific efforts to control piracy signals. As an article from *El Tiempo* in 1999 explained: "In the face of increased piracy of its signals, the major cable companies in the United States joined in making copyright claims through the US Government."[78] The pressure resulted in the inclusion of Colombia in the so-called "watch list" under the accusation of signal piracy and violation of copyright and intellectual property. However, the election of Andrés Pastrana as president in 1998 was received with approval by the MPAA and a Latin American cabler organization called TAP. According to an article in *Variety*, "By Christmas, six unlicensed operators had been shut down, with prosecutions pending; more such action is expected by June. Piracy accounts for an estimated 3

[77] Corte Constitucional, "Sentencia 1338" (1992).
[78] "TV Pirata En La Mira," *El Tiempo*, October 20, 1999.

million cable homes, the legit sector just 270,000." Mary Pitelli, executive director of TAP, commented that Pastrana's new appointees, "including the ministers of communications and trade and the attorney general, are familiar with intellectual property law - unlike their predecessors." The strategy had two fronts, one from the governments which will look for "law mechanisms to rule and legalize the service" and tv channels that develop more efficient electronic systems to restrict the illegal capture of signals." [79]

However, the strategy of multiple parabolic antennas relied on searching for incidental signals. Most of the parabolic antenna systems, searched for other available signals, like the Peruvian channels mentioned earlier. The availability of the signals of Peruvian channels like América Televisión, Panamericana and Radio Televisión Peruana impacted several communities that led to references to *parabólicas* as "*perubólicas*." As Armando Silva wrote, "with indigenous, Incas, Machu Picchu, crafts, Fujimori, drought, ancient cultural richness, people from Bogotá create their image of Lima." While for a group those references emerge from traveling, the other referred to TV programs like *Laura en America* or *Nubeluz*. For Silva, "the Peruvian cultural industry had its strength in television" and as such, it was part of the collective imaginary in Bogotá. [80]

The hard trade of making television

In the perspective of the advocates of community television, the turn from a parabolic antenna to community television relied on finding the new dimension in the relation of producers and receptors. In a report from the NGO Fundación Social asserted that community television

[79] Andrew Paxman, "Television/International: Crackdown on Cable Piracy--Really," *Variety*, January 18, 1999.
[80] Silva Téllez, *Bogotá Imaginada*, 301.

should explore the capacity of production expressed in technology appropriation, the organization of a decision process for production and the specialization of people in every field.[81] By technological appropriation, the study focused on the significant acquisition of portable cameras. While "parabolic connected every television set with the transnational television of standardized schemas," the camera in the house "made possible an anecdotal and circumstantial register of individual, family and neighborhood activities."[82] The optimistic tone, described these appropriations as the "product of creativity, persistence, and enthusiasm of diverse social actors." As examples, researchers in the field of communication found "groups of youth, which maybe would be destined to engross the number of unemployment in the country, and for those reasons to dedicate to informal or criminal activities," who now decide to "produce a musical in a house garage and learn to use cameras and to tell histories with audiovisual language."[83]

Since 1997, a central aspect of the definition of community television in Colombia refers to the production of content. By own-production channel, from the agreement that created community television in 1997, is that "in which programming is mainly oriented to satisfy the educational and cultural needs, with an emphasis in social and communitarian content programming. Later, the article 15th describes the percentage of own production that the channel should produce. As the article states "In order to promote the ties of union and the spirit of the community, the broadcast by the channel itself will be at least two hours daily in the schedule between 18:00 hours and 23:00 hours. In any case, the own production will not have a limitation

[81] Fundación Social, *Senales de humo*, 21.
[82] Fundación Social, 28.
[83] Fundación Social, 34.

regarding the maximum number of hours and will be subject to the strips established for effect."

This focus on production converges with several changes in how the government understood the culture. With the creation of the Ministry of Culture in 1997, the government advanced the project of developmental cultural policies in order to "promote and stimulate cultural processes, projects and activities within a framework of recognition and respect for the cultural diversity and variety of the Colombian Nation.[84] Informed by references from latin american scholars who argue for strenghting cultural industries in the region[85], the government translated some of these ideas into a new policy on a culture that embraced a transition from the social, as in forms of political and economic representation, to the cultural, as in forms of visibility and cultural representation. As Chaves, Montenegro, and Zambrano explain, the introduction of multiculturalism, displaced "social interest as political representation to diversity revindication, and the replacement from social to cultural demands."[86]

