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HILLS OF CHANGE:
A LONGFORM JOURNALISM PROJECT EXPLORING COAL'S IMPACT IN
APPALACHIAN OHIO

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Note: The professional project can be viewed online at <http://www.hillsofchange.com>.

Introduction

When I visited the Buchtel Coal Mining Museum in northern Athens County, Ohio and spoke with the museum's sole guide, Rodney Galentin, one of the many things he told me stood out: "They took all the coal out of these hills that they could get and left us with the mess." Galentin, in his late 80s, has studied and taken pride in the history of coal in Southeast Ohio for most of his life. His acknowledgement of coal's impact on the area, though, taught me that it's possible to revere and celebrate part of an extraction industry's history – particularly its people and their way of life – while also acknowledging the real problems that the industry created.

In sum, my project consists of a four-part longform journalism series that focused on the impact of coal in Appalachian Ohio. Geographically, my focus was on the Hocking Valley region in the southeast part of the state, which saw widespread coal mining from the late 19th century into the mid 20th century and subsequent environmental impacts. My stories centered on three main topics: the history of mining towns in the region, the coal extraction's impact on the area's water and air, and the industry's small but ongoing presence in the state (specifically, through a proposed new surface mine.) I published the stories on a website I created, titled *Hills of Change*, intending to package them as examples of digital longform journalism.

I had several goals in embarking on this project. For one, I hoped to shed new light on the issues that I was covering: regional Appalachian history, environmental impacts and current energy news. The topics I wrote about have certainly been covered by local media as well as student media at Ohio University, but I set out to find new angles and tell untold stories. That leads into my second goal, to tell people's individual

stories in addition to overarching, thematic ones. I intended to talk to residents of Southeast Ohio, including former coal miners, to include different perspectives. My other major goal was to expand and experiment with my storytelling abilities, employing some techniques of longform and narrative journalism in a digital format.

As a whole, I sought to use this project to answer the question: what is the best way to tell stories about environmental impacts in Appalachia? What follows is a critical assessment of what I learned in trying to answer that question, both through my own journalism work and through reviewing academic literature on relevant topics.

Literature Review

My project intersects with several areas of academic study, the three most significant being environmental communication studies, Appalachian studies as they pertain to the media, and scholarly work on the intersection of longform journalism and digital media. Here, I have reviewed scholarly work related to these topics and synthesized them into overarching themes. The first two sections concentrate on characteristics, ethical issues, and best practices related to reporting on the environment and Appalachia. The third section shifts to focusing on form that pertains to my project, in this case digital longform, narrative journalism. Understanding the academic knowledge behind coverage and form can better help reporters understand the journalistic endeavors in which they partake.

Environmental communication

The relationship between environmental media and the public

The relationship between news media coverage of the environment and the public is fairly well-documented. Environmental reporting came into its own in the late 60s, when reporters realized it was necessary to interpret the environment as news “for the benefit of audiences anxious to understand the long-term implications ... for their own lives.” (Allan et al., 3) In order to understand environmental issues, the public tends to turn to the mass media for a greater understanding (12). In turn, media attention to such issues informs readers and also legitimizes the environment as a political issue (5). This has been shown in academic studies of agenda-setting, which suggest media coverage – of the environment, in particular – has a strong hand in forming agendas related to public concern and awareness of environmental issues. (Hansen 18). In an assessment of environmental communication research, Anders Hansen argues that the assumption behind most of such research is that environmental issues can influence the public’s understanding as well as political decision-making (18). Environmental reporting, then, has importance in its influence on people and their beliefs.

Specific studies further demonstrate the complexity of this relationship, and how influence can flow both ways. A 2009 study found that public concerns do tend to drive coverage of issues in the news, particularly energy and environment issues, that aren’t centered around events (Uscinski). In this way, environmental news impacts and is impacted by the public. In addition, a longitudinal study that centered on coverage of environmental pollution from the 1970s to 90s suggests a strong relationship between media attention to an issue and public salience of it (Ader 309). The study also asserts: “The public needs the media to tell them how important an issue the environment is”

(310). This notion is further evoked in Hansen's article, where he states that most of what people know of the environment comes from the media, and this has deeper implications for how people and societies relate to the environment (Hansen 8). It is clear, then, that communication research suggests a strong link between environment in media and people's conceptions of it.

Ethics, news values, and norms

Because media coverage of the environment plays such a strong role with regards to the public, ethical considerations are especially important. To start, much academic literature on the subject focuses on how traditional news values and norms don't always align with the role of environmental journalism. This is synthesized well in JoAnn Myer Valenti's article "Ethical Decision Making in Environmental Communication," where she states:

"Some believe that environmental reporting challenges and allows journalists to do something different, invites a rethinking of news values. Often the environment story requires more foregrounding (for audience understanding), makes long-term accountability and fairness prerequisite to the news reported, and forces the journalist to present possible consequences" (220).

Reporting on the environment, she argues, is different than other beats and requires a rethinking of values. Furthermore, a need for such a rethinking can be evidenced by some of the observed ethical shortcomings of environmental journalism.

One major problem identified in environmental communication relates to the impact of sourcing in one's reporting. News on the environment can become "limited in scope and focus" due to the selective nature of comments by people that journalists rely on for information and quotes (Allan 47), which often happens to be government sources

(51). As environmental reporting became more commonplace in the 60s and 70s, environmental information became more institutionalized with the founding of the U.S. Environmental Protection Agency and the Council on Environmental Quality (Neuzil 183). This led to a system where environmental news relied on such sources for the truth. A study conducted in 1976 showed that over half of environment news reports drew from source-generated press releases or public relations efforts, and recent research suggests that sources still play such a role (Hansen 12). It's worth noting, however, that studies show evidence of a strong influence of press release across all kinds of news media, such as a 2008 study that found that 60 percent of U.K. news media stories relied on pre-packaged information (Lewis et al., 14). Additionally, the "increasingly desk-bound" journalism of today has led to even more control by sources over framing information while reducing the role of face-to-face interviews (Hansen 12). In this way, journalists writing about the environment can face difficulty presenting the truth when their sources are providing information with spin or an agenda. One reason this occurs is because inexperienced journalists are often the first to report on environmental stories, and "have little time to gather background information" (Allan, 50). Significantly, such problems with source selection translate into the ethical concept of objectivity, a notion of remaining neutral in reporting often lauded by journalists and news outlets. As stated in the book *Environmental Risks and the Media*, "journalists can accept factual context provided by stakeholders without violating the cannon of objectivity ... objectivity obliges reporters to report facts, but it does not require that they are getting the right facts" (50). Thus, traditional journalistic norms such as objectivity don't always protect against problems with source selection in environmental media.

One significant article, “Climate change and journalistic norms: A case-study of US mass-media coverage,” can be useful in showing problems with ethical norms in environmental journalism. Though Boykoff and Boykoff focus on stories about anthropogenic climate change, it discusses interactions between journalism, science and the public in ways that can be more broadly applied to environmental communication. The authors identify several norms that present problems in environmental writing, such as informational bias that leads to “episodic framing” of news rather than thematic framing where stories are presented in a “larger, thematic context” (Boykoff 3). It further argues that news media tend to downplay the big picture and employ dramatization or novelty due to journalistic norms. In addition, the article recognizes an authority-order bias, where journalists tend to consult authority figures for information, as well as issues with balance.

Balance remains a major ethical issue in environmental reporting. When journalists try to achieve balance in stories on environmental issues, they often create a false portrayal of conflict (Bourassa 49). In synthesizing an environmental issue as one with two sides, journalists can create a false dichotomy. With reporting on climate change, for example, journalists often balance overwhelming scientific consensus with minor unqualified dissent (Boykoff 4). Boykoff and Boykoff conducted a quantitative study that demonstrates this: their 2004 study found that, over a 15-year period, press articles gave equal attention to views that humans contribute to climate change and views that it is solely a natural phenomenon (4). In their words, “the result of ‘balanced’ reporting, then, is an aura of scientific uncertainty” (4). This can apply to coverage of a host of environmental issues where the science is overwhelmingly certain, but stories

depict a two-sided debate. As Bruce Lewenstein writes, “unfortunately, the image of ‘opposing’ camps, built into many political stories, is often a poor way of representing the more complex conflicts in scientific communities.” Moreover, this problem occurs more often than not because reporters lack a background in science or face time constraints (Boykoff 4). Taken as a whole, it’s clear that certain norms in journalism can challenge ethical environmental communication. As articulated in the article, “by employing the norms of professional journalism, the mass-media can adversely affect interactions between science, policy, and the public” (12). Norms that yield biased coverage in environmental writing can spread false information to readers, from policy makers to the general public.

Ethics and advocacy in environmental journalism

Concerns about environmental journalism and adherence to ethical norms is closely related to another issue: advocacy journalism. Some criticize environmental journalists for being advocates, while others suggest that more journalists should adopt the practices of advocacy. As Valenti articulates, “those writing about environmental issues have been accused of being more environmentalist than journalist” (219). When environmental reporters act as advocates, it brings up concerns about whether they can do so while accurately communicating information without bias (220). Whether journalists should be advocates is a “contentious issue,” and has resulted in newsrooms removing their environment beat due to reporters’ “pro-green leanings” (Neuzil 127). Notably, a 2006 survey of environmental journalists found that a majority of respondents rejected the idea of being advocates for the environment (Sachsman et al. 2006). Nearly all

respondents agreed that journalists should be just as objective as other journalists. However, the survey does note that sizable minorities believe journalists should sometimes be environmental advocates.

