Inventions at the Borders of History

Re-significance of Media Technologies From Latin America

Research project developed at the Media Arts and Technology program,
University of California Santa Barbara.

Andrés Burbano
Assistant Professor Design and Architecture School, Universidad de los Andes.
aburbano@mat.ucsb.edu, aburbano@uniandes.edu.co

"Inventions at the Borders of History, Re-significance of Media Technologies From Latin America" explores the emergence of influential sonic, visual and computational technologies such as photography, color television and computer music in Latin America in parallel with the development of mainstream technologies in the US and Europe. It investigates the reasons why and the way in which Latin American researchers developed technologies that remain widely unknown today. To do so this research establishes a close dialog with the discourse of media history and media archaeology, focusing on the invention process proposing a re-significance of the technologies studied on the basis of a theoretical and experimental approach.

This research started as a mapping exercise inspired by the cartographic proposal found in the conclusions to the book "Deep Time of the Media". There Zielinski includes a series of abstract visual representations of geographical places like St. Petersburg, Riga, or Budapest exposing the clustering of stories relevant for a media archaeology. By focusing on those particular locations, he thereby suggests a "shift of geographical attention: From the North to the South from the West to the East". Captivated by this intellectual proposal, I asked myself what could be the place of

Latin America in this cartography. This question challenged my former understanding and knowledge about the history of media, arts and technology in general and in particular about the role of Latin America in this history. The Latin American continent seemed to be invisible in the foundational processes of contemporary media. Putting in action the mapping exercise and bearing in mind what has been produced out of the well-known centers, I decided to visualize relevant potential case studies of the history of media, technology and art in Latin America. The eclectic collection that first emerged showed that the proposed field could be much larger and complex than anything I might have anticipated, since I was confronted in this first approach with more than eighty possible case studies.

Visualization 1 (Processing). Possible Case Studies of Media and Technology History in Latin America. Andrés Burbano, 2009.

Until now historians have paid little attention to the processes of invention that constitute the core of this research and time has conspired to hide facts and artifacts. Except for some brilliant exceptions, there is no academic literature in English about these topics, indeed even in Spanish and Portuguese there is only a limited amount of academic literature about these topics and the representation that time to time local mass media makes of them tends to distort what the processes were really like, representing the inventors in a way that follows the tired pattern of isolated misunderstood geniuses that nowadays should be celebrated as local heroes. If there is a lack of academic literature or an insufficient amount of literature on the topic, we can infer that a theoretical framework to describe the problem is almost inexistent as well. Of all the three study cases that constitute the core of the research project we can count with only one scholarly book dedicated to the topic, the book "Hercules Florence: The Isolated Invention of Photography in Brazil" by professor Boris Kososy. However it is important to mention that despite the fact that the book was published in Portuguese in the seventies and had a second edition in the eighties, it was not printed again in Portuguese until 2006. It has been translated into Spanish, but there is no English translation.

At this moment I find useful to introduce the case studies one by one:

Case study 1: In 1839 in Sao Paulo, Brazil, Frenchman Hercule Florence publishes a curious letter, written in a bittersweet style, in the "A Phenix" newspaper. The letter is a reply to the announcement of the invention of the so-called Daguerreotype in France. In the letter Florence exposes two of his inventions, the second one is the result of his experiments on printing with light, or what he calls "Photographia". Florence claims that although he invented this procedure several years before the findings in Europe lately reported he is not going to dispute the invention in France with anybody else because "many people can have the same idea" and especially because "the results he got never satisfied him completely due to the limitations that he experienced while working on it." This letter is the Rosetta Stone that will allow

us to decipher what happened with Florence's invention of a photographic technique and why his efforts to draw attention to his work were unsuccessful.

