

VISUALLY EXPLORING THE AMERICAN ARCHIVE OF PUBLIC BROADCASTING

Environmental Issues and Climate Change as Depicted in Public Media

MS Data Visualization | Thesis

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ABSTRACT

The American Archive of Public Broadcasting (AAPB) is a rich collection of unique, non-commercial public media. Since the project's inception in 2013, the AAPB strives to collect and preserve radio and television programs created over the last 60 years. Currently more than 40,000 hours of programs created by over 100 public broadcasting stations have been digitized and made available for listening and viewing. Beyond this, over 2.5 million items have been inventoried for future digitization for this project. American non-commercial media is immensely valuable for scholars, researchers, educators, institutions and organizations, as well as the general public. Educational and public media in this country has strived to serve the wide audiences across the nation with programming that produces knowledge to create an informed citizenry, or teaches life skills, or is hyper-localized to the region which it serves. *Visually Exploring the American Archive of Public Broadcasting* is a tool for researchers and the general public to explore these fascinating contents through four visual expressions. The goal of this project is to broaden exposure to the work of the AAPB and highlight the value of publicly produced, non-commercial media. It is an exploratory interface for media and knowledge discovery. This paper demonstrates the opportunities for exploration within this invaluable archive by focusing on how climate change has been depicted within public media produced in the United States over time.

INTRODUCTION

In January 1973, a radio program called *Sunday Forum* aired its weekly broadcast on WGBH FM, serving the regional Boston area. The episode was called *Air Pollution and its Controls*. The two hour program was dedicated to airing segments of a day long seminar on controlling air pollution, which was sponsored by the Norfolk County Extension Service. The keynote speaker of the event was John A.S. McGlennon, who was the first Environmental Protection Agency (EPA) regional administrator assigned to the New England area by the Nixon administration. His speech spoke to the need for transportation controls in order to curb the known problem of air pollution, and addressed various ideas for keeping fewer cars on the roads. (McGlennon's legacy is perhaps best known for dedicated highway lanes for car pools and high occupancy vehicles.)¹ Later in the program, a plant pathologist named William Fader included this statement in his remarks:

“And one of the problems that we struggle with is that plants are much more sensitive to air pollutants in terms of the threshold level of injury than are animals and humans. And of course one immediately suggests that this is very fortunate for the humans, and that's the end of it. The difficulty, however, is, as someone pointed out here this morning, we're all built into the same biological system, and the human race doesn't do very well unless it eats — and if there is a reduction in agricultural productivity from air pollution, then,

¹ Bryan Marquard, “John A.S. McGlennon, 80, of Gloucester; First New England EPA Chief,” BostonGlobe.com, 2016, <https://www.bostonglobe.com/metro/2016/01/03/john-mcglennon-gloucester-first-new-england-epa-chief-was-known-for-bold-moves/UlcUwotzYhyYrq2uT5rztO/story.html>.

while this is not directly injuring the human lung tissue it is however, perhaps, somewhat retarding the development of the human race. Now, maybe this is good. Maybe we what we need is fewer human beings, maybe this is a solution. But, from an air pollution point of view, plants are more sensitive and we are very concerned, as is the EPA, about how we deal with both kinds of standards at the same time. If we set standards for the welfare and health of the human being, then how do we at the same time make sure that our agricultural productivity continues at the level which we need it.”²

Two months later, in March of 1973, the episode of *Sunday Forum* was titled *The Control of Auto Emissions*. The narrator states at the very front of the program:

The statistics on vehicular pollution are available and they’re frightening. Nationwide, automobiles are responsible for 66 percent of the man-made carbon monoxide in the air, 48 percent of the hydrocarbons, 40 percent of the nitrogen oxides, and 90 percent of the lead emissions. These four car generated pollutants add up to 143 million tons a year infesting the air we breathe.”³

The program then follows for an hour and a half to host scientists discussing the range of problems that humans will face unless the problem of air pollutants is thoroughly addressed.

² “Sunday Forum; Air Pollution And Its Controls,” WGBH, American Archive of Public Broadcasting (WGBH and the Library of Congress), Boston, MA and Washington, DC, accessed May 18, 2019, http://americanarchive.org/catalog/cpb-aacip_15-98z8wsxj.

³ “Sunday Forum; The Control Of Auto Emissions,” WGBH, American Archive of Public Broadcasting (WGBH and the Library of Congress), Boston, MA and Washington, DC, accessed May 18, 2019, http://americanarchive.org/catalog/cpb-aacip_15-4947dm6c.

Both of these programs literally broadcasted a call to action to a concerned citizenry — they sought to inform the public of the dangers of air pollution and vehicle carbon monoxide emissions, and to offer potential solutions to address these major environmental concerns that could have drastic consequences if left unresolved. These programs were available to the public at no cost, and there were no intermittent advertisements to interrupt the content as it played. There were no advertisers to appease or appeal to by playing or editing these programs. WGBH, the radio station that produced *Sunday Forum* on a weekly basis, did not have to concern itself with what the reaction the current federal administration might have been regarding the airing of these two significant environmental topics — because all content produced and distributed by this station was to be nonpartisan. This is the inherent value of non-commercial, public media.

Listening back to these two *Sunday Forum* episodes 45 years later, in 2019, I am struck by how relevant these issues remain today — and I am dismayed by how much time has passed that we now find ourselves in a fully fledged climate crisis⁴ which is reflected constantly (to widely varying partisan degrees) in media outlets both commercial and public. If scientists were able to identify these environmental issues that needed to be urgently addressed in the early 1970s — so much so that they were featured on publicly broadcasted programs like *Sunday Forum*, which described itself as a weekly program that presents public addresses on matters of the public

⁴ Gaia Vince, “The Heat Is on over the Climate Crisis. Only Radical Measures Will Work,” the Guardian (The Guardian, May 18, 2019), <https://www.theguardian.com/environment/2019/may/18/climate-crisis-heat-is-on-global-heating-four-degrees-2100-change-way-we-live>.

interest — why hasn't more action been taken to stem the rise of climate change in the intervening years?

Much of the thinking about this project was inspired by the New York Times Magazine report from August, 2018, titled Losing Earth: The Decade We Almost Stopped Climate Change⁵ by Nathaniel Rich. This feature article filled every page of the Sunday magazine when it was published. The removal of all advertisements signalled a dramatic move for a printed newspaper that lent a weight to the urgency and importance of the subject matter. The in-depth reporting by Rich about how our current pending climate catastrophe might have been avoided begins its story in 1979, six years after the airing of these two *Sunday Forum* episodes. This raised the question for me: when did American public media begin addressing local and global environmental issues? When did the terms 'climate change' and 'global warming' enter the lexicon of PBS and NPR reporting and programming? Would better understanding the answer to these questions help explain why the clarion call to address air pollution and emissions, as submitted by these two episodes of *Sunday Forum* that aired two months apart in 1973, went essentially unanswered?

This project attempts to answer these questions through a unique visual interface for searching and discovering public, non-commercial media that has been produced in the United States of America.

⁵ Nathaniel Rich, "Losing Earth: The Decade We Almost Stopped Climate Change," *The New York Times*, August 1, 2018, <https://www.nytimes.com/interactive/2018/08/01/magazine/climate-change-losing-earth.html>.

PUBLIC MEDIA

There is a long history of public, non-commercial broadcasting in radio and television formats in the United States. For the purpose of this paper, public media is defined in terms of the Public Broadcasting Act of 1967 which was a congressional measure that established the Corporation for Public Broadcasting (CPB.) Functioning as a private, nonprofit corporation, the CPB's mission is to “ensure universal access, over-the-air and online, to high-quality content and telecommunications services that are commercial free and free of charge.”⁶

The Public Broadcasting Act positioned the CPB as the steward of federal funding to support and advance national public broadcasting. The CPB does not produce programming or own production stations. It advances its mission by directing funding to locally owned public radio and television member stations.

Through the CPB, the groundwork was laid for the incorporation of the Public Broadcasting Service (PBS), which was established in 1969, and National Public Radio (NPR), established in 1970.

PBS is a private, nonprofit corporation made up of over 350 member stations. PBS does not produce programming but was set up to interconnect locally owned public television stations and distribute programs between them. The mission of PBS is “to serve the American public with programming and services of the highest quality, using media to educate, inspire, entertain and

⁶ “[CPB],” Cpb.org, 2017, <https://www.cpb.org/aboutcpb/goals/goalsandobjectives>.

express a diversity of perspectives. PBS empowers individuals to achieve their potential and strengthen the social, democratic, and cultural health of the U.S.”⁷

NPR is an independent, nonprofit corporation and functions differently than PBS in that it does produce programming which is then distributed to its member stations (which now total over a thousand.) NPR’s mission is “to work in partnership with member stations to create a more informed public — one challenged and invigorated by a deeper understanding and appreciation of events, ideas and cultures.”⁸

While the majority of operating funding for both of these entities are raised through contributions from viewers and listeners of member stations, both NPR and PBS depend on critical funding from the CPB which is allocated on an annual basis from Congress and is then redirected to member stations to produce programming in order to maintain and advance public media. Per the CPB: “The purpose of public media is to provide programs and services that inform, educate, enlighten, and enrich the public and help inform civil discourse essential to American society. It is CPB’s particular responsibility to encourage the development of content that involves creative risk and that addresses the needs of unserved and underserved audiences, especially children and minorities. CPB acts as a guardian of the mission and purposes for which public broadcasting was established.”⁹

⁷ “Mission | About PBS | PBS About,” Mission | About PBS | PBS About, 2016, <http://www.pbs.org/about/about-pbs/mission-statement/>.

⁸ “Our Mission and Vision,” NPR.org, June 20, 2013, <https://www.npr.org/templates/story/story.php?storyId=178659563>.

⁹ “[CPB],” Cpb.org, 2017, <https://www.cpb.org/aboutcpb/goals/goalsandobjectives>.