In this perspective, Latin American cities like Bogota, have offered new grounding experiences for thinking social inclusion through the involvement of the arts as a motor of transformation. For example, Bogota, as explained by George Yúdice, "have the plus that creative industries are being developed in a context that does not generate a segregation, as is occur in cities of the developed world." In this perspective creativity could help in solving social problems, which differentiates the creative cities approach which became mainstream in many cities of the

[84] Ministerio de Cultura, "Ley 397" (1997).
[85] George Yúdice, *The Expediency of Culture : Uses of Culture in the Global Era* (Durham: Duke University Press, 2003).
[86] Chaves, Montenegro, and Zambrano, "Mercado, Consumo y Patrimonialización Cultural," 17.

developed world.[87]

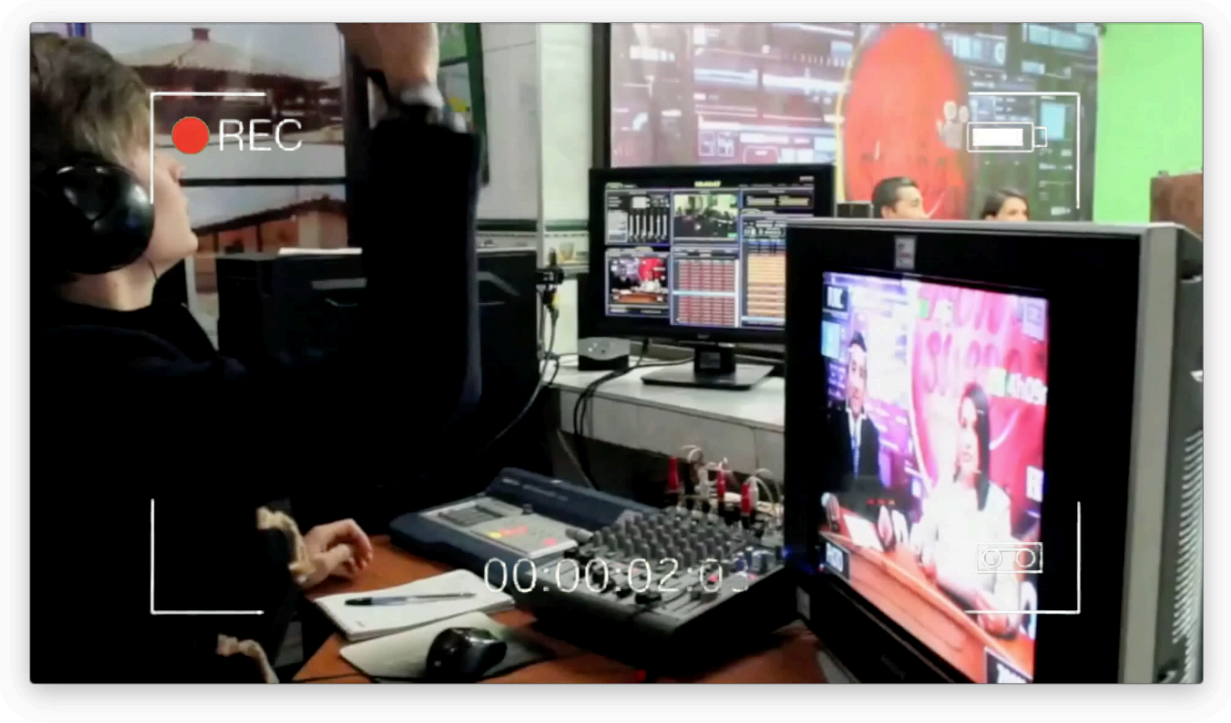

Figure 5.4. *Studio at TV Suesca*. From Lyda Deaza and Laura Sanchez. La Television Posible, 2017.

However, this turn to cultural industry shaped work conditions in in cultural induestries. This interest in production as expression and cultural representation, was embedded in the process of privatization, and the framing of labor under the new economic model that impacted television industries in Colombia . In relation to the process of television privatization, explains Bustos Gómez, production companies incorporated a flexible labor legislation to hire actors, directors, scriptwriters, writers, creatives, producers, and artistic and technical staff, entering fully into the world of freelance professional and compete without protection or regulation by the best

[87] George Yúdice, "Modelos de Desarrollo Cultural Urbano: ¿gentrificación o Urbanismo Social?," *Alteridades* 18, no. 36 (December 2008): 47–61.

contracts.[88]