Notions of to what extent environmental journalists should be advocates differ across the board. For example, some consider providing complete information in one's reporting on environmental issues a form of advocacy. As Neuzil writes in *The Environment and the Press*, "one could posit that *any* coverage of an issue is advocacy in the sense that it focuses public attention where it may not have wandered on its own." (128) This notion is further explored in Valenti's 1998 study, where she concludes that journalists should report environmental stories as problems with potential solutions (229). "Journalists uncomfortable with the appearance of an 'advocacy' role may more comfortably consider engaging in such activism an ethical responsibility ... If journalists do not advocate complete information, the consequence is misunderstanding and poor judgments" (229). Other proponents of advocacy journalism, such as author Michael Frome, argue that media outlets don't adequately report on environmental issues and that journalists should "desire to advance the cause of a better world" (Neuzil 130). Such proponents contend that journalists can go beyond traditional norms and embrace advocating for the environment, also believing that this can be done ethically. Rather than simply providing full information as Valenti suggests, some alternative environmental media (including magazines like *Sierra*, *E/The Environmental Magazine* and *Audubon*) argue for certain environmental causes and represent the political views of their audiences (129). The alternative press has long been a major source of environmental news, Neuzil argues. In another example, Phil Vine, a journalist for the non-

governmental organization Greenpeace, argues that advocacy journalism involves being “truthful, accurate and credible,” acknowledging one’s perspective and using neutral sources to establish facts. As University of Washington professor Matthew Powers wrote on the subject: “solid reporting and heartfelt advocacy need not be polar opposites. At their best, they can be two sides of the same coin” (Powers). Whether journalists covering environmental issues should be advocates remains an ethical issue, but much evidence suggests that advocacy may be able to serve as a solution to some of the problems with following traditional journalism norms in environmental communication.

Solutions and best practices for environmental reporting

Other solutions for effective and ethical environmental communication are relevant here. For example, Valenti’s study suggests protocols for ethical environmental communication, such as including information for people to take action. Because environmental journalism has such a strong influence on the public, reporters must “synthesize, or make sense of, conflicting claims and, some would argue, provide directions for obtaining additional or more specific information” (226). The article notes that providing proactive or mobilizing information in stories can lead to appropriate actions and outcomes (227). Through employing these tactics, environmental journalists can be fair to the public as a whole.

Synthesizing information properly is another key responsibility. Valenti says environmental journalists should distill complex, scientific information into “words and images that the average person can understand” (227). Specifically, journalists should convey the complexity of environmental issues, distinguishing between what is agreed

upon or may be a scientific uncertainty (Lewenstein). This plays into the previously discussed notion of acting outside of journalistic norms. As Lewenstein writes, “journalists need a sense of judgment. They have to be willing to take a position that runs counter to a journalist's training as a mere “reporter” of what other people say.” Through making judgements about how to convey environmental information, journalists can act ethically by informing the public. Essentially, “journalists must make decisions on how to transform information from complicated, jargon-laden research articles into language that is accessible to broad audiences.” (Bourassa et al. 47)

An article that appears to be one of the only syntheses of best practices in environmental journalism describes a myriad of other suggestions or takeaways from academic studies on the subject. In “A thematic review and synthesis of best practices in environment journalism,” the authors identified several common reporting guidelines. One notable suggestion involves sourcing. A number of studies suggest environmental reporters should “look outside traditional source hierarchy” and talk to “everyday people” for a more complete story (Bourassa et al. 48-49). Lewenstein echoes this idea: “reporters need live sources. Real people, who will provide real quotes.” In order to avoid problems with sources controlling narratives discussed above, environmental reporters can employ in-person interviews with both experts and “real” people. The synthesis similarly concludes that studies of environmental communication recommend including a “human element” in stories to make them less abstract, connect audiences to the issues, and show “how day-to-day actions affect the environment and vice versa” (Bourassa et. al. 51). It’s clear, then, that environmental journalists are generally advised to enhance their reporting by telling people’s stories. In addition, the authors’ main finding is that “literature is

heavily weighted to seeing traditional journalistic norms and routines ... as insufficient to cope with the complexities of environment issues” (55). This further affirms the aforementioned discussion of norms and environment reporting. Reporters can thus step outside of norms, “basing environment reporting on evidence rather than opinions commonly used to achieve a sense of balance in stories, producing stories that cover the effect of the global on the local and vice-versa” (55). Through assessing various findings in environmental communication, one can ascertain the best ways to tell stories about the environment.

In addition, another ethical consideration important across all forms of journalism, and relevant here as well, is that of conflicts of interest. The Society of Professional Journalists’ Code of Ethics, for example, states that conflicts of interest should be avoided, whether they are “real or perceived,” (SPJ Code of Ethics). It further states that journalists should disclose unavoidable conflicts. This applies to coverage of environmental topics, where journalists may get close to the sources they make contact with. NPR’s ethics handbook, similarly, notes, “to secure the public’s trust, we must make it clear that our primary allegiance is to the public. Any personal or professional interests that conflict with that allegiance, whether in appearance or in reality, risk compromising our credibility” (“Independence”). In covering environmental issues, where topics are often highly important to the public, journalists are often advised to remain independent.

Appalachian Studies and News Media

Stereotypes and problems with coverage

Much inquiry into the relationship between Appalachia and the media has focused on damaging stereotypes and conceptions of the region's people that have persisted for decades. The 1963 book *Night Comes to the Cumberlands* alerted people to "the Appalachian problem," or how residents of the region's communities don't control their land or the minerals beneath it (Maggard, 67). By the end of the 20th century, it was apparent that "examples of ill-informed and damaging media portrayals and policies (were) abundant" regarding Appalachia (Speer, 1993). Derogatory stereotypes, casting Appalachians as drunk, slovenly, and deviant, were common in media representation of the region in a 2007 study on the subject, for example (Fraley 366). More specifically, two kinds of problems persist: such aforementioned stereotyping as well as inaccurate reporting lacking in-depth analysis in news coverage (Maggard 72). This has an impact: "Appalachia has long been created in the American consciousness as an 'other,' a place both foreign and anachronistic, but above all different in an unacceptable way" (Fraley 366). In this way, the public sees a different image of Appalachia than what is true, in part due to media influence. As articulated in the article "Appalachian Stereotypes and Mountain Top Removal," this creates a situation where people outside of Appalachia don't feel compelled to care about or help people living there:

"... As environmentalists have long known, it is easier to gain public support to save whales than a rather ugly desert bug. Although it is an image constructed almost wholly of lies, the image of Appalachia in the American mind better matches the desert bug than the whale. Saving Appalachia, Americans believe, is a quest to save an ugly duckling rather than a swan." (366)

Thus, media portrayals of Appalachia are an important problem because not only do they often create false images, but those false images impact the public's understanding.

People elsewhere in the U.S. are led to believe that Appalachians aren't a part of "their America" (366).

Such portrayals and stereotypes of Appalachians are representative of deeper problems. On a basic level, stereotypes provide a basis for oppression, or "produce the emotional background that allows the majority of the population to justify oppression" (Fraley 367). One notable article on the subject, published in 1983, argues that it is a form of "cultural hegemony," where media is used to reinforce the prevailing social order by determining a community's self-understanding (Maggard, 67). "The ability on the one hand to influence values and self-perceptions and on the other hand to control access to information constitutes a form of cultural power," it states (67). In other words, news media coverage of Appalachia in an uninformed, negative, stereotypical light impacts the way Appalachians see themselves and the people around them. This can act as a form of "victim-blaming," where residents of the region are led to believe they created their own societal problems (72). And what's more, this creates a system where neither Appalachians nor people elsewhere have "access to the sorts of information that would allow a realistic and informed assessment of persistent problems in Appalachia" (72). This shows evidence of a deep-seeded problem that limits people's understanding. In terms of news production, this problem often persists for several reasons. Just as journalistic norms limit environmental coverage discussed in the previous section, it appears that such norms limit coverage of Appalachia. As noted in "Cultural Hegemony":

"Discussions of black lung, hearings on flood disaster relief programs, or years-long investigations into mine disasters just do not fit the regular news framing habits of most reporters or the time and space needs of news organizations. In addition, editors want a news product that sells – like stories of floods or of strikers in confrontation with police or of feud outbursts – not in-depth analysis of structural problems, what the public needs to know" (77).

Thus, societal forces and journalistic norms create ignorance about Appalachia that impacts its own residents and people elsewhere.

Persistence of problems in contemporary media

The overarching problem of Appalachian coverage and portrayal still persists. A 2016 study titled “Rural Reality” studied how media, in particular reality TV, but also national news media, impacts how Appalachians view their own culture. The author, Ivy Jude Elise Brashear, notes that participants in her interviews “were very familiar with more negative aspects of the region... things that news media have focused on when covering stories about the region” (53). As discussed in “Cultural Hegemony,” this can cause people to internalize a sense of their community via the news media. As Brashear writes, “I came to understand that the Appalachian participants in my focus group interview tended to believe what they were told about the region by news media.” (54) She added that the impact of news media coverage on the participants was “very present” and “should also not be overlooked” (55). Another recent study found that residents of Appalachian towns had similar opinions about media portrayal. “Almost all of them said outside media portrayed Appalachians in mockingly negative and inaccurate ways” (Carey 154).

It’s also worth noting that this can occur through local media, especially in terms of reporting about poverty in Appalachia. As Clay Carey writes in his 2017 book about a study conducted regarding local newspaper coverage in three Appalachian communities: “By talking about poverty in certain ways – or by not talking about it at all – journalists in Greenburg (Kentucky) and other towns create broad social narratives about what it

means to be poor in rural Appalachia” (3). His study found that news about poverty in Appalachian towns included government-released economic statistics with little context, community charity work for the poor, and resources for those in need (55). These dominant frames reinforce how residents understand poverty in Appalachia as a cultural phenomenon (57). Coverage was also problematic in terms of what it lacked. “(News frames) also exclude the voices of the poor and hinder their ability to engage in meaningful discussion of local need,” Carey writes (57). Thus, it’s clear that problems persist in both national and local coverage of Appalachia today, especially regarding poverty.