ARCHIVING AMERICAN PUBLIC MEDIA

When the Public Broadcasting Act of 1967 created the CPB, part of the new corporation's mandate was to create an archive of noncommercial education television and radio programs. Attempts at proper preservation of American non-commercial media took place in fits and starts in the intervening years. In 1976, ten thousand individual programs from PBS were donated to the Library of Congress. At the same time, the Library of Congress partnered with NPR to begin to acquiring and preserving program recordings going back to 1971. These programs were housed at the National Archives.¹⁰

In 1979, an effort was launched to begin the Public Television Library and Broadcast Archive but this work was stalled four years later due to operational budget constraints. At the same time as the Public Television Library project came underway, membership station WGBH in Boston established a formal station archive — the first of its kind created by an individual station.¹¹

In 1990, the National Public Broadcasting Archives was founded at the University of Maryland. This archive focused on aggregating text-based documents related to public broadcasting stations both on television and in radio, working closely the CPB, PBS, and NPR. A few years later it began incorporating moving image reels and audio recordings, but recognized early on that it would not be able to serve as the centralized archive for all the public media being produced throughout the country. By the mid 1990s, it was becoming clear to government entities that the

¹⁰ Alan Gevinson, "A Brief History of the AAPB," Americanarchive.org, 2013, <http://americanarchive.org/about-the-american-archive/history>.

¹¹ *Ibid.*

media that had been created in part with taxpayer funding via the CPB was in danger of potentially being lost to future generations. A report created by the Library of Congress in 1994 stated that “a cohesive, nationwide effort to safeguard and preserve American television and video [was needed due to] the impermanence of videotape with all its formats, the massive volume of generated material, and the decentralized and fragmentary nature of production processes in the United States.”¹² This report generated by the Library of Congress recommended the local archive at WGBH as a model that other stations should follow. This launched a decentralized effort across individual PBS membership stations from throughout the country to look within their collections and begin to assess the local holdings.

The early 2000s saw the promise of digital preservation practices and a new initiative was started in 2004 as a partnership between PBS and member stations WNET in New York and WGBH in Boston. The Preserving Digital Public Television (PDPTV) project was homed at New York University and was funded through an allocation of Library of Congress funding as specified by the National Digital Information and Infrastructure Program. The focus of this work was on maintaining and preserving programs that were created digitally (known as ‘born digital’) and did not reach into the digitization or preservation of analog tapes and film recordings. The work from the PDPTV project showed the opportunity and challenges of maintaining an archive through the means of a digital filing system, and through this the CPB encouraged the creation of the American Archive of Public Broadcasting in 2007.¹³

¹² Library of Congress, Television and Video Preservation 1997, 1:2; Library of Congress, Redefining Film Preservation: A National Plan; Recommendations of the Librarian of Congress in Consultation with the National Film Preservation Board (Washington: Library of Congress, 1994), 10, <http://www.loc.gov/programs/national-film-preservation-board/preservation-research/film-preservation-plan/redefining-film-preservation/>.

¹³ Alan Gevinson, “A Brief History of the AAPB,” Americanarchive.org, 2013, <http://americanarchive.org/about-the-american-archive/history>.

Congress had begun allocating additional funding to public stations to transform operations to be broadcasting digitally, as opposed to beaming signal to antenna receivers, starting in 2001.

Lobbying efforts successfully convinced an additional amount of funding to be distributed to the CPB in order to begin the American Archive project.¹⁴ A senate appropriations bill from 2007 stated: “The Committee has strongly supported the conversion of public broadcasting stations to digital formats and continues to do so in this act. However, the Committee recognizes that this conversion to digital transmission leaves a great number of stations with limited programming and makes a substantial proportion of the public broadcasting library unusable. The Committee believes that this archive of material is a valuable asset to the public and to historians. Therefore, the Committee intends that CPB may spend a portion of the digital conversion funds to develop a digital public broadcasting archive.”¹⁵ The House was also supportive of this additional allocation to the CPB, recognizing that the majority of public media that had been produced to date was shelved away in storage and suffered the potential to be lost to obsolescence. It was at this time that a study was done that determined public media in America had received an investment from the public of over \$10 billion over time, and the content that had been produced was generally not available. The funding was issued through congressional act to the CPB to address this concern.

In 2009, the CPB successfully completed a pilot project for the American Archive. The CPB, working directly with Oregon Public Broadcasting, contracted with twenty-four radio and

¹⁴ *Ibid.*

¹⁵ 110 H. Rpt. 231 (2007).

http://thomas.loc.gov/cgi-bin/cpquery/?&dbname=cp110&sid=cp110wot7U&refer=&r_n=hr231.110&item=&&&sel=TOC_1155037&

television stations to identify and digitize content within their local collections on two thematic topics (civil rights and WWII veterans.) The end result of this work produced 2,500 hours of archived content. With the office formalized by CPB, the American Archive would be free to work directly with all membership stations throughout the NPR and PBS networks on preservation endeavors. Efforts immediately began to develop an archival metadata asset tagging system and to conduct sweeping inventory studies at stations around the country. The CPB supported this work by distributing \$2.8M in grants to public radio and television stations to assist with the inventory. This resulted in more than 2.5 million individual assets with basic metadata recorded being submitted back to the American Archive.

In 2011, Congress drastically cut the additional allocation for the work of digitizing programs for the purpose of the American Archive and, in 2012, it didn't allocate any funding at all. It was time for the archive's office to shift out of the CPB and find a permanent home that could maintain the records that had been archived to date, and continue to grow and expand the collection. In 2013, the CPB contracted with WGBH in Boston and the Library of Congress to begin a collaborative effort to perpetually maintain the archive. The two entities share governance over what was renamed at this time to be "The American Archive of Public Broadcasting." WGBH maintains the website for the archive and its metadata tagging system, PBCore. The staff at this station also oversees digitization efforts at stations across the country to add new records into the archive, and maintains relationships with these member stations for the purpose of growing the archive. The Library of Congress maintains all files at its Packard

Campus Digital Archive and is charged with upkeep of all digitized materials within the archive going forward.¹⁶

Today the American Archive of Public Broadcasting (AAPB) can be found at its home on the web, AmericanArchive.org. As of this writing, the total archive is composed of over 2.5M records, of which approximately 100 thousand are fully digitized and available for complete review at a research center at either WGBH or the Library of Congress. 48 thousand entries are legally cleared via copyright or other licensing concerns to be viewed and presented online within the archive's Online Reading Room. More content is being added to the archive on a regular basis. (*See appendix 1; Fig. 1*)

¹⁶ Alan Gevinson, "A Brief History of the AAPB," Americanarchive.org, 2013, <http://americanarchive.org/about-the-american-archive/history>.

VISUALLY EXPLORING THE AMERICAN ARCHIVE OF PUBLIC BROADCASTING

Visually Exploring the American Archive of Public Broadcasting is a visual search interface for exploring and discovering the public media content that resides within the collection. This tool specifically concentrates on the records that are available for full review within the Online Reading Room, both moving images (television programs) and audio files (radio programs.) All entries lead back to the archive itself, where the full 2.5 million records can be searched and the metadata can be accessed for each item. The goal of this project is to heighten awareness of the existence of the AAPB and to allow researchers and the general public an alternative path to discover the unique content based on search terms of interest. The purpose of *Visually Exploring* is to provide any interested user with an exploratory interface for public media research, investigation, and review.

The tool is based on four visual expressions, outlined as follows:

Timeline (*See appendix 1; Fig. 2*)

This view returns results based on the entered search term in the form of a histogram-based timeline. Each circle represents one item from the AAPB's online reading room; filled circles represent entries that are moving images, hollow circles show audio files. Each result is contained within a table row for the year in which the entry was created, and results appear in chronological order by date (January at left, through December at the end of the string.)

Hovering over each circle reveals detailed information about the record within the persistent information panel at the right side of the screen. Clicking an item will lock the info panel so the user can explore that information further without switching the information to another result by accidentally hovering over a different item. Clicking away into empty space unlocks and resets the information panel.

Genre Cluster (*See appendix 1; Fig. 3*)

The genre cluster view returns results and groups entries by the predominant genre as listed in each record's metadata. This view follows the same logic for filled/hollow results as the timeline mode, and the information panel locking mechanism works the same way as well. It can be helpful to see all items that are predominantly educational grouped in the same space versus news items versus documentary versus entertainment, etc.

Transcript (*See appendix 1; Fig. 4*)

The majority of records within the AAPB's Online Reading Room has an associated transcript that was generated using machine-learned voice to text software. The resulting transcripts are far from 100% accurate and contain many errors, which the AAPB is addressing with help from the public via their Transcribe to Digitize FixIt+¹⁷ gamified transcription correction system. The imperfect transcripts are still immensely useful to determine what the content of an entry relates

¹⁷ "FIX IT +." Americanarchive.org, 2019. <http://fixitplus.americanarchive.org/>.

to by aggregating the most commonly used words and arranging them on a wordcloud canvas.

The transcript view returns the search results in a one-by-one per entry wordcloud, with navigational buttons at the top right.

The transcript wordcloud view is also available throughout the tool for each entry via a link in the information panel.

Map (*See appendix 1; Fig. 5*)

This view returns search results over a map of the United States and aggregates results by the location where each record was produced. This view is helpful due to the unique sense of localism that persists throughout much of the public media in this country. Results can be parsed using the navigational buttons at the top left.

ENVIRONMENTAL ISSUES DEPICTED IN PUBLIC MEDIA

Here I will highlight entries from the AAPB that are fully reviewable within the Online Reading Room that directly address and inform on environmental issues. The search command that calls the AAPB's API to return results looks at all text associated with an entry, including the transcript (when available.) This leads to mixed results, and thus a straight recounting of when the "earliest" mention of the term "global warming" is made within this media is not a straightforward inquiry due to the state of the data. As one of what could be many examples, this episode of New Jersey Nightly News¹⁸ incorrectly translates Senator Frank Lautenberg's last name into "Global Warming." However there are many examples of highly relevant and engaging entries regarding the environment that are returned when searching the AAPB for these terms. Here are ten examples of what can be found, presented as an initial collection which I hope will be expanded upon over time by additional research which I encourage any interested parties to engage with and offer further contributions.