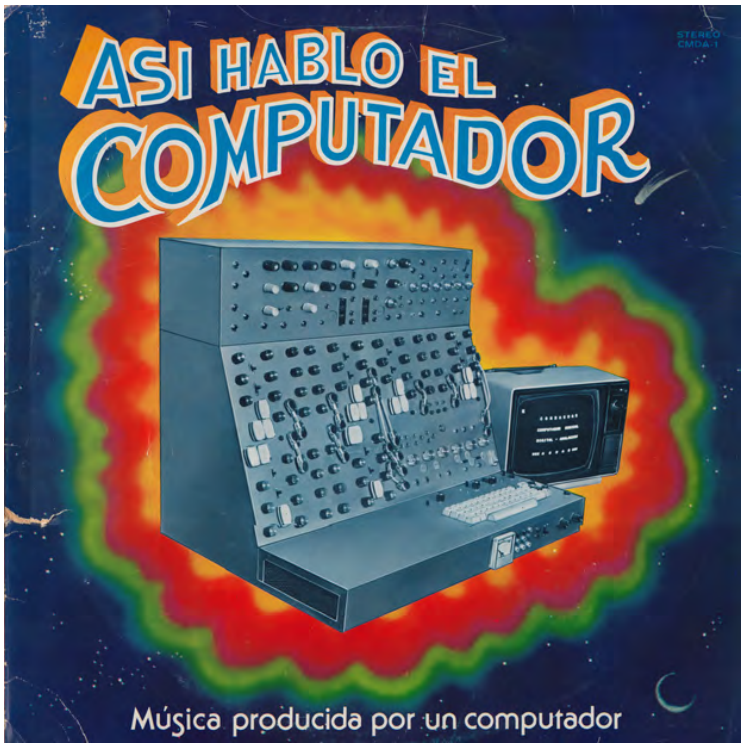
"Photographie", drawing of Florence's photographic equipment around 1833, Hercules Florence, 1837.

Case Study 2: In Mexico City in 1941, Guillermo González Camarena receives an official letter in response to his previous request to the Mexican Secretary of Communication and Public Affairs kindly asking for monetary help to obtain a patent in the United States for his "Chromoscopic Adapter for Color Television," an inexpensive set with two adapters for camera and television set that makes it possible to transform both into color television devices. The letter that he receives explains that unfortunately the Mexican government has no funds to support this kind of initiative. Thanks to a long and unique fundraising process Guillermo González Camarena would be able to receive the patent 2296019 for his color

television system in the United States in September 15 of 1942. This was the first of several patents that the Mexican engineer obtained and it is a testimony of his early technical and creative work on electro mechanical color television. This happened almost at the same time that the Hungarian inventor Peter Goldmak obtained a patent for a similar invention in the United States. Goldmark's invention was implemented by the CBS in the early years of color television broadcast in the United States.

Chromoscopic Adapter for Television Equipment. U.S. Patent by Guillermo González Camarena, 1941.

Case Study 3: In Santiago de Chile in 1980 José Vicente Asuar published in the Chilean Music Journal a paper entitled A System to Make Music with a Micro Computer. In that paper he describes in detail and in precise academic language the construction, implementation, development and results of "Computer Digital Analog Asuar COMDASUAR", a microcomputer built by him in 1978 with the main purpose of composing music. Of course this task included writing the software in machine language and putting together all the necessary hardware. Asuar built the microcomputer after the acquisition of "the first truly usable microprocessor", the Intel 8080. In fact the construction of this computer is the result of almost ten years of previous experience working with other computers, like the PDP-8, to compose music. The Intel 8080 was the microprocessor used in the influential Altair 8080, the machine that started the fever for the personal computers in the United States, Bill Gates developed the first version of his BASIC for the Altair 8080.



Long Play "Así Habló el Computador" made using Analog Digital Computer Asuar: COMDASUAR. Santiago de Chile, José Vicente Asuar, 1979.