Some suggest this problem worsened during and after the 2016 U.S. presidential election season, though little academic research exists on the topic as of yet. One of the more notable authors to write about the relationship between the media and Appalachia is historian Elizabeth Catte, who penned the 2017 book *What You Are Getting Wrong About Appalachia*. In her book, Catte criticizes “Trump Country” pieces published by national news media that spread during the election season, stories that sought to understand Trump supporters in Appalachia but were largely flawed in their treatment of the region. She writes: “‘Trump Country’ pieces share a willingness to use flawed representations of Appalachia to shore up narratives of an extreme ‘other America’ that can be condemned or redeemed to suit one’s purpose” (Catte). Before the election, such pieces sought to empathize with an, in their view, singular Appalachian story, but after the election, things changed (Catte). “The pendulum swung in the opposite direction and empathy became heretical. Appalachia, political commentators proclaimed, could reap what it had sown,” Catte writes. Another significant point of Catte’s is that news media failed to tell stories

of people who weren't straight, white males. "The intentional omission of these voices fits a long tradition of casting Appalachia as a monolithic 'other America.'" A *Columbia Journalism Review* article on the subject made a similar, notable point: that national media used Appalachia to try to decipher rural white poverty in the U.S. and only told negative stories, or ones that made residents look like "fools or freaks" (Moore). These problems can be corroborated by the concepts of cultural hegemony, oppression, and journalistic negligence discussed previously. A cycle of improper news about Appalachia impacts views of the region by outsiders and the people who live there. As Brashear writes, "because these stories often rely on stereotypical or biased anecdotes – or because they remain neutral in their coverage – Appalachians are not recognizing the complexities of the issues being discussed" (92), and neither is the rest of the country.

Solutions and good examples

How should stories about Appalachia be told? To start, one answer lies in "Cultural Hegemony," where the author mentions a lack of in-depth analysis of larger problems in stories, adding that "journalists are simply ignorant about the region" (78). This can be interpreted as a lesson: journalists should become informed about the Appalachian region, and should seek to include more in-depth analysis in their reporting on the area. In addition to this, though, Cotte argues for new narratives. "We need to kind of diversify the narrative of the region and acknowledge that it can't be contained in a single election or a single person's life," she said in an interview with *NPR* (NPR.org). She explains this further in *What You Are Getting Wrong About Appalachia*:

"Whatever happens next for Appalachia, there are people here who deserve similar moments of liberation from their pain and shame, to see their lives and

history as something other than an incoherent parade of destruction and wretchedness. I hope that people in the region who keep fighting will, like the figures in my favorite photograph, turn away from anonymous cameras and capture their own images.”

This suggests that stories about Appalachia should come *from* Appalachia and not solely focus on the negatives. Just as with proper environmental coverage, reporting on Appalachia could contain nuance.

Several media projects and entities can serve as noteworthy examples of telling Appalachia’s story. One of the oldest and widest-recognized is Appalshop, a media, arts, and education center based in Whitesburg, Kentucky that has worked to “document the life, celebrate the culture, and voice the concerns of people living in Appalachia and rural America” since 1969 (Appalshop). The center works to tell new stories about the region, challenge stereotypes, and foster creativity through film, video, radio, music, theater, and other endeavors. Appalshop filmmakers, for example, “have explored common Appalachian stereotypes perpetuated by outside media, and used their own voices to debunk and/or address those myths for decades” (Brashear, 6). Another notable example is the online project *100 Days in Appalachia*, launched after the election of Donald Trump and published by West Virginia University Reed College of Media Innovation Center. The site features in-depth reporting on “all the things” related to Appalachia’s stories (100 Days in Appalachia), and intends to replicate longform, deep-dive reporting on the region done by national media (Reed). “These are our stories. Let’s do them at that same boldness of scale,” its executive director and creative director, Dana Coester, said (Reed). In addition, another noteworthy example of news media telling Appalachia’s story is the podcast *Inside Appalachia* from West Virginia Public Broadcasting. The podcast “tells the stories of our people, and how they live today,” covering topics related

to history, culture, health, environment, and so on (West Virginia Public Broadcasting). Along with the projects mentioned here, many other positive examples of Appalachian media exist that should be consumed and recognized for their methods of telling Appalachia's story.

Digital longform journalism

Many point to *The New York Times*' 2012 piece "Snow Fall: The Avalanche at Tunnel Creek" as the turning point in the emergence of digital longform journalism. The piece was a longform, interactive story on the *Times*' website that explained how a disastrous avalanche in Washington State occurred. Put simply, the project "reinvented the template for digital longform articles" (Dowling and Vogan). An article that analyzed the importance of the work, titled "Can We 'Snowfall' This?" found that in the current state of digital journalism, consumers demand immersive media and "news organizations have responded by reviving the longform feature." Whether longform is a new trend or a revival of old ones, it's apparent that the medium is here to stay for the time being. To understand this phenomenon, this section will try to answer the following questions:

- What are the characteristics of digital longform journalism?
- What is the historical, journalistic context for its emergence?
- Why is it important and useful for 21st-century journalism?

Visual characteristics of digital longform journalism

One of the main ways in which digital longform journalism is distinct is its “seamless” integration of written language with photography, videos, maps and other graphical elements or multimedia (Hiippala, 420). Longform, sometimes considered its own genre, works to “captivate its audience by creating a distraction-free environment” through simple navigation and user interface and smooth transitions between multimedia (420). Longform stories often have a linear structure as well. “Unlike landing pages, which exploit the layout space to simultaneously present different types of content to the reader, the longforms dedicate the entire screen to a single semiotic mode at a time,” according to Tuomo Hiippala, the author of a 2017 study on digital longform journalism. (438) Through using single semiotic modes, or shared resources for making and conveying meanings, readers can focus on the sole story in front of them. The study, titled “The Multimodality of Digital Longform Journalism,” analyzed 12 longform articles published between 2012 and 2013 and found the most common visual “modes” found in the pieces. Some of the major ones included:

- “Text-flow,” or a written narrative with paragraphed written text that unfolds linearly.
- Photographs that fill one’s entire screen, adhere to tenets of photojournalism.
- “Dynamic image-flow,” or full-screen looping video, organized into one or more shots.
- “Page-flow,” or layouts that use space to organize content into units that work together towards a common communicative goal (Hiippala 428).

Such visual, spatial elements are pervasive in the longform genre and serve to complement the writing within stories.

Emergence and characteristics of longform writing

In terms of the writing within digital longform journalism, some posit that it is a continuation, or new wave, of the literary work seen throughout journalism's history. One of the more significant works on this subject is titled "The Digital Animation of Literary Journalism," in which its authors write that "just as the literary journalists of the 1960s attempted to write the nonfiction equivalent of the great American novel, journalists of the 2010s are using digital tools to animate literary journalism techniques" (Jacobson et al. 527). Such techniques have deep historical roots in journalism, starting with scene descriptions and character development employed by early journalists in the 18th century (528). Such trends stretch from colorful depictions of events in reporting in the 1890s, to narratives paired with documentary photography during the Great Depression, to the "New Journalists" that emerged in the 1960s and 70s (529). Such "New Journalism" was "characterized by the adoption of literary techniques thought to be at odds with the traditional inverted pyramid structure of news stories" (529). Longform continued through the following decades, and stayed in newspapers by the 2000s, while online journalism emphasized "concision, video, and news linked via social media that fit the format of websites and mobile phones" (528). Over time, though, web technology improved, and digital longform journalism became a reality.

To understand the writing of this current genre of longform, the authors of the "Digital Animation" article suggest that it should be viewed through the lens of traditional literary journalism. The article involved a study that synthesized four elements

of literary journalism based on Tom Wolfe's 1975 book *New Journalism* that can be applied to contemporary stories. They include:

- Scene construction: "A cinematic retelling of an event using action, dialogue, specific details, and other features."
- Dialogue: "Speech relayed in the story's real time by either one or more characters in the story."
- Characterization: "The process of developing news sources as a story's characters with whom the readers can relate."
- Dramatic tension: "The conflict and tension of a story used to guide readers to a resolution of some conflict or the answering of a question" (Jacobson et al., 520).

These concepts are important because they are common in the digital longform journalism of today. The study analyzed 50 longform journalism packages and found that the above techniques could be seen "throughout the packages' multiple means of delivering narrative structures to immerse the user in the story" (536). The article additionally lists other common traits literary traits found in digital longform journalism, such as humanization, a third-person point of view, and the recording of certain details that reflect a person in the story's character (538). Through current longform, these writing tactics are combined with the aforementioned visual components to produce significant works of journalism.

Significance and effectiveness of digital longform journalism

One main significance of this form of journalism is that it prevents a starkly different alternative to the fast-paced, more brief journalism of today's 24/7 news cycle

that dwells online. As the authors in the “Digital Animation” article conclude: “The move toward more-faster-smaller units of information on the Web perhaps made it inevitable that a new long-form would emerge, giving users an opportunity to choose between hypertextually fragmented news ‘skipping stones’ and long-form stories that provide a ‘moral’ alternative that demands focused attention on the part of the audience” (540). A similar study, which looked at longform sites *The Atavist* and *Longplay*, shares other ideas about the genre’s relevance. The study found that the digital environment provides “new possibilities” for narrative journalism through its multimedia and digital elements that can “strengthen the authenticity of a story” (Lassila-Merisalo 1). The study also warns that such elements can weaken the story’s ability to immerse readers because of a sensory overload of sorts. Another notable study confirms that the actual stories within digital longform journalism are still important. An eye-tracking study of millennial readers conducted in 2015 showed that “participants did read the text” (Marino 145). The author writes, “The data, once analyzed, show the participants as a whole spent a great deal of time fixating on the words in these multimedia projects ... words have not disappeared. They still fulfill a purpose, one that images and sound cannot supplant.” These studies show that digital online journalism is effective at telling written stories and that their visual counterparts have the power to enhance.