Findings from the past; timeline:

"This problem of the greenhouse effect is going to be one of the most severe environmental challenges we have ever faced in the entire history of humankind. We must have leadership and determination and an international effort to halt this problem." These are words spoken by Al Gore at a Democratic presidential candidates' debate in 1988 in Iowa, appropriately titled:

¹⁸"New Jersey Nightly News; New Jersey Nightly News Episode from 11/03/1982," 1982-11-03, New Jersey Network, American Archive of Public Broadcasting (WGBH and the Library of Congress), Boston, MA and Washington, DC, accessed May 20, 2019, http://americanarchive.org/catalog/cpb-aacip_259-k649sm5j.

“Forum for our Future.”¹⁹ A question about referencing global warming directly is put forward to the five candidates (Rev. Jesse Jackson, Illinois; Gov. Michael Dukakis, Massachusetts; Sen. Al Gore, Tennessee; Gov. Bruce Babbitt, Arizona; Rep. Richard (Dick) Gephardt, Missouri) and Gore gives a powerful answer, which is then brushed off in the follow up comment by Jackson in which he refers to Gore being better suited as a chemist than a President.

In the same year, at a much more local level but still in a political context, the specific term “global warming” was being discussed alongside environmental phrases more current to the era (“greenhouse gas” and “acid rain”) in a televised debate hosted by *Wisconsin Magazine*,²⁰ a weekly program dedicated to local events in Wisconsin. This particular episode featured the fifth and final debate between senate candidates Susan Engeleiter and Herb Kohl, both of whom stressed the need for improved environmental action when pointedly asked about problematic sources of energy and associated impacts on the local and global climate.

Wisconsin public media is also responsible for the first meaningful mention of the term “climate change” that appears within the AAPB’s Online Reading Room. A radio program record from Wisconsin Public Radio in Madison, from 1975, focuses 43 minutes on a very granular level discussion of energy issues and global food patterns.

¹⁹ “Debate 1988, President, Democrats; Sierra Club Democratic Debate; Rev. Jesse Jackson, Illinois; Gov. Michael Dukakis, Massachusetts; Sen. Al Gore, Tennessee; Gov. Bruce Babbitt, Arizona; Rep. Richard (Dick) Gephardt, Missouri.,” 1987-11-08, Iowa Public Television, American Archive of Public Broadcasting (WGBH and the Library of Congress), Boston, MA and Washington, DC, accessed May 20, 2019, http://americanarchive.org/catalog/cpb-aacip_37-01bk3m5s.

²⁰ “The Wisconsin Magazine; Senate debate; 1505?,” Wisconsin Public Television, American Archive of Public Broadcasting (WGBH and the Library of Congress), Boston, MA and Washington, DC, accessed May 20, 2019, http://americanarchive.org/catalog/cpb-aacip_29-47m8v9h.

The first mention of acid rain that appears in the archive's Online Reading Room is contained in a radio program called *WGBH Journal* from August of 1979. The announcer for the show ends the program by saying: "Acid in rainwater that falls over the eastern United States has increased 100 times in the past 30 years, and has been blamed for the killing of fish and crops and is now being viewed as a threat to human health. The concentration of acid in rain is among the highest in the nation in the New England area, and has the EPA concerned that the acid rains could turn lakes into acid pools and cut crop yields significantly. The increase in the use of coal in the area could make the problem worse. The problem is serious enough to want to warrant a 10 million dollar study recently ordered by President Carter. And that's the news."²¹

Across the country in November of 1982, another local state news television program addresses the acid rain problem at length. The correspondent on the story refers to the topic of acid rain as being "taken for granted in the northeast" but goes on to state that the discovery of the same condition in Louisiana is disturbing. A ten minute feature then follows discussing acid rain on this episode of Louisiana: The State We're In.²²

By 1985, a bright spot is demonstrated by PBS SoCal in Costa Mesa, California when a full episode of *Jim Cooper's Orange County* is dedicated to the topic of air pollution and car emission control policies.²³ This half hour piece of public television programming is a case study

²¹ "WGBH Journal; Residents VS. Simplex," WGBH, American Archive of Public Broadcasting (WGBH and the Library of Congress), Boston, MA and Washington, DC, accessed May 20, 2019, http://americanarchive.org/catalog/cpb-aacip_15-39k3jn23.

²² "Louisiana: The State We're In; 611," 1982-11-12, Louisiana Public Broadcasting, American Archive of Public Broadcasting (WGBH and the Library of Congress), Boston, MA and Washington, DC, accessed May 20, 2019, http://americanarchive.org/catalog/cpb-aacip_17-246q632n.

²³ "Jim Cooper's Orange County; Orange County Air Quality," 1985-06-06, PBS SoCal, American Archive of Public Broadcasting (WGBH and the Library of Congress), Boston, MA and Washington, DC, accessed May 20, 2019, http://americanarchive.org/catalog/cpb-aacip_221-31qfv2t9.

of effective practices and measurable efforts to improve air quality and reduce auto vehicle emissions that should have been replicated widely across the US at this time.

Oregon Public Broadcasting dedicated half of an episode of its local news and events magazine format weekly show, *Front Street*, to the topic of air pollution in 1982.²⁴ The feature describes the challenges and progress that citizens of Bear Creek Valley have suffered and won in various attempts to combat emissions into the atmosphere, to mixed success. This program demonstrates the hyper-localized media production that public broadcasters have been able to foster, when resourced to so, that would not be feasible on commercial-based network news.

Another gem from Oregon Public Broadcasting from ten years earlier, in 1973, is Rescue of a River²⁵ which is a documentary that focuses on the Willamette River and efforts to keep its water clean despite growing industry, port activity, overpopulation, and inappropriate waste treatment. This film is narrated by the governor of Oregon from the time, Tom McCall, and this represents the use of public media by elected officials to spread awareness of non-partisan but pressing issues of the moment.

One of my favorite historical finds from the AAPB collection relating to environmental issues is this program from Houston about sources of oil pollution²⁶ that was produced in the 1970s. There is no narration beyond title cards that are displayed between splices of raw footage. There is such vivid character that exudes from this film, from the camerawork and graininess of the picture to

²⁴ "Front Street Weekly; 113," 1982-01-27, Oregon Public Broadcasting, American Archive of Public Broadcasting (WGBH and the Library of Congress), Boston, MA and Washington, DC, accessed May 20, 2019, http://americanarchive.org/catalog/cpb-aacip_153-86nzshf7.

²⁵ "Rescue of a River," 1973-06-26, Oregon Public Broadcasting, American Archive of Public Broadcasting (WGBH and the Library of Congress), Boston, MA and Washington, DC, accessed May 21, 2019, http://americanarchive.org/catalog/cpb-aacip_153-59q2c4kt.

²⁶ "Source of Oil Pollution," University of Houston, American Archive of Public Broadcasting (WGBH and the Library of Congress), Boston, MA and Washington, DC, accessed May 21, 2019, http://americanarchive.org/catalog/cpb-aacip_513-nz80k27n3m.

the font of the explanatory title cards. This preserved recording reflects a tangible and passionate community drive to document and broadcast an issue of deep concern.

Finally, one last example of an environmental record discovered via timeline view is this item from *Channel 17 Reports* out of Buffalo, NY on the “dangers and benefits” of drilling for oil and natural gas in Lake Erie.²⁷ “The mixture of oil and water,” the narrator says at the beginning of the half hour program, “is it worth it?” What follows is a debate between neighbors within their communities making a case for both sides in a calm, coolheaded manner, in which to inform the other residents of their regional area about the importance of this decision. There is no shortage of relevant quotes from this piece that could be deployed today in conversations about fracking or the state of drinking water in the country’s cities and towns. A Sierra Club attorney, Richard Lippes, ends the program by saying: “When people say things are worth the risk, I think it depends on *whose* risk? The drillers are not risking anything, the residents of the city of Buffalo are.” This program aired in 1981.

Findings by theme; genre:

Five results from the AAPB are listed below, each of which varies in its subject but all deal directly with environmental issues. These results were discovered by using the Visually Exploring the American Archive of Public Broadcasting search tool using the genre clusters view. The search term was “oil pollution.” Each of these results clustered in the Documentary

²⁷ “Ch 17 Reports,” 1981-04-19, WNED, American Archive of Public Broadcasting (WGBH and the Library of Congress), Boston, MA and Washington, DC, accessed May 21, 2019, http://americanarchive.org/catalog/cpb-aacip_81-39k3jg78.

genre. This is an example of the exploratory possibilities for discovery of media by using this tool to search the archive by genre type.

Title: *Oregon Story*²⁸

Episode: Water

Produced by: Oregon Public Broadcasting

Date: November 5, 2002

Description: This documentary looks at the history of primary water sources for the state of Oregon. Interviews with locals show just how much of Oregon's infrastructure is reliant on a stable water supply and how an old law led to the state's current situation of uneven water distribution. The Oregon Story is a documentary series exploring Oregon's history and culture.

Title: *Water Passages*²⁹

Produced by: Oregon Public Broadcasting

Date: June 5, 1988

Description: This documentary looks at the decade-long struggle for clean water, including the construction of massive and expensive advanced waste treatment (AWT) plants. Interviews with consultants and engineers expose a growing backlash against these facilities, and a search for alternative solutions.