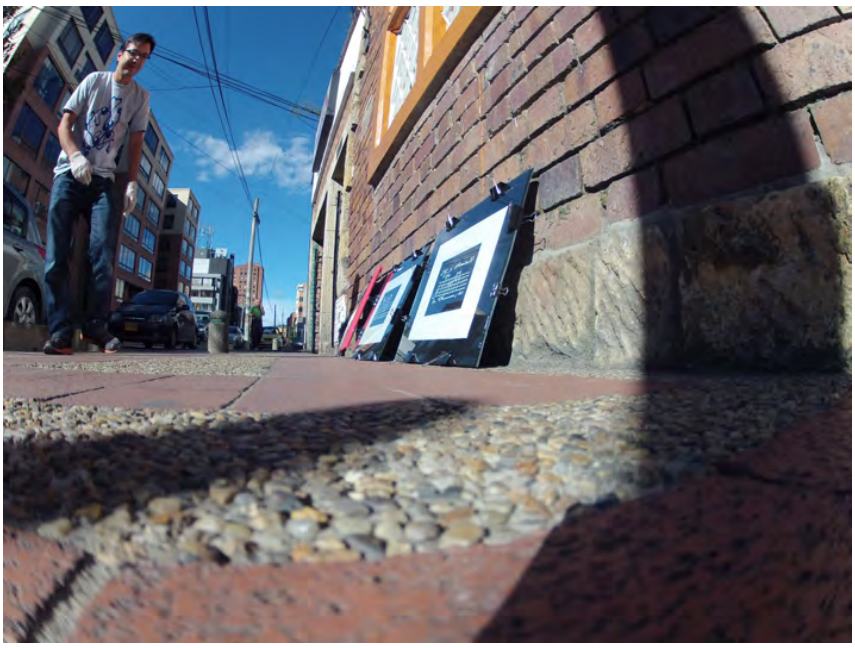
“Inventions at the Borders of History, Re-significance of Media Technologies From Latin America” is an exploration of a territory conceptually similar to an archipelago where topics look relatively far away, the task to navigate the common waters is challenging and there are plenty of risks. However what this dissertation proposes is that the islands in the archipelago (case studies) can be seen as instances of the same phenomena: Early processes of invention of media technologies.

The aforementioned media technologies have been forgotten and do not have a place in the canonical histories of their own fields: the case of Hercules Florence is barely mentioned in photography, the case of González-Camarena has no place in the history of color television and the role of José Vicente Asuar as one of the inventors of personal computers to process sound is left untouched. One might infer from this that these histories have no transcendence, and there is a high risk that if we fail to draw attention to the subject important information and details about these technologies will be lost. The idea is to resist the general conception that a technological process in Latin America has no place or lacks interest.

The experience I wanted to share with the reader is the one that I underwent as my research progressed, namely an experience of surprise at what I encountered as I explored unknown routes that opened up for me a highly significant constellation of phenomena in the complex history of the invention of media technologies in Latin America. I also wanted to show that this experience of “surprise” is also heavily loaded with ideological implications.

I believe that the renewal of discourses about Latin America can gain a lot from an engagement with the question concerning technology. This text is a modest attempt to articulate some thoughts around media and technology and about their role in a discourse that could challenge the modernity/colonialism, defining coloniality as “the dark side of the modern project”. As is the case with discourses connected with the history of science, an important ingredient in the proposition of new

perspectives for the study of Latin America in recent decades, I think that a reflection about the role of technology and media technology may allow us to find novel ways of negotiating and reframing inherited discursive assumptions.



Experimental approach: Direct exposition, paper with gold chloride and negatives printed with Pictorico OHP, Bogota. Andrés Burbano, 2012.

References

1. S. Zielinski, *Deep Time Of The Media*, MIT Press, Cambridge Massachusetts, pp. 255-280 (2006).

2. S. Zielinski, "Depth of Subject and Diversity of Method An Introduction to Variantology," *Variantology 1 On Deep Relations of Arts, Sciences and Technologies*. S. Zielinski and S. M. Wagnermaier Eds, Walther König Verlag, Cologne, p. 10 (2005).

3. A. Broeckmann, ISEA2012, "Variantologia Latina," *Proceedings of the 16th International Symposium on Electronic Art*, Revolver Publishing, Berlin, p. 296 (2010).

4. J. S. Avila, *Code Talker: The First and Only Memoir By One of the Original Navajo Code Talkers of WWII,* Berkley Trade, New York, (2011).

5. J. A. Rodríguez, *El Arte De Las Ilusiones. Espectaculos precinematográficos en México,* Instituto Nacional de Antropología e Historia, Mexico City (2009).