Those conditions particularly influenced the idea of working at community television as volunteering is central in its maintenance. In community media in general, production and management rely on a "continuous revolving door of volunteers and poorly paid staff members".[89] Despite a 2003 report on community television mentioned that in most television community stations there are five to ten people working, [90] it don't include people who volunteer or who will leave the station for other options. Moreover, it shows how ideas of development and participation are recast in their interception with ideas of creative industries and entrepreneurship. The democratic opportunities opened by community TV tend to hide the labor behind their sustainability. In Maria Tellez words' "Young people are the most visible and are present in almost all channels performing multiple tasks: managing teams, producing musicals, live shows that are widely accepted, and that usually collect social and cultural activities of the community."[91] Despite the promotors of community television promoting these efforts as a passion, a closer look reveals the affective labor is present in sustaining these efforts

It is the turn from "illegal consumption" to "legal production" which specify the characteristics of Community Television, not as public service but as a non-profit in which voluntary work will be recognized as a potential of cultural production. According to María Patricia Téllez, "they won't be mere vehicle that allow the circulation of information (…) with the

[88] Gómez Bustos, "Políticas culturales," 293.
[89] Rodríguez, *Citizens' Media against Armed Conflict*, 32.
[90] Téllez G., *La Televisión Comunitaria En Colombia: Entre La Realidad y La Utopía*, 75.
[91] María Patricia Téllez Garzón, "A televisão comunitária na Colômbia: entre a realidade e a utopia," *Comunicação & Sociedade* 26, no. 43 (2005): 153, https://doi.org/10.15603/2175-7755/cs.v26n43p139-154.

Ministry of Culture recognition they convert into cultural producers. And in that way, they will contribute to build a democratic citizenship".[92] However, producing culture in terms of the legislation focus on the concrete practice of producing media content. In 1997, the CNTV asked for fourteen weekly hours of production to "foster the spirit of community", making it impossible for many Community Television initiatives to fill that requirement.[93]

For this reason, it is essential to examine the meaning of "community" in community television. The boundaries set to that service are attached to a notion of non-profit that looked for encouraging communities for finding their resources for sustainability. Restriction in how many subscribers they can get, as well as the extension of coverage, mixed with taxes and copyright rights payments. As non-profit, they are not considered as part of public investment by the government. On the other hand, in a more recent definition, the government recognize Community Television as an incentive to national television industry, the diffusion of culture and information in the country, as well as a employment generation.

As end-users are considered in media infrastructure, emphasis on labor can also be referred to the economy of culture and the operation and maintenance of them. At this level, media infrastructure studies call attention to the performative labor of technicians who maintain them on an everyday basis.[94] "In all the channels we are toderos [jack-of-all-trades; do it alls] and thieves. It is the only way, but it is worth it: television gives us the way to know each other, to strengthen the notion of the country in the middle of the difference". [95] Policing on Community Television

[92] Téllez G., *La Televisión Comunitaria En Colombia: Entre La Realidad y La Utopía*, 40.
[93] Téllez G., 46.
[94] Parks and Starosielski, *Signal Traffic: Critical Studies of Media Infrastructures*, 12.
[95] Diego Guerrero, "El Duro Oficio de Hacer TV," *El Tiempo*, February 14, 2004.

reveals the historical trend of controlling at a small scale the circulation of culture, but being open to the rules established by global connectivity. In the multiple outcomes of how the illegal satellite dishes assembled in Colombia, there is not only one idea of community but a diverse narration of how things are built and destroyed in this country.

The affects of media infrastructures

Community television resulted from the conjunction of new economic policies and political interest that matched the democratic ideas included in the constitutional reform of 1991. Compared to other countries, "Colombia's community TV model does not depend on private cable operators to broadcast its content, since the state allows organized communities to have their own system by which they offer and broadcast incidental, codified and community channels to their members, which pay to see them." [96] However, by bringing to the front the model of non-profit organization, Television Community entered in the competitiveness introduced in the market of television since the 1990s. Organizational models, and rationalization of cultural production entered the uses of CATV stations that emerged through the deployment of big satellite dishes, as a way of formalizing them.