Title: *Battle for the Mountains*³⁰

Produced by: Rocky Mountain PBS

Date: 1987

Description: BATTLE FOR THE MOUNTAINS is an hour documentary about Colorado's high country which will be broadcast on Channel Six Friday, June 26, 1987 at 9pm and repeated on Sunday, June 28, 1987 at 11:30am. The focus is on the issue of whether the beauty of the mountains can be preserved when the thrust is for more economic development. The program ties together all the forces that are impacting on the high country: the ski industry, housing development, timber and mining interests, water providers and tourism. Development means financial gain for the state, corporations and individuals but the utilization of mountain resources adversely affects wildlife habitat, wilderness areas, water for recreational activities and destroys the esthetic value of

²⁸ "Oregon Story; Water," 2002-11-05, Oregon Public Broadcasting, American Archive of Public Broadcasting (WGBH and the Library of Congress), Boston, MA and Washington, DC, accessed May 21, 2019, http://americanarchive.org/catalog/cpb-aacip_153-05fbg8cp.

²⁹ "Water Passages," 1988-06-05, Oregon Public Broadcasting, American Archive of Public Broadcasting (WGBH and the Library of Congress), Boston, MA and Washington, DC, accessed May 21, 2019, http://americanarchive.org/catalog/cpb-aacip_153-06gljz48.

³⁰ "Battle for the Mountains," 1987-00-00, Rocky Mountain PBS, American Archive of Public Broadcasting (WGBH and the Library of Congress), Boston, MA and Washington, DC, accessed May 21, 2019, http://americanarchive.org/catalog/cpb-aacip_52-9351cfv6.

Colorado's spectacular mountains. The documentary thoroughly explores a very controversial issue. Through extensive interviews the clash of opinions between developers, governmental officials, environmentalists and local residents illustrates that although money is precious so is the pristine environment that development invades. There are no easy answers. To illustrate this complex problem, the documentary features a proposed ski resort at Quail Mountain, ski development in Telluride; Two Forks and Aurora's Homestake II water projects and the Cache la Poudre designation as a Wild and Scenic River. The Forest Service argues the merits of logging with environmentalists. Although mining is a depressed industry, residents of Crested Butte and Lake City stand guard to prevent future mining of their scenic mountains. Tourism is considered the panacea to shore up Colorado's faltering economy, but the impact of more tourists and more visitors is destroying nature's delicate balance. Indian Peaks Wilderness Area is overcrowded and Rocky Mountain National Park with its seventy years of protective management is having a difficult time preserving the Park terrain. *BATTLE FOR THE MOUNTAINS* is a thoughtful presentation of the dilemma Colorado faces today. Development of the mountain resources may be the key to Colorado's progress but the mountains are Colorado's priceless possession and unless protected will be lost for future generations. While the documentary is packed with information, one of the unusual features is the beautiful mountain scenery that covers the snows of winter, greenness of summer and golden trees of fall.

Title: *Trident: Super Sub or Dinosaur?*³¹

Produced by: KCTS Seattle Washington

Date: Missing (encoded November, 2013)

Description: This program examines the Trident, a strategic nuclear missile submarine currently being constructed (ca. 1976), and the Trident base being built at Bangor, Washington (ca. 1976). Through interviews with politicians, professionals, and locals, it questions whether the Trident is really needed and the impact of the base on the surrounding area.

Title: *Five College Forum; Program on the History of Opposition to the Construction of the Seabrook Nuclear Power Plant*³²

Produced by: New England Public Radio

Date: April 28, 1977

Description: Program about the history of civil disobedience in opposition to the construction of the Seabrook Nuclear Power Plant. Includes interviews with activists, footage from the occupation of the power plant site, and anti-nuclear power songs.

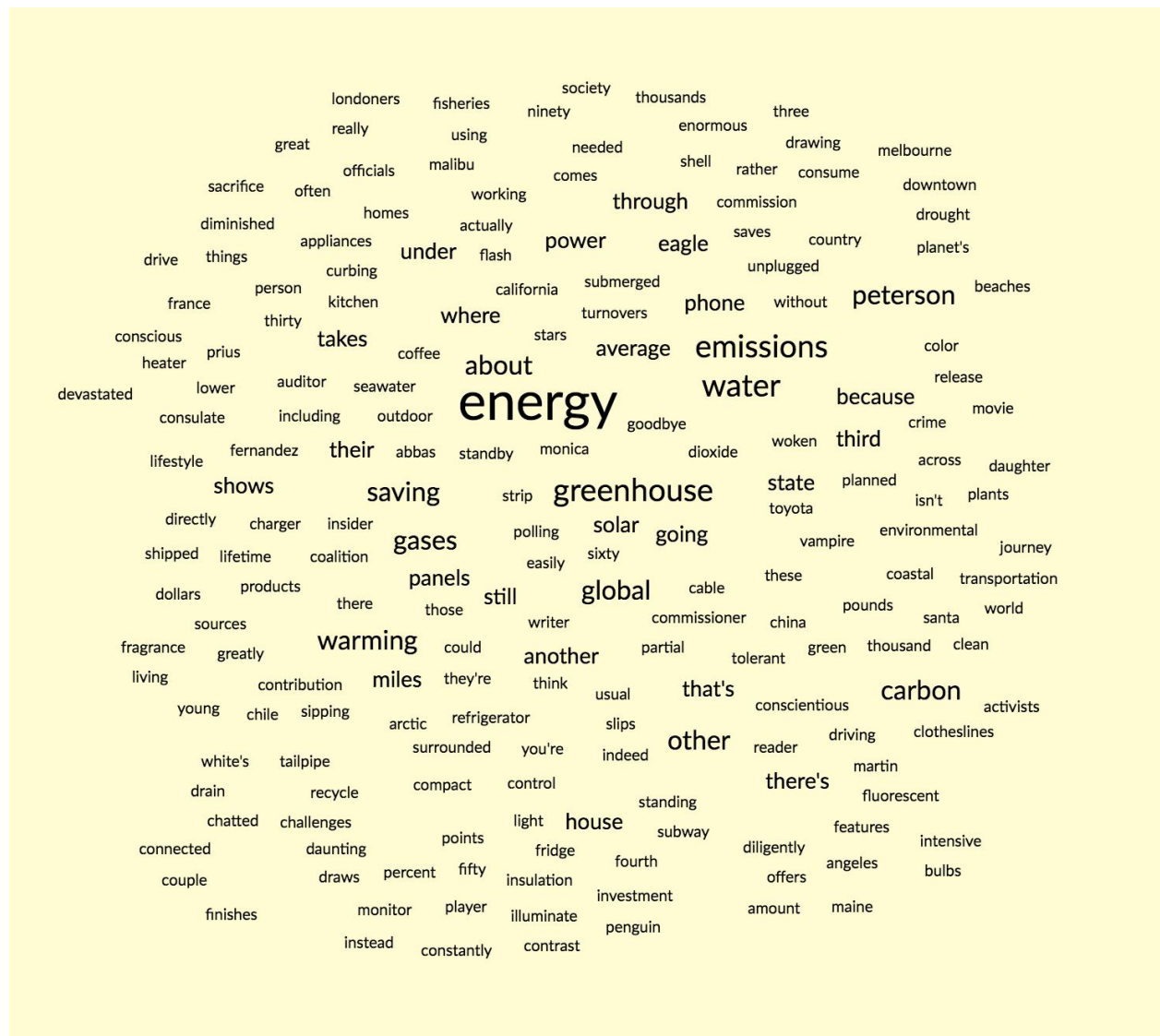
³¹ "Trident: Super Sub or Dinosaur?," KCTS 9, American Archive of Public Broadcasting (WGBH and the Library of Congress), Boston, MA and Washington, DC, accessed May 21, 2019, http://americanarchive.org/catalog/cpb-aacip_283-300zpjxp.

³² "Five College Forum; Program on the History of Opposition to the Construction of the Seabrook Nuclear Power Plant," 1977-04-28, New England Public Radio, American Archive of Public Broadcasting (WGBH and the Library of Congress), Boston, MA and Washington, DC, accessed May 21, 2019, http://americanarchive.org/catalog/cpb-aacip_305-106wvr49.

Findings by relevance; transcript:

In order to discover results that are thematically of interest to a researcher, presented on the following pages are the first five results for the search term “climate change” when viewed by transcript search mode. This view parses the machine learned transcript associated with each entry and highlights the most frequently used words and makes them visually larger within the graphic.

Taking Action on Climate Change³³



³³ “Taking Action on Climate Change,” 2006-01-25, KPCC, American Archive of Public Broadcasting (WGBH and the Library of Congress), Boston, MA and Washington, DC, accessed May 21, 2019, http://americanarchive.org/catalog/cpb-aacip_511-r49g44jk3w.