6. A. Burbano, *Zielienski: Genealogías, Comunicación, Escucha y Visión.* Universidad de los Andes, Bogota, p. 13 (2007).

7. G. Lovink, *My First Recession. Critical Internet Culture in Transition*, Ai Publishers/V2-Organization, Rotterdam, p. 11 (2004).

8. E. Huhtamo and J. Parikka, "Introduction: An Archaeology of Media Archaeology" in *Media Archæology: Approaches, Applications, and Implications*, E. Huhtamo and J. Parikka, Eds, University of California Press, Berkeley, p. 1 (2011).

9. E. Huhtamo, "Dismantling the Fairy Engine: Media Archaeology as Topos Study," *Media Archæology: Approaches, Applications, and Implications*, E. Huhtamo and J. Parikka, Eds, University of California Press, Berkeley, pp. 27-47 (2011).

10. E. R. Curtius, *European Literature and the Latin Middle Ages*. Pincenton University Press, pp. 79-105 (1953).

11. J. Parikka, *Insect Media*, University of Minnesota Press, Minneapolis, pp. 195-206 (2010).

12. S. Zielinski and E. Fürlus, "Introduction: Ars brevis umbrae et lucis," *Variantology 3 On Deep Relations of Arts, Sciences and Technologies In China and Elsewhere*. S. Zielinski and E. Fürkus Eds, Walther König Verlag, Cologne, pp. 7-14 (2007).

13. S. Zielinski and E. Fürlus, "Introduction: Ex Oriente Lux," *Variantology 4 On Deep Relations of Arts, Sciences and Technologies In the Arabic-Islamic World and Beyond*. S. Zielinski and E. Fürkus Eds, Walther König Verlag, Cologne, pp. 7-18 (2008).

14. F. Kittler, *Discourse Networks, 1800/1900*, Stanford University Press, Palo Alto, pp. 229-264 (1992).

15. G. Lovink, *My First Recession. Critical Internet Culture in Transition*, Ai Publishers/V2-Organization, Rotterdam, p. 11 (2004).

16. L. Gitelman, "Epilogue: Doing Media History," *Always Already New. Media, History, and the Data of Culture*, MIT Press, Cambridge Massachusetts, pp. 151-156 (2006).

17. O. Grau, “Introduction” *MediaArtHistories*, MIT Press, Cambridge Masacussets, pp. 2-14 (2010).

18. S. Cubitt, “Entrée: The Object of Film and the Film Object,” *The Cinema Effect*, MIT Press, Cambridge Massachusetts, pp. 1-12 (2006).

19. O. Grau and S. Cubitt, “Media Art Needs Global Networked Organization and Support – International Declaration” in *Platform for the Histories of Media Art, Science and Technology*. http://www.mediaarthistory.org (2011).

20. E. Medina, “Epilogue: The Legacy of Cybersyn,” *Cybernetic Revolutionaries. Technology and Politics in Allende’s Chile*, MIT Press, Cambridge Massachusetts, pp. 223-234 (2011).

21. R. Gallo, *Mexican Modernity. The Avant-Garde and the Technological Revolution,* MIT Press, Cambridge Massachusetts, p. 10 (2005).

22. E. Kac, *Luz & Letra. Ensaios de arte, literatura e comunicação*, Editora Contra Capa, Rio de Janeiro, p. 380 (2004).

23. E. Medina, “Big Blue in the Bottomless Pit: The Early Years of IBM Chile,” *IEEE Annals of the History of Computing*, IEEE Computer Society, October-November, pp. 26-41 (2008).

24. L. Winner, “Do artifacts have politics?,” *The whale and the reactor: a search for limits in an age of high technology*. University of Chicago Press, Chicago, pp. 19-39 (1986).

25. E. Rivera and C. Ossa, “Absolutum Obsoletum” in *Conference Proceedings of the 16th International Symposium on Electronic Art*, Revolver Publishing, Berlin, pp. 406-408 (2010).

26. E. Medina, *Cybernetic Revolutionaries. Technology and Politics in Allende’s Chile*, MIT Press, Cambridge Massachusetts, pp. ix-xii (2011).