Discussion and Reflection

Writing about environmental issues and ethical challenges

The concepts discussed above pertain significantly to my project and can help inform reflection on the work that I did. First, in terms of environmental communication studies, I learned the importance of environmental reporting as a whole. The agenda-setting studies I explored demonstrate the important role environmental journalists play by forming people's conceptions of the environment. This is true for much of reporting, but especially so for environmental issues that may involve tangible consequences. In terms of my project, I believe it's important that people know the impacts of coal mining on water and air in the forms of acid mine drainage and emissions from coal-fired power plants. The more aware the public is of these issues, the closer we can come to solutions. On another topic, the rethinking of news values and the taking on of a more advocacy-focused role challenged my understanding of journalism. I still believe journalists should strive for fairness and objectivity, but the research I reviewed clearly shows that this should not translate into equal balance for "both sides" of an issue, especially when it comes to the environment.

Further ethical challenges arose when working on my project. First, ensuring that the information I included was factual was difficult in some instances, especially when writing about history in the first part. Different historians and experts sometimes have varying views of past events and their impacts, such as the Millfield mining disaster. With that, accounts differed on what caused the explosion, how many people were in the mine at the time of the disaster, and to what extent it led to legislative change. I initially got some facts wrong when writing the first part, such as what caused the end of coal mining Ohio, but was able to correct my work in the revision process. Through this, I learned that writing about history in a journalistic sense demands a large amount of

factual scrutiny. With the second part, I faced a few difficulties with accuracy in research on acid mine drainage. At times, I had to balance providing scientifically correct information with making the story accessible to general audiences. I think I struck a good balance in explaining the complex chemistry behind the pollution, but it was certainly a major ethical consideration for my project.

Sourcing and considering objectivity were other ethical challenges for my project. Looking back on the sources I included, I could have interviewed more “pro-coal” individuals, but opted against it to avoid downplaying the scientific reality of coal’s impacts. I aimed to provide accurate context by largely relying on historians, scientists, and researchers for factual information. One challenge was ensuring that quotes from historians were accurate, especially from interviews where historians were relying on their memory in talking with me. I tried to balance historian interviews with information from books, such as *The History of Coal-Mining in Ohio*, though may have relied too heavily on books in the end. If I could do the project again, I may have interviewed more historians, or re-interviewed some to go over facts in a more in-depth manner. In addition, I’m not certain that what I produced is truly “advocacy journalism,” but I do believe that advocating complete information about the environment is essential in reporting about it. Though my personal beliefs align with protecting the environment, I decided to not write in a tone of urging readers to take action. Though some pro-environment press clearly advocates for the environment and takes a partisan stand, I tried to strike a “neutral” tone. In other words, I tried to strive for some degree of objectivity, itself an unachievable ideal, while remaining accurate. In this way, it was challenging trying to balance not appearing biased, or “anti-coal,” with avoiding painting

an inaccurate picture of the issue with two equal sides that doesn't exist in reality. In the second part, for example, I provided scientific information on acid mine drainage and air pollution, and didn't include sources trying to downplay coal's impacts or contribution to climate change. Overall, I opted to provide as much factual information as possible, giving little weight to statements about coal not based in fact. In addition, I focused on telling people's stories and looking at the bigger picture, rather than conveying a trivial debate or conflict.

Connections between reporting on Appalachia and the environment

Two ideas about reporting bridge the topics of environmental journalism and writing about Appalachia. For one, much of what I read on both topics discussed the need for an in-depth knowledge of the subject matter. Too often, reporters will write quick news briefs on environmental and/or Appalachian topics, and their ignorance will show in their writing. Reporting on the environment in Appalachia requires doing a fair amount of background research to understand the contexts of situations and issues. In creating my project, I feel that I did this fairly well. I spent a great deal of time pouring through historical records and speaking with historians about coal towns. I talked to three of the main watershed coordinators in southeast Ohio to make sure I had all of my facts right about acid mine drainage. Additionally, I read through dozens of pages of mining applications to further ensure accuracy when writing about the proposed surface mine. Though synthesizing information into a story always involves selection of certain information to include, I believe I produced an accurate portrayal of Southeast Ohio and its environment.

The other concept that applies to both environmental and Appalachian reporting is the notion of interviewing “real people.” This was one of my larger hopes in doing this project, specifically through my goal of telling people’s individual stories in addition to thematic ones. During my undergraduate career of practicing journalism, I’ve learned that simply presenting information doesn’t mean much without people’s perspectives. Whether they’re referred to as “everyday people,” “lay people,” or “normal people,” I believe it’s important to get out there and talk to folks. Furthermore, I was glad to see that this is reflected in academic literature on environmental communication and Appalachian media, as several studies recommend including a “human element” in stories. In each of the parts of my project, I spoke with residents of Appalachian Ohio towns. Rodney Galentin told me stories about growing up in Buchtel, Jennifer Harrison made me empathize for her decision to leave her home, and Terry Harvey told me about his farm. Speaking with two former coal miners also gave me considerable insight into the industry that I honestly couldn’t have learned elsewhere. I’ve found that it’s not only ethical to speak with “real people,” it’s almost always necessary for finding the truth. That being said, I do wish I had spoken with even more people. If I had more time, I would’ve tried to speak with residents who live near acid mine drainage, or one of the last residents to live in a nearly-abandoned coal town. Embarking on this project reaffirmed to me that interviewing people on the ground is highly necessary in reporting on environmental and Appalachian issues.

Telling stories about Appalachia

Other concepts regarding Appalachia exclusively are significant as well. I went into the project with the understanding that stereotypes about Appalachia are problematic and pervasive, but I didn't yet understand the extent to which that is so and why that occurs. The academic work on Appalachian stereotypes was highly illuminating, showing how media coverage of the region can be linked to societal control or oppression. I learned that poor reporting on the region can lead to misunderstanding by Appalachians and the people in the rest of the U.S. Consequently, through my project, I made a significant effort to avoid stereotyping people and the region as a whole. I focused on the environmental problems of the region but also the area's rich history and people's pride for it. I do, however, wish that I would've subverted stereotypes further. For example, part of my initial plan for the project was to show economic opportunities in the area, such as job retraining for miners and renewable energy. That plan fell to the wayside as I decided to focus on the proposed surface mine, but I believe that such economic opportunity is a topic that could be covered in future reporting.

I also aimed to avoid the flaws of the "Trump Country" pieces Catte criticized, avoiding condemning the region or seeing it as a place to be redeemed. In following her advice, I also tried to provide a more diverse narrative of the region; in particular, I did this through telling Rendville's story, which isn't as well-known compared to other towns in the area. It's also certain, though, that I could've been more diverse in the people's stories that I told. Talking with residents of the area who belong to marginalized groups, for instance former miners who are women and/or people of color, could've provided more insight to my project. In addition, Catte said that stories about Appalachia should come from Appalachia. It's worth noting here as well that I am not from Appalachia.

Though I've lived in southeast Ohio for four years as a college student, I grew up in a relatively affluent neighborhood in Columbus, Ohio. But despite the fact that I'm not an Appalachian, I believe that living here and reporting *from* here benefited my reporting. I can't imagine writing about Appalachia without having experienced the region hands-on, driving across county roads and taking in the area's natural beauty. In the end, I do believe I was successful in telling stories about Appalachia the right way.

Considerations of form and conclusion

Understanding the form of my project was also aided by reviewing academic literature on the subject. In doing so, I learned how visual components and narrative elements enhance digital storytelling. I consume digital longform journalism on a regular basis through the website Longform.org and its podcast about writing in the genre, but I didn't understand how the bits and pieces work before starting this project. For visuals, despite receiving very little training regarding photography, I took all of my own photos for the project, edited them, and produced a visual layout of them on my project's webpage. Writing long pieces with thousands of words requires visual transition, and I tried to do this effectively in creating my website, largely building my site from the ground up using Wordpress. Though the project site lacks looping video and javascript-powered transitions, I believe it does a decent job of immersing the reader in my writing. Additionally, I also tried to employ elements of literary journalism in my writing. Though my pieces largely still read like traditional news reporting rather than literature, I included certain elements to try to engage the reader and tell a more compelling story. For example, I tried to humanize the people I interviewed, used third-person narration for

introducing some sources, and employed descriptive scene setting for some parts.

Overall, I believe that the form of my project accomplished one of my main goals: to expand and experiment with my storytelling abilities.

Through creating this project, I intended to learn the best ways to tell stories about the environment of Appalachia. To do so, I produced a journalistic work on the impact of coal in the region around me: Southeast Ohio. I had reported about coal before, but taking such a deep dive into the subject taught me that long-term, longform reporting is valuable. There is no one single, correct way to write about Appalachia and the environment, but performing an in-depth look into the region, its land, and its people is highly illuminating both for readers and for this reporter.

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Professional Project

Part 1: Exploring Ohio Coal Country's Legacy

The hills of southeast Ohio were a center of U.S. coal mining for decades, fueled by people working and living in mining towns. Though the industry has largely faded away, pride for the region's history remains.

(Note: This story is viewable online at HillsofChange.com as a full website with images.)

About 230 workers descended deep into a coal mine in southeast Ohio on one cold, windy Wednesday in November of 1930. As was their daily ritual, the men blasted the coal and shoveled it into empty mine cars. They took a break for lunch before getting back to work around noon.

But the day lost its normalcy all at once. A wall of roaring fire came hurtling through the mine shaft, destroying most everything in its path, trapping hundreds of men underground and taking 82 lives.

“It is almost impossible for one to give an adequate description of the horrible scene that met our eyes,” H.L. McDonald, a witness to the disaster in a rescue party, later recounted in a memoir. “The awful loss of life was appalling.”