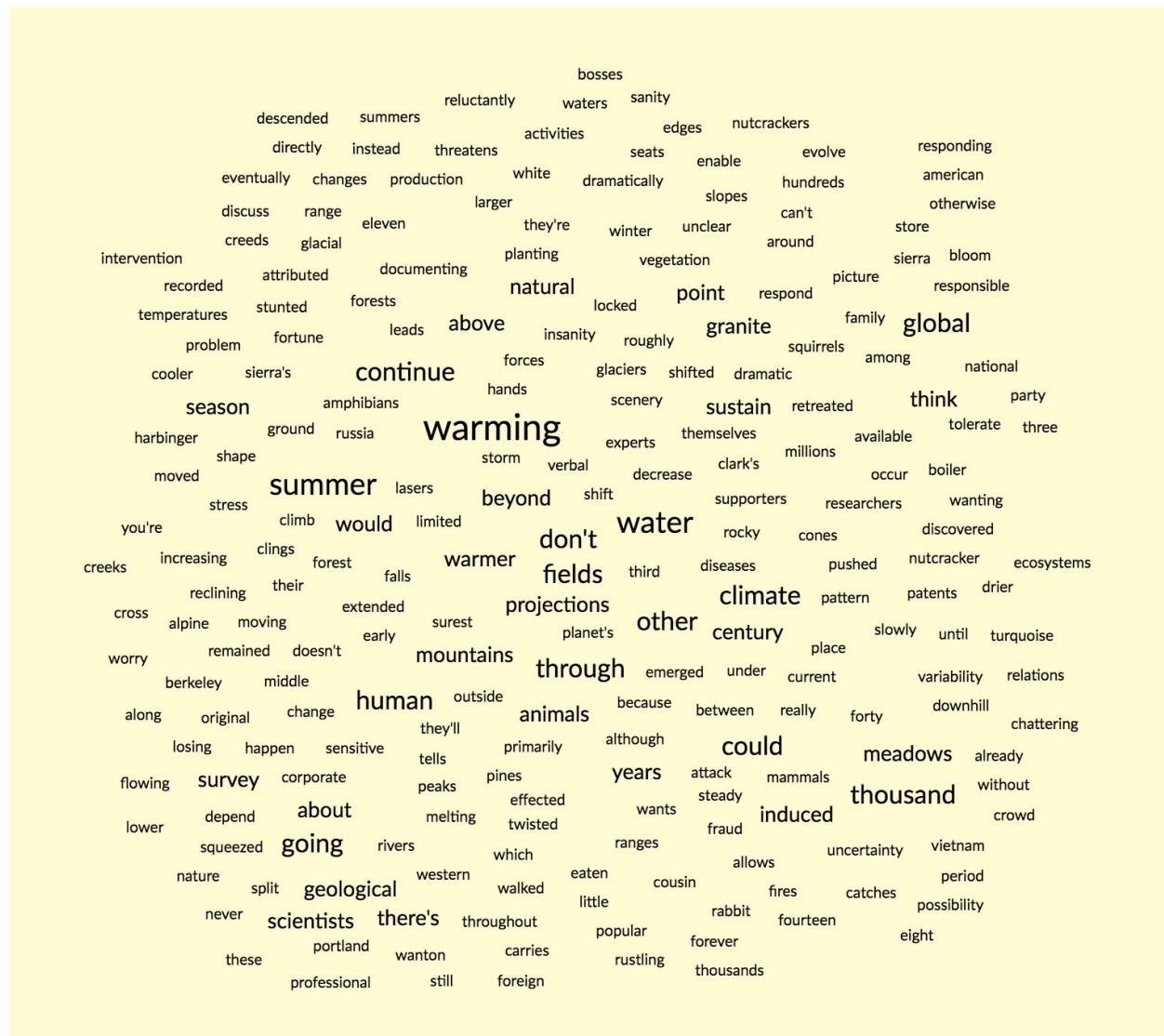
[illegible]

27

[illegible]

28

Climate Change in California, Part 2³⁶



³⁶ "Climate Change in California. Part 2," 2006-11-28, KPCC, American Archive of Public Broadcasting (WGBH and the Library of Congress), Boston, MA and Washington, DC, accessed May 21, 2019, http://americanarchive.org/catalog/cpb-aacip_511-ft8d6f6kt88.

30

Findings by place; map:

One of the strongest aspects of public, non-commercial media is the role of localism and regionality that is displayed in the content that is produced by member stations. The map view of *Visually Exploring the American Archive of Public Broadcasting* allows the user to take advantage of this by searching for topics of interest and honing in on the region or state where the media was produced. As an example, I am interested in how the topic of “global warming” (the search term) has been depicted in the media that is available to view in the AAPB’s reading room, I can immediately find these 9 results by state:

Tennessee:

[A Word on Words; 3725; John Baker](#)³⁸

[A Word on Words; 4136; Al Gore](#)³⁹

[A Word on Words; 4135; Al Gore](#)⁴⁰

[A Word on Words; 0931; Sen Al Gore Jr.](#)⁴¹

[A Word on Words; 3810; Al Gore](#)⁴²

[A Word on Words; 3809; Al Gore](#)⁴³

Note: A Word on Words was produced by Nashville Public Television. The full series of over 900 episodes is available to watch within the AAPB’s Online Reading Room.

³⁸ “A Word on Words; 3725; John Baker,” 2009-02-24, Nashville Public Television, American Archive of Public Broadcasting (WGBH and the Library of Congress), Boston, MA and Washington, DC, accessed May 21, 2019, http://americanarchive.org/catalog/cpb-aacip_524-3b5w66b18b.

³⁹ “A Word on Words; 4136; Al Gore,” Nashville Public Television, American Archive of Public Broadcasting (WGBH and the Library of Congress), Boston, MA and Washington, DC, accessed May 21, 2019, http://americanarchive.org/catalog/cpb-aacip_524-d50ft8fj44.

⁴⁰ “A Word on Words; 4135; Al Gore,” Nashville Public Television, American Archive of Public Broadcasting (WGBH and the Library of Congress), Boston, MA and Washington, DC, accessed May 21, 2019, http://americanarchive.org/catalog/cpb-aacip_524-pz51g0k22z.

⁴¹ “A Word on Words; 0931; Sen Al Gore Jr.,” 1991-01-10, Nashville Public Television, American Archive of Public Broadcasting (WGBH and the Library of Congress), Boston, MA and Washington, DC, accessed May 21, 2019, http://americanarchive.org/catalog/cpb-aacip_524-416sx6535g.

⁴² “A Word on Words; 3810; Al Gore,” 2009-11-15, Nashville Public Television, American Archive of Public Broadcasting (WGBH and the Library of Congress), Boston, MA and Washington, DC, accessed May 21, 2019, http://americanarchive.org/catalog/cpb-aacip_524-st7dr2qf7v.

⁴³ “A Word on Words; 3809; Al Gore,” 2009-11-15, Nashville Public Television, American Archive of Public Broadcasting (WGBH and the Library of Congress), Boston, MA and Washington, DC, accessed May 21, 2019, http://americanarchive.org/catalog/cpb-aacip_524-p26pz52p77.

Louisiana:

Newsmakers; Jay Grimes, Weather Patterns⁴⁴

Enviro-Tacklebox: Module 5; Carbon: Element of Surprise⁴⁵

Florida

WEDU Interview; Charlie Crist⁴⁶

WEDU Interview; Amy Goodman⁴⁷

WEDU Interview; Andrew Kohut⁴⁸

⁴⁴ “Newsmakers; Jay Grimes, Weather Patterns,” 2010-08-04, Louisiana Public Broadcasting, American Archive of Public Broadcasting (WGBH and the Library of Congress), Boston, MA and Washington, DC, accessed May 21, 2019, http://americanarchive.org/catalog/cpb-aacip_17-021c62hb.

⁴⁵ “Enviro-Tacklebox: Module 5; Carbon: Element of Surprise,” 2002-09-24, Louisiana Public Broadcasting, American Archive of Public Broadcasting (WGBH and the Library of Congress), Boston, MA and Washington, DC, accessed May 21, 2019, http://americanarchive.org/catalog/cpb-aacip_17-23hx46h9.

⁴⁶ “WEDU Interview; Charlie Crist,” 2007-04-04, WEDU, American Archive of Public Broadcasting (WGBH and the Library of Congress), Boston, MA and Washington, DC, accessed May 21, 2019, http://americanarchive.org/catalog/cpb-aacip_322-37hqc2vf.

⁴⁷ “WEDU Interview; Amy Goodman,” 2009-05-13, WEDU, American Archive of Public Broadcasting (WGBH and the Library of Congress), Boston, MA and Washington, DC, accessed May 21, 2019, http://americanarchive.org/catalog/cpb-aacip_322-93gxdb7m.

⁴⁸ “WEDU Interview; Andrew Kohut,” 2006-05-11, WEDU, American Archive of Public Broadcasting (WGBH and the Library of Congress), Boston, MA and Washington, DC, accessed May 21, 2019, http://americanarchive.org/catalog/cpb-aacip_322-49g4f90z.

CONCLUSION

Environmental issues have been presented consistently in America's non-commercial public media, as evidenced from the examples presented here. These media entries confront oil pollution, air pollution, water pollution, energy needs and strains caused by industry and overpopulation, nuclear power, global warming and climate change as far back as the early 1970s. And these represent only a tiny fraction of the total contents of the American Archive of Public Broadcasting, by only displaying those media records that are fully reviewable online. When considering the remaining 2.45 million records that exist to be searched, and the additional records that will come after that, the AAPB is an invaluable resource for researchers to investigate the topics of debate that surround the citizens of this country. By this very brief survey alone, the divisiveness of politics and attitudes with regard to energy policy becomes immediately apparent — but so to does the passionate drive in the American public to make these issues known through the avenue most receptive to raising awareness on the issues of our time: public, non-commercial media stations. Preserving and allowing access to this media is an invaluable effort and one that should be supported and actively utilized by educators, scholars, and the general interested public.

PROCESS

This project began when one of the co-faculty instructors for my thesis class, Major Studio 2, sent me an email about a month into this Spring 2019 semester. The message had no subject line and only contained this link to a Reddit “Ask Me Anything” session⁴⁹ that had occurred that same day. I received the email just after midnight and wrote a reply at 1:48am:

————— Forwarded message —————
From: **Jed Crocker** <CrockerJ@newschool.edu>
Date: Thu, Feb 14, 2019 at 1:48 AM
Subject: Re:
To: Richard The <ther@newschool.edu>

Richard -

This archive is deeply inspiring! It's got me thinking in new ways and I would love to work this into a final thesis project. The NewsHour is the exemplar of how nightly news should be broadcast, in my opinion, and I love it. I have been an active supporter of channel Thirteen since my early 20s living in NYC. PBS is so important.

It's amazing to me that this somehow didn't cross my radar previously. Thanks again for sending the link. I'm afraid I'm going to be up all night looking into it!

Soon after receiving Richard's email, I had sent an email to the American Archive of Public Broadcasting general account requesting an informational interview and suggested that I would like to consider working with the contents of this archive in my thesis project. I didn't hear back right away and tabled my thinking about the AAPB

⁴⁹ “R/AskHistorians - The American Archive of Public Broadcasting – 70+ Years of Historic Public Television and Radio Programming Digitized and Accessible Online for Research,” reddit, 2011, https://www.reddit.com/r/AskHistorians/comments/aq6ua9/the_american_archive_of_public_broadcasting_70/.