Their genealogy has been traced in different ways from journalist who discovered them as a miracle, to others who count them as cases of illegality. In both cases, they refer to a distant experience, either because its located in rural areas or because its located in the outskirts of big cities. However, in the cases in which they are geographically close, the distance is one of

[96] Lizandro Angulo and Antonia Moreno, "Réquiem Por La Televisión Comunitaria de Colombia: Influencia de La Legislación Comercial y Audiovisual Del País En Contra de Esta Televisión de Proximidad," *RISTI - Revista Iberica de Sistemas e Tecnologias de Informacao* 16 (January 10, 2019): 234–46.

temporality, as they began to be seen as obsolete. Most of the references in newspapers and magazines continuously declared their death since the beginning of the 1990s, repeated imagined, and driven with smaller satellite dishes, cable systems and the internet.[97] The causes referred to more intense legislation on copyright infringement and technological changes, including the development of stronger encoding technologies.

While in these processes some of the satellite dishes were confiscated or turned into private companies, the number of community television stations maintained and even grew. The alternative for community television seemed viable, despite the fact that the gradual process of legalization demanded various restrictions. Copyright played a role there, as it defined two types of signals, the encoded from which community television had the choice of a reduced number, and the incidental. More importantly, it created a new area for policing satellite dishes under the label of an illegal way to get access to television that caused trouble with copyright protection agencies especially in the United States.

As such these experiments in democracy, in which organized communities have access to technological infrastructure, is supported by a great transition in the role of the state, expressed in the privatization of infrastructures and the redefinition of culture as a creative industry. Formalization in this context implies following a number of rules, that will change gradually, and making these infrastructures obsolete. Despite the efforts of NGOs like Fundación Social or other scholars who had advocated for their role in bounding communities, as a residual infrastructure, confronts how contemporary cultural lend relevance to older media technologies and how the very

[97] Lucas Hilderbrand, *Inherent Vice: Bootleg Histories of Videotape and Copyright* (Duke University Press, 2009).

concept of obsolescence can be engineered in the interests of capital accumulation.[98]

Community television not only introduced the televisual creative economy into rural areas and neighborhoods in Colombia, but also trained some of its youthful workers in regimes of affective labor, re-organizing "public utilities as utility publics". As explained by Lisa Parks, this shift had made media infrastructures not only a system of cultural distribution, but a platform for people to participate in their maintenance, as in the expansion of mobile phone technology into poor countries that can be read "as a beneficent cover for schemes to expand digital capitalism's human resources". [99] The case of satellite dishes, coming from informality, can also be observed as an experimentation in affective labor, one that highlights how the former consumers of illegal signals turned into legal producers of community.

[98] Megan Mullen, "Residual Media," *Technology and Culture* 49, no. 2 (2008): 506.
[99] Lisa Parks, "Media Infrastructures and Affect," *Flow*, May 19, 2014.

EPILOGUE. SATELLITE CULTURES

Memories of parabolic antennas are diverse. In recent articles that look back at the 1980s and 1990s the discourse is one about the nostalgia of a forgotten era, the era of the "perubólica." For Eduardo Arias, speaking on how the country had changed in Colombia, "in 1987, with the arrival of cable television and the explosion of parabolic antennas, television's offerings expanded considerably."[1]. In another article, naming the cultural connections between Colombia and Peru, Daniel Páez remembered a whole list of television programs that marked the childhood of millions of Colombians. In his words "while the more affluent had access to the gringo television, the others entertained us with a grill that included Mexican, Brazilian and, mainly, Peruvian channels."[2] Another article on the 60th anniversary of Colombian Television, Leonardo Gomez Jimenez said, " In 1990 the subscription communitarian television systems, more known as parabolic or 'perubolica' because of the excess of free Peruvian channels that arrived at the Colombian homes to compete with the national television."[3]

[1] Eduardo Arias, "30 Años Sí Es Mucho," *Semana*, May 10, 2015.
[2] Daniel Páez, "La 'Perubólica' Que Marcó La Infancia de Millones de Colombianos," *Semana*, n.d.
[3] Leonardo Gómez Jiménez, "Veinte Hitos de La Televisión Colombiana En Sus 60 Años," *Semana*, June 12, 2014.