The incident, a gas explosion that occurred at the Poston No. 6 mine in the Athens County town of Millfield, would go down as the worst mining disaster in Ohio history.

The explosion happened after gases and coal dust accumulated inside the mine and ignited, in part due to negligence from some of the workers, according to an investigation report issued by the now-defunct U.S. Bureau of Mines.

Today, a seven-mile drive up the road from Millfield lies another former coal town, Buchtel, with a museum that houses some of what remains from that fateful day in 1930. Photos of the No. 6 mine hang on walls adjacent to an old gas mask and oxygen tank used in the rescue effort.

Word about the disaster traveled fast after it happened, said Rodney Galentin, a longtime Buchtel resident who helps run the town's Coal Mine Museum. Though Galentin wasn't alive during the incident — he was born seven years later — he's spent much of his life studying local history and collecting old photos.

"They used to put up wreathes if there was a death in the family," Galentin, a retired post office worker, said. "There was a wreath on almost every door in Millfield. Somebody lost a son, a father or somebody in that mine disaster."

An irony of the disaster was that, when the explosion occurred, officials were touring the mine to inspect safety devices. But following national and international attention, the event led to the improvement of Ohio's mine safety laws in 1931.

The town's story, though, is one of many that can be told of the mining towns that dotted Appalachian Ohio in decades past.

How mining towns got their start

Extraction of coal started in earnest in the late 19th century in Ohio, leading to the formation of mines and the communities that surrounded them. But coal, formed from plant matter millions of years ago, entered the picture a bit earlier.

“They’d always known that coal was here,” said Cheryl Blosser, historian for the Little Cities of Black Diamonds Council in the former mining town of Shawnee.

Indeed, settlers discovered coal more than a century before mining towns boomed. Frontiersman and travelers first found the rock as early as 1749, according to *The History of the Coal-Mining Industry in Ohio* by Douglas Crowell, and first spotted it in Athens County in 1775 along the Hocking River.

Over time, local businessmen joined entrepreneurs from cities such as Columbus to set up mining operations. The first reported instance of coal mining Ohio occurred in 1800 in what became Jefferson County, and extraction spread to other counties in the region throughout the 19th century.

Coal was abundant in the hills, but the difficult part, Blosser said, was moving it.

“You had to get it to market,” she said. “Canals were not efficient enough. Once trains were coming through, you could move coal where it needed to go.”

The advent of the railroad caused coal to take off, not just in southeast Ohio but in Appalachia as a whole, said William Gorby, a teaching assistant professor of history at West Virginia University.

“Once a railroad reaches the area, you see these communities pop up,” Gorby said.

One of the biggest and most significant areas of coal mining in Ohio was in the Hocking Valley region, primarily Athens, Hocking and Perry counties, historian Ivan Tribe explained. Tribe authored *Little Cities of Black Diamonds* in 1988 and *Sprinkled with Coal Dust* in 1989, both of which feature comprehensive histories of life and urban development in Hocking Valley coal towns.

The Columbus & Hocking Valley Railroad ushered coal mining into the region, through Nelsonville in 1869 and later extending into the area around Monday Creek, according to *Sprinkled with Coal Dust*.

As the railroad continued to expand in the 1870s, companies formed towns near the mines: New Straitsville, Shawnee, Carbon Hill, Murray City and Buchtel. The latter was started by businessman John R. Buchtel in 1876, originally to accommodate an iron ore furnace, Galentin said.

Pointing to an old map lying on a table, Galentin indicated where Buchtel’s mines and railroads once operated. The map showed three sets of railroad tracks where his house now lies on State Route 78.

“This would be the underground openings where they’d mine out the coal,” he said.

“They’d leave pillars in there so the hill wouldn’t fall down on ‘em, hopefully.”

By the 1880s, the railroad had expanded to the east in the Sunday Creek area, another tributary of the Hocking, and with them more towns grew, including Rendville, Corning and Glouster. The mining operations, according to Tribe, would go on to dominate local

economies for more than half a century until the Great Depression hindered the coal market.

“It was a big operation,” Galentin said. “It just kinda boggles your mind sometimes to see how people did all that without electric. Just brute force. They didn’t have no backhoes, bulldozers, just all by hand.”

Life in the mining towns

With the mines in full production, the adjacent towns boomed. Companies that had discovered a coal seam would come in and build rows of houses, offices and a company store in addition to a mine, said Tom O’Grady, director of the Southeast Ohio History Center, in Athens.

“Some were towns that already existed, but when the mines opened up they expanded,” O’Grady said. “Then there were towns that were just for the mines. In the late 1800s, that’s when those towns became boom towns.”

In early decades, coal companies exercised near total control over the miners and their families living in the towns. Companies opened stores with a monopoly on goods such as tools and food, which were often overpriced. Workers were paid in “scrip,” a currency issued to miners by the company based on how much coal they mined underground.

“You’d use that to buy whatever you want to buy at the company store,” Galentin said. “So you was always in debt.”

Buchtel, with mines run by the Akron Iron Company, at one time saw 187 company-owned houses, a store and an opera house, he said. Such stores offered everything from mining tools to groceries.

“Wages was bad, but everything’s relative,” he said. “Back then, you’d get 80 cents a pound for your coal, but you could get a steak for 10 cents a pound.”

Quality of life for residents often fluctuated with the unstable coal market, as people living in the towns were largely tied to the industry. By 1900, nearly 56 percent of the 6,900 people working in the Hocking Valley were employed in mining, according to Ivan Tribe’s *Sprinkled with Coal Dust*.

“It seems altogether apparent that most of the inhabitants of the Hocking Valley towns lived there because of the coal and the miners who extracted that mineral,” Tribe wrote in the book. “Without the ‘black diamonds,’ the communities would have had little reason to exist.”

Early coal miners faced hazards underground on top of the harsh physical work. Gases such as blackdamp, an accumulation of carbon dioxide that causes suffocation, were common in the mines, and other risks included cave-ins, floods and gas explosions, according to Douglas Crowell’s *History of the Coal-Mining Industry*.

“It was hard work,” said Blosser, the historian. “They almost never saw the sun, were breathing in coal dust and had a high injury rate.”

That’s not to say, however, that miners’ lives were devoid of fun. Opera houses and other theaters were often built to entertain workers, who would flock there after long shifts in

the mines. Most opera houses were eventually torn down, but some still stand, such as the Techumseh Theater in Shawnee and Stuart's Opera House in Nelsonville.

"They worked 10 to 12 hours a day, but people did have a social life," Blosser said.

"Most people knew how to play musical instruments and sing. There were a high number of bars because there were more single men in the beginning."

Those living in mining communities in the Hocking Valley often participated in fraternal orders, attended dances and played in baseball teams, according to *Sprinkled with Coal Dust*.

"Baseball was a past time in all these coal mine towns," Galentin said, pointing to various framed photos of baseball teams on the wall of Buchtel's museum. "Football too."

Over time, towns' populations swelled. Buchtel had more than 1,000 residents by 1900, according to *Sprinkled With Coal Dust*.

"It was a rough life, but it's just like anything else," Galentin said. "If that's what you've done all your life, you know that."

Immigration and diversity in the Hocking Valley

Starting out, coal companies would hire new immigrants coming into the country, O'Grady said. Mines initially recruited immigrants from the British Isles, such as Welsh and Scots, and later brought in other Europeans: Germans, Hungarians, Poles and Italians, for example.

“Shawnee especially had a heavy contingent of Welsh immigrants,” Tribe said. “Coal mining was big in Wales. They would work a few years in Pennsylvania, then move over here when mines began to develop.”

Companies would often bring in miners from specific countries. Buchtel, for example, had a row of houses with immigrants from Hungary, Galentin said.

“The mines really recruited people from foreign countries,” he said. “Some people were miners before they came. They really knew what they was getting into.”

Across Appalachia, coal towns were fairly diverse along ethnic, religious and economic lines, Gorby said. One example of such diversity in southeast Ohio lies in the town of Rendville, formed in 1879 by Ohio Central Coal Company, which sustained a population of both African-Americans and white European immigrants for decades.

An industrialist from Chicago named William P. Rend hired both black and white miners to work in Rendville, said Jerry Jackson, president of the Rendville Historic Preservation Society. By 1884, the town had 300 black residents and 1,500 white residents, according to Ohio History Connection.

“It was unique at the time because no one else had done that,” said Jackson, who grew up in Rendville, played basketball at Ohio University, was drafted by the Detroit Pistons into the NBA in 1964 and taught at a middle school in Zanesville for 37 years.

Shortly after the town began, it faced conflict from miners in the nearby village of Corning. In 1880, miners gathered in Rendville to try to force out the black workers, who they saw as intruders pushing down their wages, according to *Sprinkled with Coal Dust*.

The incident, later known as the “Corning War,” was quelled after Ohio Gov. Charles Foster sent in a militia to protect the black workers.

The town went on to sustain its black population for some time, garnering a number of historic firsts. For example, it saw the election of Ohio’s first African-American mayor, Isaiah Tuppins in 1888, and the first African-American woman mayor, Sophia Mitchell, in 1969.

“It was an experiment that kind of worked,” Blosser said of Rendville. “It had less prejudice and had spaces for blacks to develop leadership.”

Jackson, who now works to preserve Rendville’s history, says the town largely saw cooperation among its residents throughout the decades.

“They still managed to get along well at that time,” Jackson said of the town in the early 20th century. “The schools were all integrated, everybody seemed to get along.”

Today, Rendville is the smallest incorporated community in Ohio, with a population of 36 in the 2010 census. In recent years, its preservation society has held an annual Emancipation Day celebration in the town and aims to start a museum.

“It’s a unique little village,” Jackson said. “We’re just trying to preserve some of that history.”

The region's history of collective action

The labor movement is another crucial part of coal mining's story in Appalachian Ohio. Over time, workers began to realize that the companies controlling them were often to blame for poor wages and working conditions.