I entered this semester thinking about ‘broadcast’ in a large, general sense — and I spent a solid two months trying to determine how my thesis project might revolve around this big thematic topic. I became particularly (obsessively?) interested in radio culture and history, which descended upon me out of the blue because it had never been a real subject of interest for me until this semester. I thought that I might create a comprehensive data visualization project about pirate radio broadcasting, or FCC regulations / actions, or low-power FM stations, or spectrum allotments over time (a helpful suggestion from my other faculty guide, Christian Swinehart), or how online radio stations proliferate through new services such as TuneIn, or through a study of online shortwave listening culture. I followed each of these ideas, and more, significantly down their respective paths. I am grateful to David Goren, who created the Brooklyn Pirate Radio Sound Map⁵⁰, for inviting me to his home to discuss how pirate broadcasters operate in Brooklyn and the metropolitan tri-state area.

In the end, I couldn’t land on an established dataset or reasonable method for creating a new dataset to visualize when considering each or any of these radio-related avenues.

As I began to lose hope about finding any way forward, and the panic began to set in . . . I received a response to my original inquiry with the American Archive. It had taken some time for my general inquiry to find its way to the correct person, Casey Davis Kaufman, who is the Project Manager for the AAPB. Within a few hours, we had set up a time for the following week to discuss my ideas together along with the Executive Director of the AAPB, Karen Cariani.

⁵⁰ Pirate Radio, “Brooklyn Pirate Radio Sound Map,” Brooklyn Pirate Radio Sound Map, 2019, <https://www.pirateradiomap.com/>.

To prepare for this interview, I met with archive expert and Media Studies & Anthropology Professor at The New School for Social Research, Shannon Mattern. During this conversation, Shannon was generous with support and offered several suggestions for possible directions in which to push research questions ahead of sharing at the meeting with the AAPB people. She also offered to put me in touch with a Twitter friend of hers, Josh Shepperd, who is a faculty member at the Catholic University of America and a fellow at the Library of Congress's National Recording Preservation Board. He also is the Director of the Library of Congress's Radio Preservation Task Force. At Shannon's suggestion that I speak with Josh for additional guidance, I felt that all of the disparate thinking I had been doing up until that point in the semester began to triangulate and come together.

The next day I had a half hour phone call with Josh about how I might move forward with this project. Josh had collaborated on projects and at conferences with both Casey and Karen from the AAPB several times so he immediately understood the archive and its contents. He offered several helpful suggestions about how I might think about using the archive to address specific research questions, and gave me some insights into the early "bicycle networks" of program distribution in the days when National Educational Television (NET) predated PBS.

My initial conversation with Karen and Casey from the AAPB took place on April 3rd, 2019 via an online video Zoom call from their offices at WGBH and a temporarily unused office that I found and used at The New School. In Karen and Casey, I found energetic and willing partners who were excited about the prospect of collaborating. Karen offered the profound suggestion that

I focus in on a subject that had already been featured as an exhibit within the AAPB — such as climate change in public media — to ground my research. This suggestion was a key turning point in the way that I was thinking about the entire project, though I knew early on that I wanted to design something that would be useful to anyone who was interested in exploring this archive on any topic. Karen’s suggestion propelled me forward and kept my vision focused. Casey was extremely helpful and great to work with from the very beginning of our correspondence. She was instrumental in demystifying the archive’s API calling system and offered useful tips throughout the semester about how best to proceed and decode the archive’s signature metadata tagging system, PBCore. She provided resources directly after our initial phone call that allowed me to callback results from the archive in a more targeted manner, and granted the ability to search transcripts directly through the AAPB’s transcript-specific API.

Prior to my conversation with Casey and Karen from the AAPB, I had been spending a lot of time on the [AAPB Github page](#)⁵¹ and learning about the [PBCore metadata standard](#)⁵² so as to be as informed as possible about the structure of the data that I hoped to soon be working with.

For the purpose of this project, I was appreciative to find that the American Archive offers open access to the data of its contents through an API that does not require extensive validation or limits of searches. There is no key required and the reference information provided on Github made it easy to determine what data could be easily called based on searchterms. However, there were still obstacles. The results were limited to 100. The PBCore metadata standard is based

⁵¹ WGBH, “WGBH/AAPB2,” GitHub, May 15, 2019, <https://github.com/WGBH/AAPB2>.

⁵² “PBCore Metadata Standard,” PBCore Metadata Standard, 2019, <https://pbcore.org/>.

entirely in the XML markup language, and I knew that all of this information would need to be translated to JavaScript Object Notation (JSON) in order to be useful for working with.

A note about PBCore:

After the AAPB was handed off to WGBH and the Library of Congress to manage through collaboration, the staff at WGBH were awarded a \$345k grant to develop its PBCore metadata schema to employ on this specific collection — and grow to make the tagging system useful for other media archives. AAPB Executive Director Karen Cariani said in an interview that “the PBCore metadata schema provides a format and structure for entering details about these older analog recordings: host names, the station on which the material aired, program title, in some case musical genre, performance ownership, date of broadcast and other information that is useful to describe the digital files.”⁵³

The metadata schema was created specifically to capture the asset data for the collections of materials that were sitting on shelves in member television and radio stations, but it has found uses in media archives of all kinds. “Public broadcasting communities in the United States originally developed PBCore so that producers and local stations could better share, manage and preserve their media. Since then, a growing number of moving image archives and media

⁵³ Deutsch, Ken. "PBCore: Saving Public Radio History." *Radio World*, Apr 12, 2017, 1-1,8,10, <https://login.libproxy.newschool.edu/login?url=https://search-proquest-com.libproxy.newschool.edu/docview/1891750404?accountid=12261>.

organizations outside of public broadcasting have also adopted PBCore to manage their audiovisual assets and collections.”⁵⁴

The schema allows for as much simplicity or complexity as required by the media asset (see *Fig.*

6). For the purpose of this project, I focused primarily on the following metadata elements:

- pbcoreIdentifier
- pbcoreTitle
- pbcoreDescription
- pbcoreIdentifier
- pbcoreAssetDate
- instantiationDate
- instantiationMediaType
- pbcoreAnnotation
- pbcoreGenre
- pbcoreCreator

Visually Exploring the American Archive of Public Broadcasting borrowed a great deal from the other major project that I created within the MS Data Visualization program, in Major Studio 1, titled the Projects of Robert Moses: a map and timeline (see *Fig. 7*.) In this earlier work, the dataset was painstakingly handcrafted — a factor which was spared in this project by interpreting the search results returned by the AAPB. However many pieces from my previous project were useful to recycle here, particularly the Angular javascript framework which relied on a map

⁵⁴ “Frequently Asked Questions,” PBCore Metadata Standard, 2019, <https://pbcore.org/faqs>.

component, a timeline component, and an infopanel component which were all used again for this visual search tool.

Once underway with this project, the first several weeks were spent understanding how to aggregate and interpret the data from the AAPB API in a controlled manner and, in doing so, trying to figure out which elements of the metadata would be the most useful to me (as listed above.) Most of this early work was confined to the terminal using a bash script that was provided to me by the team at the AAPB. Calling and reviewing this data helped shape the ultimate goal of this project, which was to build a search interface that any interested user could easily understand and start using. Reviewing the initial data pulls, 100 results at a time as limited by the API, made me realize that I didn't want to aggregate a curated dataset and host it along with whatever the final visualization turned out to be. I knew that the only way to have a lightweight and dynamic final project would be to allow the user to call the API directly and have the results returned directly and visually in real time.

From the outset of exploring the AAPB, I was impressed with how organized the data appeared to be. I knew that there would still be challenges in wrangling the output data from the API into a more useable format (resolved using an NPM library called `fast-xml-parser`⁵⁵) and in creating searches that repeated beyond the 100 result limit (incorporated using `rxjs events`⁵⁶) but the state of the data itself was not as straightforward as I had originally thought. The PBCore metadata standard was certainly helpful in that all items generally do tend to have an ID, title, and

⁵⁵ "Fast-Xml-Parser," npm, March 23, 2019, <https://www.npmjs.com/package/fast-xml-parser>.

⁵⁶ "Angular," Angular.io, 2019, <https://angular.io/guide/rx-library>.

description of some type. The dates, however, in both `instantiationDate` and `pbcoreAssetDate` gave me weeks of trouble. For example, many items that exist within full curated collections of materials in the AAPB, *NewsHour* or *Firing Line* episodes for example, had all been confoundingly tagged with an `InstantiationDate` of 1903-00-00. This threw off the appearance and accuracy of the timeline for most search queries. It was only in the final week before this project was presented that I realized that these items had a separate `pbcoreAssetDate` (sometimes more than one!) which more accurately represented the actual creation or original broadcast date of the media. Similarly, lots of entries had badly formatted or incorrect dates that made them appear to be from the very distant past or from some time in the future. These entries are filtered out into the ‘unknown’ category of the timeline, of which there are now far fewer after dealing with the strange 1903 items.

There remains a lot of work to be done on this tool. The data query could be improved to refine accuracy of results, including the use of quotation marks or other search operators to enhance specificity. There is a great deal more design work that could be done to enhance user experience. In the case of timing for this semester, I am happy with the retro-esque final visual result for this tool — but additional time could be spent to enhance this interface. For example, the data printout in the information panel could be distributed across the screen in such a way to improve legibility and navigational experience. Another item that I would love to focus on would be to visually distribute the relevant results from the other 2.5 million records that are not available within the online reading room. My initial versions of this application included all items and — besides from having many more circles on the screen, often ridiculously too many

— it was a wholly deflating experience to read a fascinating description of a media item in the infopanel only to find that it hasn't been digitized or, in rarer cases, is only available to be viewed from a research station in Boston or Washington, DC. In order to reduce the sheer number of objects on the screen, I decided that these many entries should not be included in this project — however, in a future iteration, it would be a priority for me to represent all the relevant information that exists within the archive even though it is not available to be reviewed online. This would demonstrate the vastness of the produced media in our country that relies on additional resources to be properly preserved and made accessible to the public that is responsible for its creation, and for which it serves.