27. R. Gallo, *Mexican Modernity. The Avant-Garde and the Technological Revolution*, MIT Press, Cambridge Massachusetts, (2005).

28. S. J. Townsend and D. Taylor, “Introduction,” *Stages of Conflict A Critical Anthology of Latin American Theather and Performance*, University of Michigan Press, p. 27 (2011).

29. R. Gallo, *Mexican Modernity. The Avant-Garde and the Technological Revolution*, MIT Press, Cambridge Massachusetts, p. 117 (2005).

30. E. Huhtamo and J. Parikka, “Introduction: An Archaeology of Media Archaeology,” *Media Archæology: Approaches, Applications, and Implications*, E. Huhtamo and J. Parikka, Eds, University of California Press, Berkeley, p. 12 (2011).

31. E. Kac, *Luz & Letra. Ensaios de arte, literatura e comunicação*, Editora Contra Capa, Rio de Janeiro, p. 380 (2004).

32. E. Kac, *A Radical Intervention: Brazilian Electronic Art, Documents, Essays and Manifestoes*, Leonardo Journal Special Project, http://leonardo.info/isast/spec.projects/brazil.html, (2010).

33. E. Trabulse, *En busca de la historia perdida: La ciencia y la tecnologia en el easdo de Mexico ensayo Bibliografico*, El Colegio de Mexico, Mexico City, (2001).

34. M. Nieto, *Remedios para el imperio. Historia natural y la apropiación del Nuevo Mundo*, Instituto Colombiano de Antropología e Historia, Bogota, (2000).

35. Cañizares-Esguerra, *Cómo escribir la historia del Nuevo Mundo. Historiografías, epistemologías e identidades en el mundo del Atlántico del siglo XVIII*, Fondo de Cultura Economica, Mexico City, (2007).

36. S. Castro-Gómez, *La potcolonialidad explicada a los niños*, Editorial Universidad del Cauca, Popayán, (2005).

37. R. Koolhas, *Delirious New York: A Retroactive Manifesto for Manhattan,* The Monacelli Press, New York, (1997).

38. A. Burbano, *Interview with Lisa Gitelman,* unpublished, Santa Barbara - New York, (2012).

39. B. Kososy, *Hercule Florence: A Descoberta Isolada da Fotografia no Brasil*, EdUSP, Sao Paulo, pp. 27-32 (2006).

40. B. Kososy, *Hercule Florence 1833: A Descoberta Isolada da Fotografia no Brasil*, Faculdade de Comunicacao Social Anhembi, Sao Paulo, (1977).

41. G. González Camarena, "Chromoscopic Adapter for Television Equipment", U.S. Patent 2296019, issued August 14, pp. 1-3 (1941).

42. J. V. Asuar, "Un sistema para hacer música con un microcomputador" Revista Musical Chilena, vol. 34, no.151, pp. 5-28, (1980).

43. E. Glissant, *Poetics of Relation,* University of Michigan Press, Ann Arbor, p. 131 (1997).

44. D. Edgerton, *The Shock of the Old. Technology and the Global History Since 1900,* Oxford University Press, Oxford, p. 39 (2007).

45. E. Glissant, *Poétique, IV: Traité du Tout-Monde*, Editions Gallimard, Paris, (1997).

46. A. Burbano. *Interview with Boris Kososy,* unpublished, Sao Paulo, (2010).

47. MIT Comparative Media Studies Program, *Comparison Across Media, Comparison Across National Borders, Comparison Across Historical Periods*, Cambridge, Massachusetts, http://cms.mit.edu/aboutcms/whatscomparative.php#media, (2010).

48. R. W. Burns, *The Struggle for Unity: Colour television, the formative years*, IET, London, (2008).

49. C. Harris, *Art and Innovation The XEROX PARC artist in Residency Program,* MIT Press, Cambridge Masachussets, (1995).

50. J. Lienhard, *How Invention Begins: Echoes of Old Voices in the Rise of New Machines*, Oxford University Press, Oxford, p. 19 (2006),

51. B. Sterling, *The DEAD MEDIA Project. A Modest Proposal and a Public Appeal.* http://www.deadmedia.org/modest-proposal.html, (2000).