"The unions that started up quickly grew because there were so many miners here," Blosser said. "There was a need to balance the power of corporations. A lot of people thought it was unequal."

Labor disputes and strikes often occurred in the Hocking Valley region amid times of economic recession, when coal consumption and demand would decrease.

"The organizations from the very beginning were fighting for a lot of things," Blosser said. "Money, safety, child labor laws, better ventilation, honesty in pay. There were all kinds of factors that men were fighting for."

In the 1880s, a national organization, the Knights of Labor, gained prominence in the region, amassing 39 local assemblies in the Hocking Valley. Strikes persisted as miners faced economic troubles and starvation, but over time workers gained more rights thanks to their efforts.

"They fought and died trying to get better working conditions and better themselves and their families," Galentin said.

One of the larger strikes of the era occurred across the Hocking Valley from 1884 to 1885, resulting in higher wages for miners and the eventual formation of a national union. In 1890, competing labor groups — the National Progressive Union and the Knights of

Labor — joined forces to form the United Mine Workers of America, which went on to become the preeminent coal miners' union in North America. Its early founders comprised many Hocking Valley union leaders.

“Every 10 years there would be a significant strike, but as the government started respecting rights of workers more, then things did get a little better,” Blosser said.

The union, UMWA, continued to call strikes throughout the early 20th Century. The cycle of economic hardship, strikes and violence continued while conditions for miners gradually improved.

“It got rough at times,” Galentin said. “Miners would have machine guns. They knew how to use explosives. They’d blow up railroad bridges.”

One significant conflict occurred in Athens County in 1932, when workers in the town of Chauncey went on strike with the help of UMWA, prompting the mine operators to call in the National Guard, [according to an article from *The Athens NEWS*](#). A teenager from Buchtel died in the conflict, Galentin said.

“There was a battle down there by the cemetery,” he said. “You can still see bullet marks on some of the tombstones.”

New Deal policies during the Great Depression brought more rights. Section 7a of the National Industrial Recovery Act of 1933 protected collective bargaining rights for unions, which allowed UMWA to become more of a political and cultural force throughout Appalachia, WVU professor Gorby said.

After several decades of labor struggles, workplace conditions had considerably improved for Appalachian Ohio's miners. But by the 1930s, most mining towns in the Hocking Valley area had reached the end of their respective booms.

Playing out and holding on

Driving through the hills of southeast Ohio today, you won't see any bustling coal towns with active mines. For some mining towns, all that's left are piles of bricks or remnants of buildings hidden by forest. But other towns remain, devoid of mining but still functioning.

Why did coal towns stop operating? For one, the advent of automobiles ended the necessity of living near mines — workers could commute from other towns. But other factors, such as mechanization and simply running out of coal, ended the reign of coal in Appalachian Ohio.

By the 1930s, many of Ohio's underground mines had become fully mechanized due to improvements in mining technology, no longer solely relying on manual labor, according to the Ohio Department of Natural Resources.

When Galentin was growing up near the town of Carbon Hill in the late 1930s and early '40s, he said, most of the big mines in the area had "played out," or used up most of the coal underground.

How did life change for those living in Appalachian Ohio? For one, the "little cities" in the Hocking Valley saw widespread population decline after coal mines began to close in the 1920s and 30s.

Shawnee, for example, saw its population decrease from nearly 3,000 in 1900 to 655 in 2010, according to U.S. Census Bureau data. New Straitsville dropped from about 2,300 to 700 residents in that time period, and Buchtel lost about half of its 1,200 population.

“When that happened, there was no other work around this part of the country,” Galentin said. “Where other jobs were, that’s where they went. Some people just stayed on, made a living somehow.”

O’Grady, Southeast Ohio History Center director, who has spent much of his career working to preserve the history of southeast Ohio, believes such changes in technology are the main causes of coal’s decline in the region.

“They went from paying people to swing picks and using shovels to using strip mining and longwall mining and big machinery that didn’t require all those workers,” he said.

The economy of counties where mining once boomed eventually declined as well, continuing to this day. Four counties in Appalachian Ohio were labeled as “distressed” and eight were labeled “at-risk” economically in the 2018 fiscal year by the [Appalachian Regional Commission](#) in a designation based on unemployment, income and poverty.

The commission also found a disproportionately higher occurrence of health problems in the region compared to national rates, [according to a 2017 report](#).

“There’s definitely still this lingering legacy that Appalachia has, with a lot of our resources and wealth being taken and placed somewhere else,” said Michelle Shively, coordinator for the Sunday Creek Watershed Group, one of the major organizations in the

region treating waterways impacted by historical coal mining. “We kind of get left with the mess and we’re still cleaning it up.”

Coal production continued in Ohio throughout the 20th century with increased demand from utility companies to generate electricity, but employment decreased. Last year, employment of coal miners in Ohio was just over 1,100 people, while the record high in the state was around 50,000 employed in 1908, according to data from ODNR and the U.S. Mine Safety and Health Administration.

Coal’s story in Appalachian Ohio didn’t end with the decline of mining towns, however. Its impacts are still felt today in the form of streams contaminated by abandoned mines and air polluted by coal-fired power plants.

“They took all the coal out of these hills that they could get and left us with the mess,” Galentin said.

Part 2: Blue and Orange: Two Hues of Environmental Change

Coal is a black rock, but its impacts on air and water often appear in other hues. From the blue haze of a coal-fired power plant that ended a community to the orange runoff from abandoned coal mines, these impacts have shaped the hills of southeast Ohio.

(Note: This story is viewable online at HillsofChange.com as a full website with images.)

Carbondale, Athens County, Ohio

Amy Mackey unlocked the door to a towering, green cylindrical structure at the end of a gravel road and motioned toward the hill behind it.

“This mine goes all the way from here to Nelsonville ... underground room-and-pillar mines that are connected,” said Mackey, who serves as coordinator for the Raccoon Creek Watershed Program at Ohio University’s Voinovich School.

At this site in Carbondale, 6 miles from Nelsonville and near the western border of Athens County, water flows out of abandoned coal mines in the hills into Hewett Fork, a tributary of Raccoon Creek. Such runoff – known as acid mine drainage – is one of coal’s biggest sources of pollution in Appalachian Ohio and around the world.

Amid the hills in this region, where coal was pulled from the earth decades ago, water is compromised. The mining drainage still flows into creeks and streams, causing a buildup of metals and acidity that turns waterways into orange graveyards.

Such pollution occurs when water and oxygen react with pyrite, a mineral in coal, to produce sulfuric acid. That chemical reaction makes water flowing out of abandoned mines extremely acidic, Mackey said, around a pH level of two to four.

“That’s things like lemon juice, vinegar, tomato juice,” Mackey, who has worked with the program at the Voinovich School since 2010, said. “So think about fish and bugs trying to live in those. It’s not going to happen.”

Streams with acid mine drainage also can’t support life because of high concentrations of metals, namely iron and aluminum, which dissolve off of pyrite in abandoned mines and harm wildlife and their habitats. Metals “precipitate,” or fall out in solid form, clogging up streams and killing fish, said Michelle Shively, watershed coordinator for the Sunday Creek Watershed Group, one of several organizations leading stream cleanup in the region.

“Seeing water come out of a mine entry, I can get in the channel at that spot and sink into orange muck,” Shively said. “So the real stream bottom is at least three feet under iron precipitate.”

That iron lying on the bottom of streams is what makes many streams in southeast Ohio appear orange in color. The pollution flows out of both surface and underground mines across watersheds like Sunday, Monday and Raccoon creeks.

“It makes for quite a hostile environment,” Mackey said.

Solutions exist — but none are perfect

Sites like the one at Carbondale, though, are part of the solution for acid mine drainage, or AMD. Thanks to the work of local groups over the past two decades, waterways in southeast Ohio have seen significant improvement.

Every week, Mackey visits the Carbondale structure, called a doser, to perform maintenance. Water runs through the doser, which deposits calcium oxide, and flows through a channel that empties into Hewett Fork.

“We can control the pH at the end of the channel by controlling how fast this wheel turns, which dispenses material out of the silo,” Mackey said inside the doser, taking measurements of the speed of the wheel, about a yard in diameter.

The doser cost about \$48,000 to design and \$390,000 to build through funding from the Ohio Department of Natural Resources and the Ohio Environmental Protection Agency. The goal of the structure is to minimize the amount of acid mine drainage entering Raccoon Creek from Hewett Fork by lowering the acidity of the water. Recovery isn’t immediately visible near the doser, Mackey said, but is visible farther down the stream.

The doser is one of many treatment sites that are cleaning up southeast Ohio’s waterways. The path to such cleanup began in the 1970s. Before major regulations went into place during that decade, coal mining operations had taken few steps to prevent pollution.

“These companies were clearing the rock and everything that’s on top, pulling the coal out, and then leaving,” Mackey said. “They were just mining coal.”

Governments eventually decided that companies should do more than just mine: they should take into account environmental effects. Ohio passed its first, albeit minimal, mining law in 1948, followed by a more expansive one in 1972. Then, in 1977, President Jimmy Carter signed the Surface Mining Control and Reclamation Act, establishing the country's first federal mining laws.

"Most of the mining that happened in our area was done before 1977," Shively said.

"Unfortunately, that has left us with a lot of abandoned mine lands."

The law set environmental standards for ongoing coal mining, but more importantly for southeast Ohio, it established a reclamation program to "restore land and waters affected by unregulated mining," said Ben McCament of the Ohio Department of Natural Resources' Division of Resources Management.

Reclamation involves various methods of improving abandoned mine lands by moving soil and planting vegetation, "so that it may be used for forest growth, grazing, agricultural, recreational and wildlife purpose," McCament said. The process involves various projects that are funded by federal grants and a severance tax on ongoing coal mining.