APPENDIX 1

Figure 1: AAPB collection contents

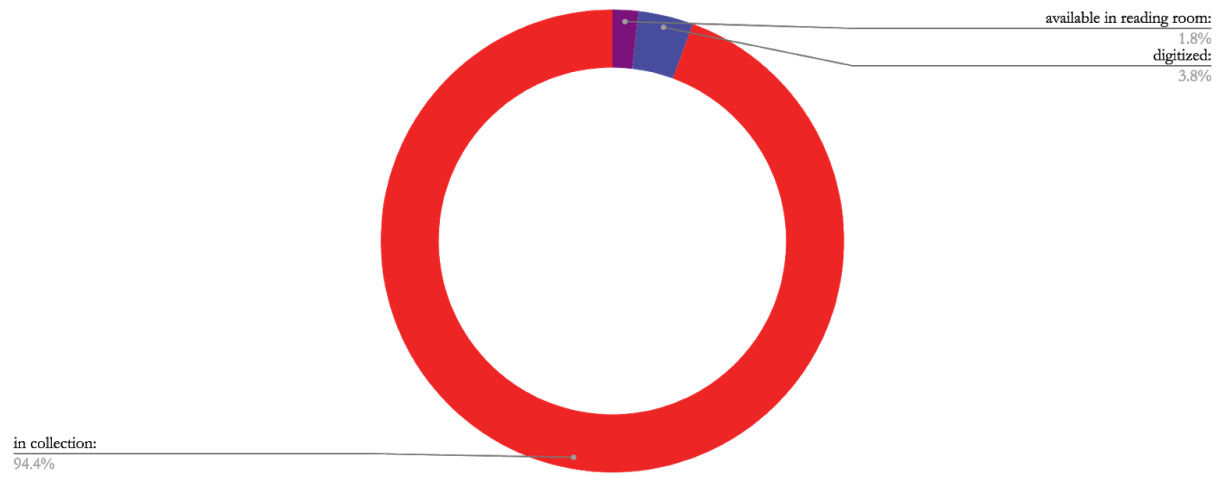


Figure 2: Timeline

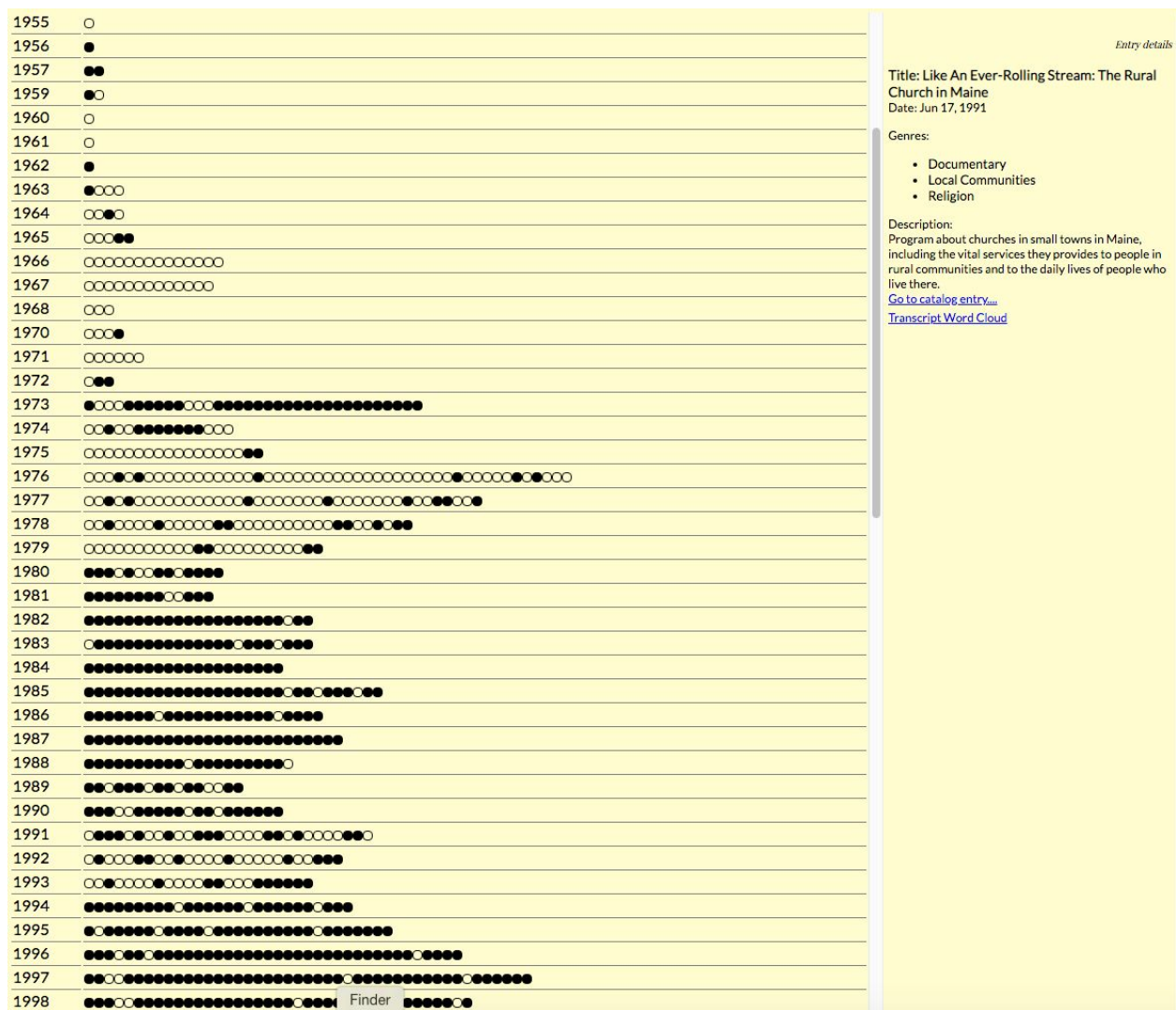


Figure 3: Genre cluster

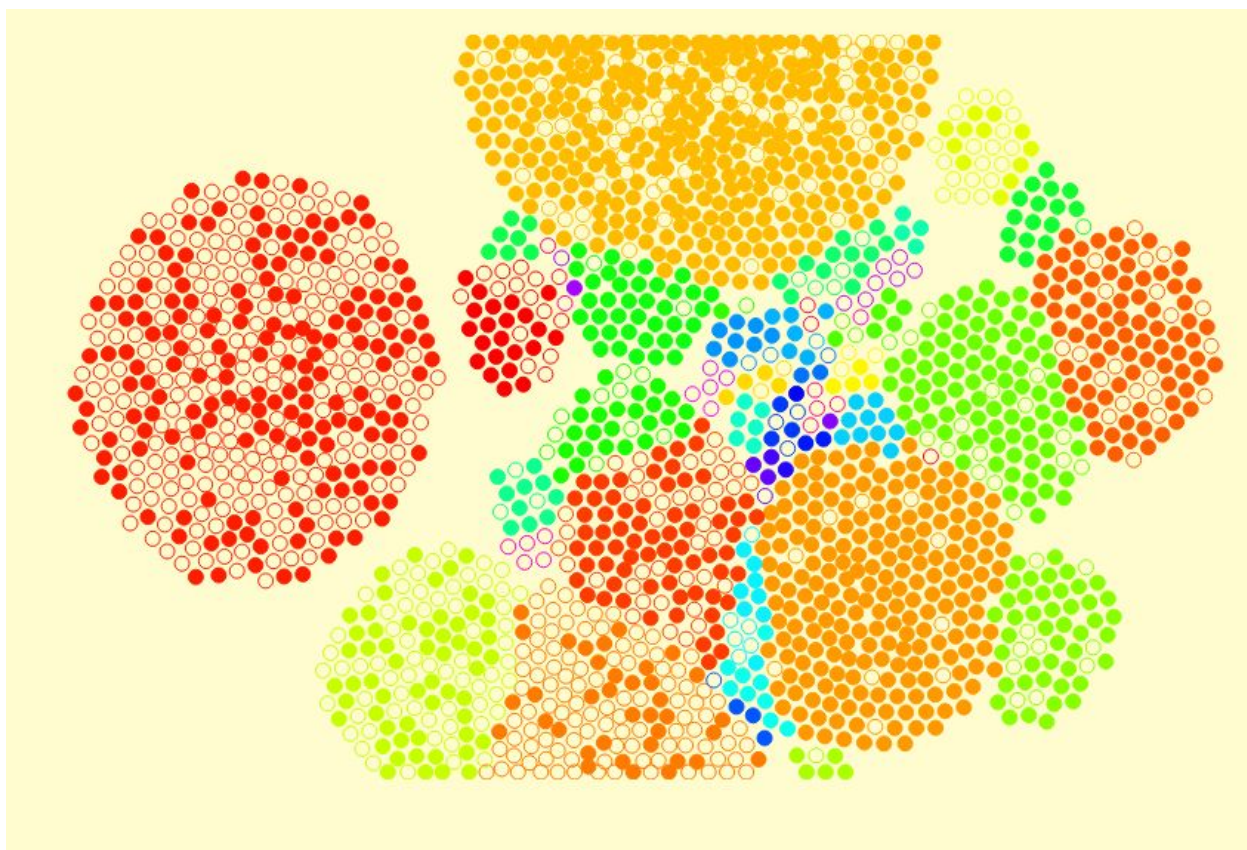


Figure 4: Transcript wordcloud



Figure 5: Map