52. H. H. Diebner, *Performative Sciences and Beyond. Involving the Process in Research,* Springer, Wien, p. 25 (2006).

53. A. Burbano, D. Bazo, et al, "The New Dunites," *Proceedings of the ACM Multimedia Conference*, Nara Japan, (2012).

54. H. Thomas, P. Maclaine, "How the vineyard came to matter: grape quality, the meaning of grapevines and technological change in mendoza's wine production," *Revista Universum* Nº 22 Vol.1: 218-234, Talca, (2007).

55. C. Stracke. "z2 [zuse strip]" in *Future Cinema. The Cinematic Imaginary after Film*, MIT Press, Cambridge Massachusetts, p. 250 (2003).

56. D. Tomas, *Beyond the Image Machine. A History of Visual Technologies*, Continuum, New York, p. 13 (2004).

57. D. Link, "There Must Be an Angel. On the Beginnings of the Arithmetics of Rays," *Variantology 2: On Deep Relations of Arts, Sciences and Technologies*. S. Zielinski and D. Link Eds, Walther König Verlag, Cologne, pp. 15-42 (2006).

58. P. DeMarinis, "An Archaeology of Sound: An Anthropology of Communication or Erased Dots and Rotten Dashes and How to Wire Your Head," *Media Archæology: Approaches, Applications, and Implications*, E. Huhtamo and J. Parikka, Eds, University of California Press, Berkeley, pp. 211-238 (2011).

59. D. Tomas, *Beyond the Image Machine. A History of Visual Technologies*, Continuum, New York, p. 6 (2004).

60. D. Tomas, *Transcultural Space and Transcultural Beings. Institutional Structures of Feeling*, Westview Press, Boulder, p. 1 (1996).

61. P. DeMarinis, "Buried in Noise" *Paul DeMarinis / Buried in Noise*, I. Beirer, S. Himmelsbach and C. Seiffarth Eds, Kehrer, Berlin, pp. 23-27 (2010).

62. S. Zielinski, *Paul DeMarinis / Buried in Noise*, I. Beirer, S. Himmelsbach and C. Seiffarth Eds, Kehrer, Berlin, (2010).

63. E. Huhtamo, "Thinkering with Media: On the Art of Paul DeMarinis" *Paul DeMarinis / Buried in Noise*, I. Beirer, S. Himmelsbach and C. Seiffarth Eds, Kehrer, Berlin, pp. 33-39 (2010).

64. P. DeMarinis, "Buried in Noise" *Paul DeMarinis / Buried in Noise*, I. Beirer, S. Himmelsbach and C. Seiffarth Eds, Kehrer, Berlin, pp. 23-27 (2010).

65. H. Thomas, *Social Studies of Technology in Latin America*, FLACSO sede Ecuador, Quito, pp. 35-53 (2010).

66. W. Bijker, *Of bicycles, bakelites and bulbs: Toward a Theory of Sociotechnical Change*, MIT Press, Cambridge Massachusetts, (1995).

67. M. Callon, "Society in the Making: The Study of Technology as a Tool for Sociological Analysis," *The Social Construction of Technological Systems: New Directions in the Sociology and History of Technology*, W. Bijker et al Eds, MIT Press, London, p. 83 (1987).

68. H. Thomas. "Estructuras cerradas vs. Procesos dinámicos: trayectorias y estilos de innovación y cambio technologico," *Actos, actores y artefactos*. Sociología de la Tecnología, Editorial de la Universidad Nacional de Quilmes, Bernal, pp. 217-262. (2008)

Bio:

Burbano, originally from Colombia, explores the interactions of science, art and technology in various capacities: as a researcher, as an individual artist and in collaborations with other artists and designers. Burbano's work ranges from documentary video (in both science and art), sound and telecommunication art to the exploration of algorithmic cinematic narratives. The broad spectrum of his work illustrates the importance, indeed, the prevalence, of interdisciplinary collaborative work in the field of media art. Andres Burbano holds a PhD in Media Arts and Technology from the University of California Santa Barbara and currently is Assistant Professor at the Design and Architecture School at Universidad de los Andes.