Cleaning up streams with AMD, though, largely began at the grassroots level in the 1980s and '90s. At that time, most streams in southeast Ohio's creeks were devoid of life.

"Monday Creek was considered dead, considered unrecoverable," said Nate Schlater, watershed coordinator for the Monday Creek Restoration Project.

Mackey echoed that notion: people once considered Raccoon Creek “as dead as a bag of hammers,” she said.

Then, people across southeast Ohio started to do something about it. In the 1980s, concerned residents in Gallia County joined together to spread awareness about Raccoon Creek and stage cleanups, Mackey said. That effort, the Raccoon Creek Improvement Committee, expanded in the 1990s to include six counties.

Around that time, other watershed groups formed in the region — the Monday Creek Restoration Project and the Sunday Creek Watershed Group, to name a couple. Several groups then partnered with the nonprofit Rural Action to start coordinating restoration projects. By the late '90s, with funding from ODNR, the groups began largescale cleanups.

As of 2016, more than 93 miles of streams have recovered to meet habitat targets for fish and insect populations, according to Ohio University’s Voinovich School. The school has consistently tracked water quality in southeast Ohio watersheds since 2005, the data for which is available [on its website](#).

The school’s data also shows that, thanks to efforts of watershed groups, 193 out of 211 miles of streams tracked now meet pH targets. In other words, water is becoming less acidic and more hospitable for wildlife.

“We’re getting random emails, calls, and letters from people who are catching fish in Raccoon Creek,” Mackey said. “So it’s pretty exciting that people are finally starting to notice change.”

Watershed groups have completed 66 stream restoration projects as of 2016, according to the Voinovich School, with total costs of about \$30.4 million. That funding generally comes from ODNR, the Ohio Environmental Protection Agency and the U.S. Office of Surface Mining.

The cleanup projects function on several levels. First, watershed groups assist with reclamation projects, such as reforming soil over gob piles, which are large piles of leftover coal lying on the ground, Mackey said. The goal is to have water run away from the site instead of through potentially toxic coal material.

“Reclamation projects are great because they stop mine drainage from ever forming,” Mackey said. “They’re expensive to do, but when they’re done they’re done. And you’re forever helping the landscape.”

Cleanup isn’t always that simple, however. Other efforts, often called abatement or treatment, clean contamination from abandoned mines that are still forming AMD and can’t be reclaimed.

Treatment can be broken down into two types: active and passive, said Jen Bowman, director of environmental programs at the Voinovich School. Active treatment adds chemicals that “buffer,” or lower, the acidity of streams, she said, while passive treatment involves permanent fixtures such as ponds or wetlands that reduce acidity without constant maintenance.

The doser at Carbondale is an example of active treatment. It deposits 800 to 1,000 pounds of calcium oxide into Hewett Fork daily and requires ongoing maintenance. That material for the project costs around \$80 per day.

“There’s a lot of places that have more money than us that have monitors, sensors ... can check all this stuff remotely while sitting at their desks,” Mackey said. “But this is Appalachia. We come out and we check it.”

“We’ve seen tremendous recovery,” Schlater said of Monday Creek. “From 1994 to 2017, we have seen 33 species of fish return to a stream where they haven’t been for the past 100 years because the stream’s improving.”

The projects don’t offer a perfect solution, however. Many require ongoing maintenance that costs money, and other abandoned sites don’t have a sufficient fix.

“There are some discharges that none of those treatments fit,” Bowman said. “Some of these treatments are just Band-Aids.”

Though the pollution’s main impacts are on ecology, it can affect humans, too. For one, those living in Appalachia who rely on waterways for subsistence fishing can face health risks, said Michelle Morrone, director of the Appalachian Rural Health Institute at Ohio University.

“If people are eating the fish that are contaminated with arsenic or contaminated with mercury, then you have potential health effects,” she said.

Groups are still looking for innovative ways to combat the acid mine drainage that flows from some of the worst mine sites, Bowman said. Such innovation is ongoing at Ohio

University, she said, where students have been researching AMD treatment methods for the past 20 years. Another solution may be found in converting the pollution into paint pigment, thanks to [the work of two OU professors](#).

“I think that people all deserve to have clean water,” Shively said. “I think on some level it’s the right thing to do to fix a societal wrong that we did.”

A reliance on burning coal

Acid mine drainage is but one facet of coal’s impacts on Appalachian Ohio. The orange sludge found in creeks results from historical mining, but coal has an ongoing presence in the state through its power plants.

For Jennifer Harrison, it began with blurry eyes and the taste of sulfur. She was relaxing in her backyard swimming pool on one June day in 2001 when she first noticed the pollution in Cheshire, a town of 221 people located along the Ohio River in northern Gallia County.

“I thought, oh my, I must have too much chlorine in here,” Harrison said. “No, it was sulfuric acid floating through the air.”

The pollution worsened as the summer weather became more hot and humid, she said. Residents reported seeing a blue cloud or haze floating in the streets. The next year, *The New York Times* would call it a [“blue plume.”](#) But by then, the town’s community was coming to an end.

In April 2002, American Electric Power, the owner of the town’s coal-fired power plant, bought the town for \$20 million after facing accusations from the Environmental

Protection Agency of violating federal regulations. The company forced the town's 221 residents to leave and paid 90 homeowners around \$150,000 for their houses.

The *Times* noted the deal was likely the first buyout of an entire town by a company.

Harrison, who raised two daughters with her husband in Cheshire after moving there in 1980, took the deal and moved to Gallipolis, about a 15-minute drive to the south.

"Nobody wanted to live there in that kind of polluted situation," Harrison said. "We were stuck."

In Cheshire, coal power began with the construction of the Gen. James M. Gavin Plant in 1974. In those days, the town was a "big family," said Harrison, who moved to the town with her husband after they got married.

Harrison, born in nearby Meigs County and now in her late 50s, said air pollution wasn't evident in her early years of living there. At that time, the plant had tall smokestacks that were [contributing to acid rain](#) in New England, and by the mid-90s, she said, the plant had switched to shorter smokestacks.

"Of course then, it didn't blow to New England, it dropped it right on us," Harrison said of the pollution.

In the years and months leading up to the town's buyout, Harrison – who served as the village's fiscal officer – and other residents tried to protest the plant and convince AEP to fix its pollution problems. In the end, though, AEP decided to buy the town.

Per the deal, residents were given six months to relocate, and those who were elderly or with disabilities were the given to option to remain until their death. Harrison estimates three or four people still live in the town today.

“In a town of 221 people, you know everybody and everything that goes on,” she said.

“Then all of a sudden they go in 221 different directions. Some people you never saw again. It was sad.”

Most of Ohio’s electricity is powered by coal, according to data from the [U.S. Energy Information Administration](#), or EIA. About 55 percent of the state’s electricity generation came from coal-fired power plants as of last December. That’s about 6,000 megawatt hours.

“You had the mines here, and you had the Ohio River to bring coal up on the barges,” said Kevin Crist, director of Ohio University’s Center for Air Quality and a professor of chemical engineering. “It has been a significant source region over the years.”

Sitting in his office, Crist explained the various pollutants that emerge from burning coal. There are sulfur oxides, which can be converted to sulfuric acid and lead to acid rain. There are nitrogen oxides, which contribute to acid rain and ozone. And there’s mercury, a global pollutant that can linger in the atmosphere for decades.

“Heavy metals like mercury and arsenic, they accumulate in your body, and can lead to a lot of neurological problems,” Morrone said.

Emissions of such pollutants have decreased in past decades, but only to a certain extent. Ohio's electric power industry generated 83,000 metric tons of CO₂, 214,000 metric tons of sulfur dioxide and 76,000 metric tons of nitrogen oxide in 2015, according to the EIA.

Crist oversees modeling, monitoring and analysis of air pollution regionally and globally at the Center for Air Quality. But for him, the biggest problem coming from power plants is carbon dioxide contributing to climate change.

"If we don't stop burning coal, your world will be totally different. That is by far the biggest issue," Crist said. "There is no economic way and no political way to reduce CO₂ emissions from coal-fire or oil or gas."

In 2015, Ohio's emissions included 215 million metric tons of carbon dioxide, about 4 percent of the country's output, according to the EIA. The state had the fifth highest CO₂ output in the country in 2014, the most recent year with available data.

Neil Waggoner, campaign representative for the Beyond Coal Campaign at the Sierra Club's Ohio Chapter, said coal plants are one of the biggest sources of carbon dioxide. Electricity production contributes to the largest share of greenhouse gas emissions in the U.S., largely from coal and natural gas power, according to [the EPA](#).

"It's an oxymoron to say coal is clean," Crist said. "We really have to leave a lot of coal in the ground."

Shifts have occurred with coal power in Ohio and nationwide in recent years. For one, natural gas has started to compete with coal as a power source. In 2016, U.S. electricity production came from 34 percent natural gas and 30 percent coal power.

“What’s happening now though is that they’re switching to natural gas, slowly, not at every place,” Crist said. “Natural gas is a stopgap until we get to something else.”

“The concern right now is that we’re essentially switching from one fuel source to another,” Waggoner said.

Cheshire, though, is helping to spark some conversation about coal power. Its story has been told to wider audiences via [national media](#) and a 2016 documentary titled [Cheshire, Ohio](#), created by filmmaker Eve Morgenstern.

Harrison, who today is a fiscal officer for another nearby village, Rio Grande, said she still thinks every month or so about how the plant’s pollution might have impacted her family’s health.

“I especially worry about my kids because they grew up there from the beginning and they were raised in that environment. But as of now they remain healthy,” she said.

“Maybe we did get out of there before we were affected very much health-wise. I’d like to think that.”

“I’m very against coal-fired power, and my gosh, if we have to burn coal, do not put it in the middle of a town.”

Part 3: The Coal Industry In Ohio's Hills: A New Mine?