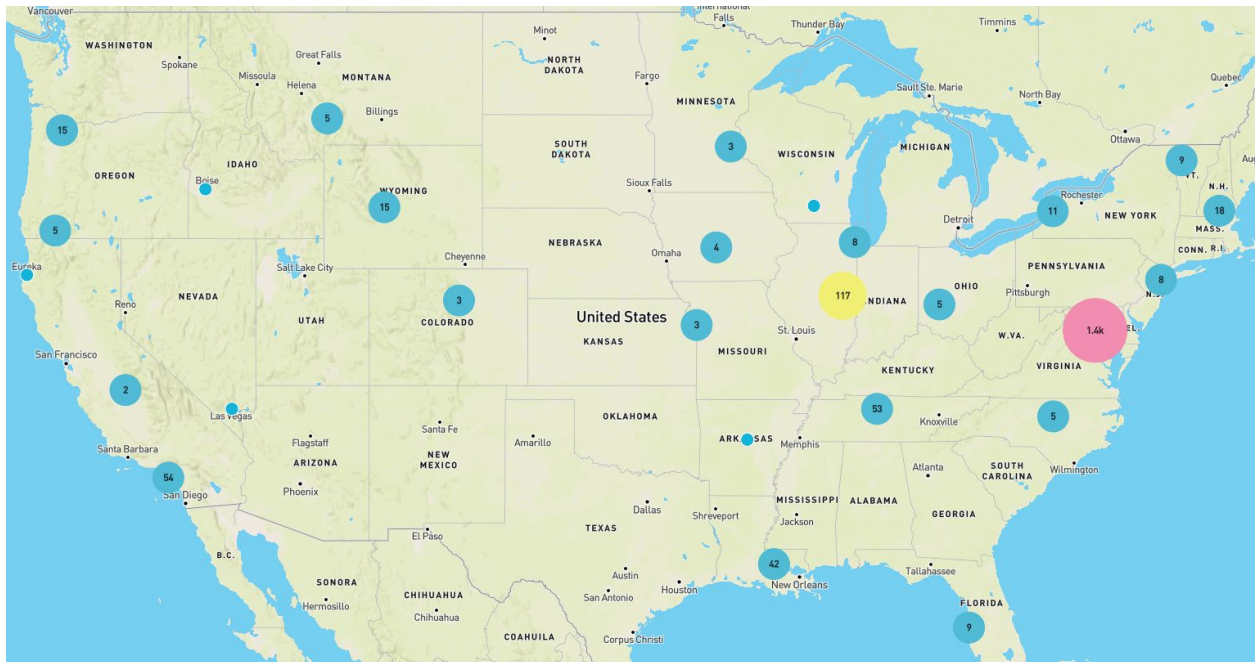


Figure 7: The PBCore Metadata Model

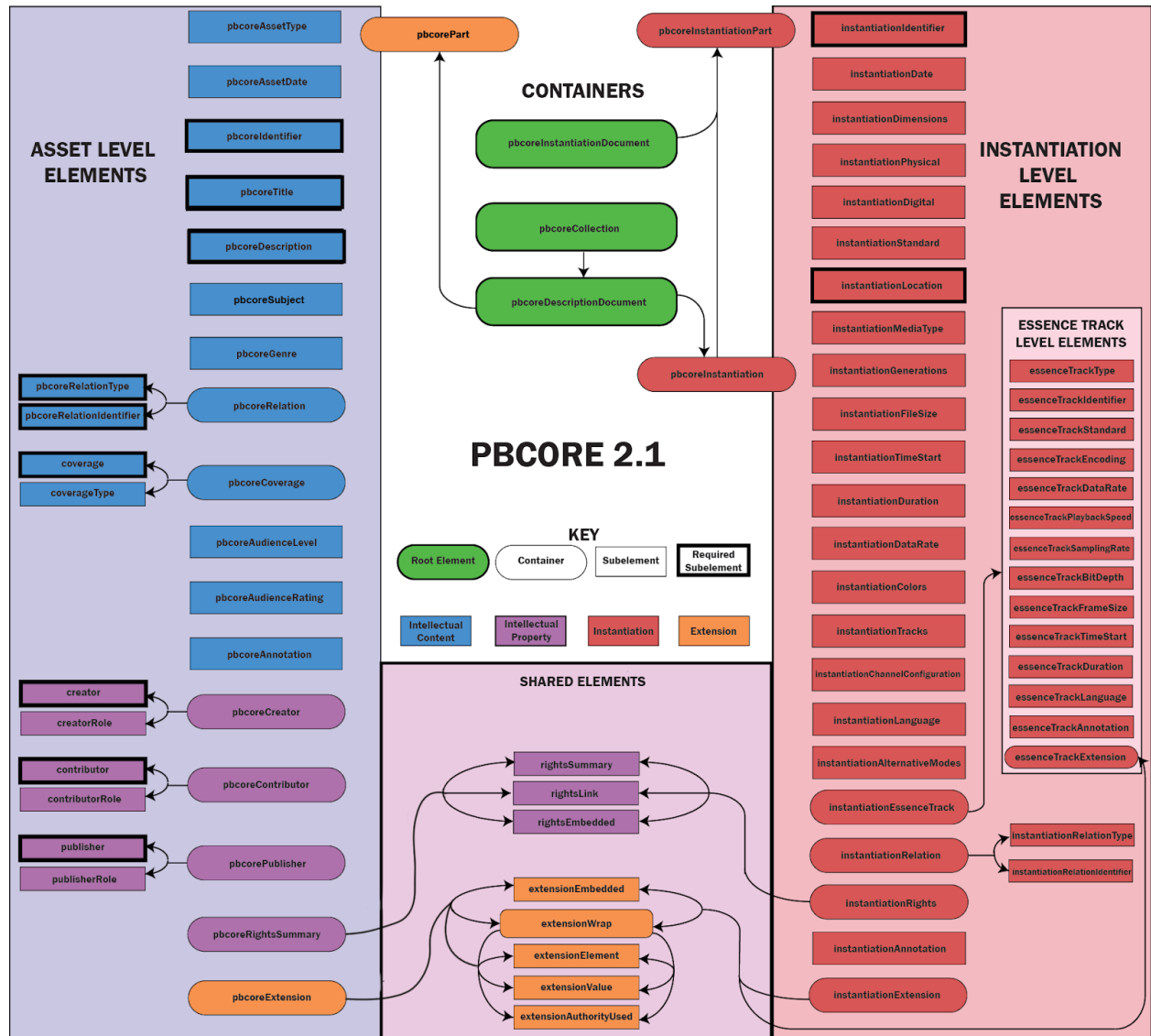
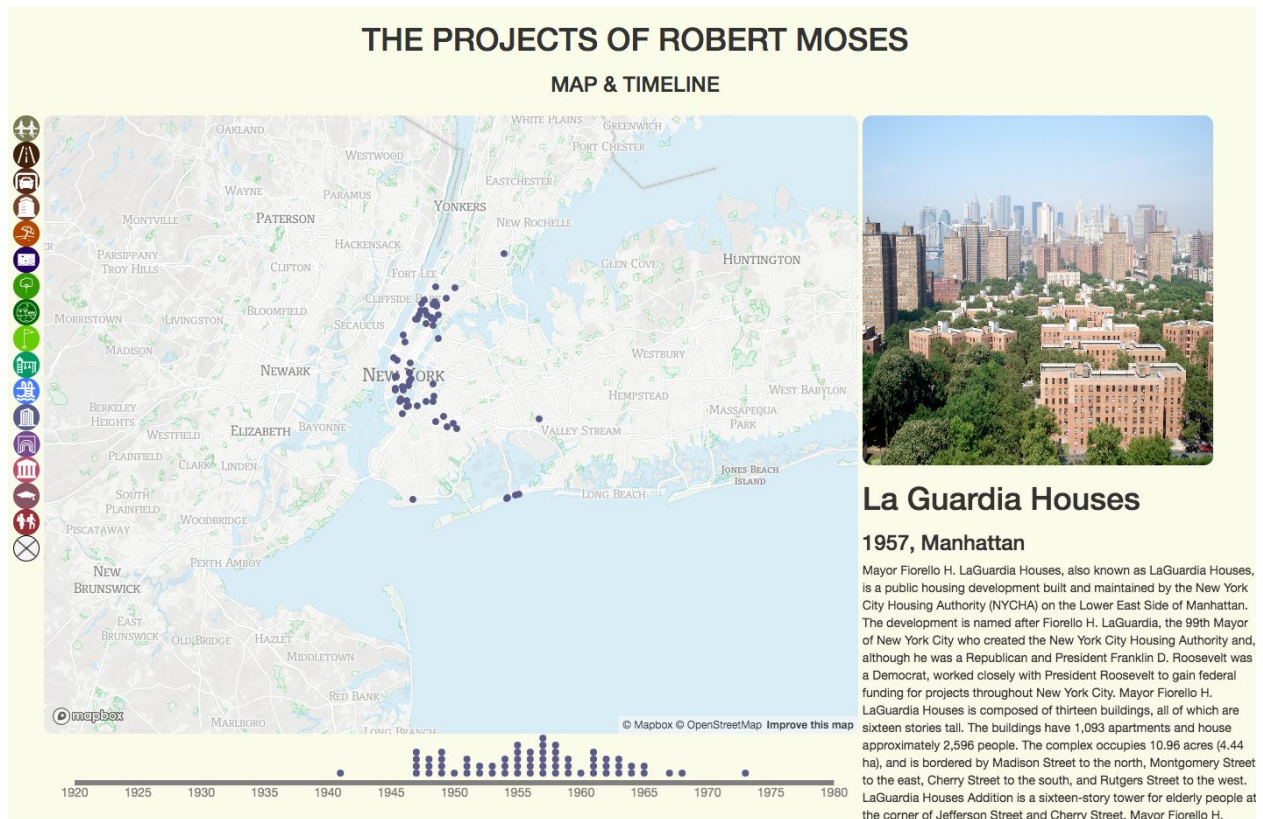


Figure 7: The Projects of Robert Moses



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