However, in 2017, 517 community television still used parabolic antennas. In a documentary produced that year, Lyda Deaza and Laura Sanchez showed how despite the arrival of Direct TV and the availability of streaming services via the internet, people in the town of Suesca still used the community television to watch television. To balance the possible bias in defining the benefits of community television, they interviewed several people, who criticized lousy signal reception, low volume in local production and even lack of entertainment content. Nevertheless, the interviewees also advocated for simple things that also make them watch the channel. As they concluded, "to discover this is one of the first attempts to document this topic, filled us with expectations of putting in conversation the importance of the community media as an authentic participation scenario."[4]

In the middle of these different stories, this dissertation has traced some historical elements in an archeological excavation of the aspirations and desires behind the construction of parabolic antennas. The cases explored in each chapter, brought a diverse set of people, artifacts and practices that supported or challenged the dominant idea of the role of television and culture. In this way, this dissertation offers connections with multiple topics: histories of media consumption, infrastructures, business history, failure, creole technologies, class, and technologies-in-use.[5]

The original idea to use of satellite dishes came from the aspirations of the Colombian government to connect Colombia to the world, and in doing so, connect Colombians to a sense of nationhood. In the 1970s the articulation of satellite television to the spread of national culture

[4] Lyda Shirley Deaza Guáqueta and Laura Liceth Sánchez Arévalo, "La Televisión Posible: Documental Canal Comunitario Tv Suesca" (Corporación Universitaria Minuto de Dios, 2016).
[5] For this insight, I want to thank prof . Patrick McCray who pointed these possible topics for my research in his commentary at the Society of the History of Technology Graduate workshop, hosted in St. Louis in October 2018.

emphasized the dominant construction of national culture, in which satellite television will finally cover the whole nation. The spectacle of international television relied on the curation of events done by the government. Initially, commercial television pushed the educational and cultural goals of television, by including international television in their programming. When video cassette recorders and later satellite dishes arrived the model of media access control became increasingly inoperable.

These informal media infrastructures emerged from local entrepreneurs, aimed at a high-income population that despite the doubts of their legitimacy, opted for the circulation and consumption of this legally ambiguous content. As Ananya Roy has explored in the context of urbanization, processes considered as informal involve not only poor populations but also middle and high-income populations avoiding state regulation.[6] At stake is a social distinction between legal and illegal access to infrastructure, under a problematic definition of what is legal and what is legitimate.

In evident tension with the values introduced by popular taste, the acquisition of a satellite dish triggered a social control over the aesthetic experience, here represented in anxieties over the impact on the built environment of the big satellite dish. As the art critic Alberto Westmann, put it the deployment of satellite dishes "people start to see enthusiast neighbors with suspicion," even in the times where getting a regular antenna started to be pointed to as tacky. Instead of ruling the city "aesthetically and conservatively", with suspicions and murmurs to distinguish who is rich and who is poor, people "had the right to see the world."[7] In this perspective, the tension between

[6] Roy, "Slumdog Cities: Rethinking Subaltern Urbanism."
[7] Alberto Westmann, "Todo Entra Por Los Ojos: La Revolución Parabólica," *Consigna*, June 1987.

subscription television and parabolic antennas embodied not only competition with informality but also its characterization in terms of a particular aspect of Colombian culture deeply rooted in what is called the culture of the short-cut.

In this perspective, the visual display of satellite dishes made evident the presence of an alternative network to get access to goods and services. People recognized satellite dishes as a symbol of Miami aesthetics, and the networks and the circulation of spare parts and electronic equipment tended to be reduced to a parallel with the circuits of smuggling and drug trafficking in which this technology circulated. As a practice that preceded this stage, trading in the Caribbean had served many purposes, especially in the experimentation and expansion of global capitalism. Such trade was temporarily characteristic of a non-hegemonic market, as its agents are represented as a threat to the economic and political power of established elites that pursue to control them.[8]

More importantly, it is how these goods were part of the supply chain of local designs, which as mentioned made possible by local technicians "getting the hang of" satellite dishes in Colombia. Magazines like *Electrónica Fácil* promoted such practices, as "coger el tiro" as a pedagogical model of local experimentation. As defined by the Diccionario de Americanismo, "coger el tiro" means "to learn the way of doing something," a practice linked to the educational dimensions of expertise. As mentioned in chapter 3, a distinction over technical knowledge had been reinforced in moments by social hierarchies that put engineers at a top level, and technicians

[8] Gustavo Lins Ribeiro, "Non-Hegemonic Globalizations: Alter-Native Transnational Processes and Agents," *Anthropological Theory* 9, no. 3 (2009): 297–329; Rosana Pinheiro-Machado, "China-Paraguai-Brasil: Uma Rota Para Pensar a Economia Informal," *Rev. Bras. Ci. Soc. Revista Brasileira de Ciências Sociais* 23, no. 67 (2008).

at the bottom. “Coger el tiro” as a colloquial expression, describes those capacities of tinkerers and technicians, which despite ingenious will never be at the level of proper knowledge.

“Coger el tiro” also speaks for the ambiguities of legality and legitimacy. In the inventory of technological practices recognized by Hernán Thomas, the spectrum goes from radical innovations, inventive appropriation and mimesis, to the process of cannibalism. Thomas describe cannibalism as the operation of disassambling an artifact to reuse its pieces in the repair of other, as spare parts, a practice that crosses from cars to software, and is frequently used in repairing discontinued machinery and imported goods where spare parts can be very expensive. Cannibalism, concludes Thomas, is so extensive in Latin America that it could explain some delinquential activities, particularly in the car robbery and the apparition of *desarmaderos* (car dismantlers).[9] It is under this epistemology of technological cannibalism, in which “get the hang of” Big Satellite dishes, combined electronic equipment, spare parts, and local skills, locating them in the scale of informal or illegal.

Despite ideas of cannibalism as productive in Latin America at the beginning of the twenty-first century, the presence of cultural frameworks to understand techniques, also led to colonial analogies. Such was the case of the concept of *malicia indígena* (indigenous malice) which refers to the perceived ability of Colombians to adapt to difficult situations, and to be creative and resourceful. *Malicia indígena* refers specifically to “the resourcefulness that arises from being continuously subjugated, either by the hierarchy or a lack of resources and opportunities.” Anthropologist Jorge Morales conceives it an adaptive mechanism that serves to shorten the

[9] Thomas, *Sur-Desarrollo-Producción de Tecnología En Países Subdesarrollados*, 75.

distance with the western other, or to overcome it. Moreover, it helps to define the position of the Colombian in the context of modernity. While it encapsulates an ancestral revenge towards the other, at the same time it is assumed as a national heritage and value.[10]

However, this double face of the *malicia indígena* has clear implications in the everyday practices of the contemporary state. Libardo José Ariza traces the idea of *malicia indígena* to the variety of social perceptions about indigenous people in colonial times. Malice, lies, strategic attitude, disobedience, courage and nobility were some other multiple possibilities in which indigenous personality could be defined. What Ariza brings to the front is how these values are still performed in what he calls "prevailing mistrust." Put in other words, while performed by some people *malicia indígena* is observed as an act of invention, for other people works as assumption of taking the opportunity for them, as in the case of the provision of social services for populations in condition of vulnerability.[11]

Although histories of television have centered on the dominant national culture, looking historically can reveal the residual presence of ingenuity and problem-solving present in particular in practices with technology. As mentioned in chapter three, technological recycling has been present in the history of Latin America, in different occasions where innovation happened not in invention but in multiple processes of reorienting original designs, as it implies the "reuse or overuse of one technology or technique."[12]

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[10] Jorge Morales, "Mestizaje, Malicia Indígena y Viveza En La Construcción Del Carácter Nacional," *Revista de Estudios Sociales*, no. 1 (1998).
[11] Libardo Jose Ariza, "'Malicia Indigena': El Reconocimiento y La Desconfianza En La Puesta En Marcha Del Regimen Multicultural En Colombia," *Revista de Derecho Publico*, no. 31 (2013).
[12] Thomas, *Sur-Desarrollo-Producción de Tecnología En Países Subdesarrollados*.

The biography of satellite dishes reveals such ambiguities, and its monumentality is expressed in how it materializes those cultural tensions, in which the informal development reiterates its presence in expanding governmental services for population. In researching about technology uses and misuses, expressions like *malicia indigena* o *coger el tiro*, lead us to a cultural framing of innovation and skills, one that has to deal with troubling associations as in the case of drug trafficking or illegal armed groups. In the memories of community television, the past of the infrastructure needs to be cleansed from any association with illegality. Many websites of current and former community television stations uploaded all the legal documentation, in particular the "act of constitution" in which the National Television Commision granted the license for the service.

In the ruins of the Chocontá Space Center, the memories of the *perubólica*, and the current legal battles of community television lies a set of interrelated processes that entangles citizens and states, paraphrasing Teresa Caldeira,[13] in the production of a dynamic infrastructure. Here satellite dishes not only work as a infrastructure for the distribution of culture, but more importantly, they shape definitions of culture, at the level of the technological practices that allowed their emergence, circulation and local uses. The Big Satellite dishes' presence in Colombia, demonstrates how infrastructure work under ambiguity and contestation, an incomplete but always dynamic infrastructure.

[13] Caldeira, "Peripheral Urbanization."

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