Though today the coal mining industry continues to shrink in the hills of southeast Ohio, one company is planning to build a new surface mine near an important watershed.

(Note: This story is viewable online at HillsofChange.com as a full website with images.)

Terry Harvey considers himself a friend of coal. His brother, father-in-law and grandfathers were all coal miners. He's been inside coal mines and knows how they work. More than a century ago, there was a coal mine on what's now his land in northern Athens County. He even has a bumper sticker of a nearby coal company on his car.

But now, he's concerned about a new coal operation that might be built near his property, more than 500 acres in Trimble Township where he raises cattle, bails hay and runs a tree farm.

"My wife and I moved up here in 1976," said Harvey, who's lived in Trimble Township near the town of Glouster all 78 years of his life.

Harvey is worried how flooding might impact his land if a proposed surface mine along Johnson Run, which flows into Sunday Creek's west branch, is built.

"We have numerous floods every spring," Harvey said. "I have over a mile of the West Branch of Sunday Creek that runs through my property."

He isn't alone. Other county residents are worried about the mine's potential impact on water quality in an area that's seen significant recovery after facing decades of pollution from abandoned mines.

"The biggest of my concerns would be elevated levels of pollutants that would be coming off the mining site if the permits all go through and they start mining out there," Michelle Shively, watershed coordinator for the Sunday Creek Watershed Group. [The organization](#) has spent nearly two decades cleaning waterways impacted by historical coal mining.

It's unclear yet when or if the mine will be built, with two state agencies – the Ohio Environmental Protection Agency and the Ohio Department of Natural Resources – reviewing permits for the mine. And others maintain that the mine should receive the go-ahead.

"They pay no attention to the extremely stringent regulation that we are now subject to when doing any kind of mining," Mike Cope, interim president of the Ohio Coal Association, said of the mine's opponents. "I can guarantee you there will not be any discharges of polluted water."

If approved, the mine would be added to the coal industry's small and shrinking presence in the state, part of a gradual decline in production since 1970.

The mine plan and its regulatory hurdles

The Johnson Run mine would be built in Trimble Township, about a 10-minute drive north of the town of Glouster, if approved. The mine would span 299 acres and operate for five years, according to its permits.

Oxford Mining Company submitted an initial application for the surface mining operation in June 2016, [according to ODNR](#). Oxford has operated as a subsidiary of the Colorado-based Westmoreland Coal Company [since 2015](#). That company also runs an active 8,500-acre underground mine, [Buckingham Coal](#), in Perry County less than four miles north of the proposed site.

About 57 acres will be impacted by surface mining, according to an [Ohio EPA report](#), a kind of mining that involves removing layers of soil and rock to expose seams of coal.

What's more, the proposed mine would release wastewater into five locations along Johnson Run, according to the Ohio EPA. In July of 2016, Oxford sent an application for a wastewater discharge permit to the agency in order to comply with state and federal law. A public [draft of the permit](#), still under review, states that the discharge would change the water quality of the receiving stream.

The mine has received public attention in recent months, most recently at a public [Ohio EPA hearing February 15](#) where the agency sought comments about the discharge permit, officially called the National Pollutant Discharge Elimination System (NPDES) permit. The permit sets limits on pollutants that Oxford can discharge as well as pH and dissolved solids levels, agency spokesperson Dina Pierce said.

“Limits in the permit are designed to make sure the discharges would not be harmful to the local aquatic environment or human health,” she said.

Some of the mine’s main opponents are Roxanne Groff, a former Athens County commissioner and Bern Township trustee, and other members of the grassroots activism group Athens County Fracking Action Network. Groff opposed another mine planned by Oxford back in 2011, which was eventually [blocked by ODNR](#). Since last year, she’s organized residents of the county to become informed and speak up about the new proposed mine.

“It’s the public pushing, pushing, pushing for what we think is our right to be involved in decision-making,” Groff said.

Groff has several concerns regarding the mine, one of which is its [401 Water Quality Certificate](#), issued by Ohio EPA Director Craig Butler in September 2017. The certificate means a project doesn’t violate water quality standards by releasing materials into a stream or wetland, [according to the Ohio EPA](#).

“It simply was premature for him to do that,” Groff said of Butler’s decision.

Though the certificate was issued, the Ohio EPA hasn’t conducted adequate studies of how the mine would impact fish and insect populations in Johnson Run, Groff said. The agency still sought further information and clarification regarding fish, macroinvertebrates and stream chemistry as recently as January, according to an interoffice memo provided by Groff.

Shively, who spoke at the February hearing, said she has specific concerns about the NPDES permit's mention of lowering water quality.

"Anything that would lower quality, the concern is that it would harm bug and fish wildlife populations," she said. "The real goal is to bring life back to the streams."

Flooding also remains a concern for some. Harvey is concerned that a flood could cause water from the mine to flow onto his farmland. And the mine area encapsulates a Special Flood Hazard Area, [according to FEMA](#).

"I'm worried that if flooding gets much worse, it would potentially be an impact to their property," Shively said of the impact on residents' land.

The two main permits for the mine are still being reviewed. The general mining application for the mine is under review by ODNR in a third round of revisions, spokesperson Eric Heis said. Public comments about the wastewater discharge permit are still being reviewed by Ohio EPA staff, who will respond to them in writing, Pierce said.

"Ohio EPA staff then could make revisions or adjustments to the draft permit before sending a recommendation to (Butler)," she said.

The company said the mine's potential impacts will be offset by its benefits to the local and state economy in the original NPDES application. The mine will generate \$1.3 million in tax revenue and employ about 30 people, according to the application, though Cope said it would provide 100 jobs for Athens County.

“The proposed temporary lowering of water quality is necessary to accommodate important economic development and to meet an important public need,” Oxford’s application reads.

Harvey is worried that the employees at the Johnson Run site will just be transferred from other mines in the state.

“The big misnomer is everybody thinks it’s great, that it’s gonna create a lot of jobs.” Harvey said. “It’s not really creating any work.”

Ohio coal mining in recent decades

Though the number of mines and miners in Ohio dropped in the late 1920s and early ‘30s, coal didn’t disappear completely. Coal production peaked in Ohio around 1970 and the value of the fossil fuel peaked in the mid 1980s, according to the [Ohio Department of Natural Resources](#). Both surface and underground mining persisted, becoming more advanced and more reliant on machinery.

Ohio produced about 12.6 million tons of coal in 2016, according to the Energy Information Administration, down from 28 million five years beforehand. In 1970 that number was around 55 million.

Contemporary mining uses different techniques to access the coal. With surface mining, an operation digs out soil and rock, or “overburden,” above a coal seam and extracts the fossil fuel. Underground mining involves digging an opening to a coal seam either horizontally, vertically or at an incline. These mines are called drift mines, shaft mines and slope mines, respectively, [according to ODNR](#).

“There were some shaft mines that I worked in, but most of them were slope,” said Tom Broadwater, who worked at mines on the Ohio River in Wheeling, West Virginia, for four years in the late 1970s. “I enjoyed the camaraderie of people. The idea is that you’re under so much danger, you have to take care of each other. If you don’t, somebody’s gonna get killed.”

Current underground mining often involves “room-and-pillar” mining, where a machine called a continuous miner cuts out rooms and leaves pillars of coal to hold up the ceiling of coal above. Broadwater worked different jobs when he was employed in the mines, such as driving a shuttle car that moved the coal to an area called the “tipple” for shipment or monitoring coal on a conveyor belt.

“There’s always some danger involved,” said Broadwater, who now lives in Zanesville. “The roof could cave in on you, the roof could blow up. There’s all kinds of possibilities there.”

After Broadwater left the mines, he worked in child welfare for three decades before retiring and becoming a teacher of Tibetan Buddhism. Today, he visits a Tibetan Buddhism center in Athens a couple times each month to give talks.

“I’ve always had an interest in spirituality, even when I was in the coal mines,” Broadwater said. “I guess my life has been in fugues. I do one thing, I do another thing. They’re not terribly related. It’s just how things wound up.”

Another form of extracting coal, called longwall mining, involves removing a large panel or block of coal in a mechanized, highly productive process, according to ODNR.

“That reduced the number of miners to take out the coal,” said R. Glenn Ray, a former coal miner who worked in various capacities in southeast Ohio mines for nine years in the 1970s and early 80s.

Ray, now in his mid-60s, started out doing jobs such as rock duster, in which workers spew pulverized limestone on mining surfaces to reduce or stop explosions, and later took on leadership roles such as supervisor and fire boss. He also obtained a bachelor’s degree in psychology and master’s degrees in student personnel services and guidance and counseling from Ohio University while working as a miner.

“By that time I was working straight midnight (shifts),” Ray, who went on to write books about leadership and now owns a leadership communication company, said. “I would come out of the mine, shower, head straight to OU. Didn’t get much sleep in those days. And I had two kids too.”

Ray had six hospital visits during his years working in coalmines, he said, four of which were due to fighting fires.

Mine safety has gradually improved in recent decades, as coal mining injury rates and fatalities have steadily declined since 1977. From that year to 2015, injuries decreased from 13 to 3 per 200,000 hours worked by miners, [according to the Mining Safety and Health Administration](#). Fatality rates similarly decreased from a rate of .07 to .01 deaths per 200,000 hours.

“I never worked at a mine where a guy was killed. You know, us coal miners don’t typically think about getting killed,” Ray said.

A less visible safety concern regarding mines, though, remains the disease black lung, caused by inhaling coal dust and which results in the gradual inability to breathe. *NPR* and other media outlets have reported that [cases of the disease](#) are still occurring, often in clusters across central Appalachia.

Since the two worked in the mines, the industry has shrunk further. In 2017, coal mining employed just over 1,100 people in Ohio, according to [employment data](#) from the U.S. Mine Safety and Health Administration. That's down from five years beforehand, when the number was around 3,200.

"We have now stabilized," Cope said of the coal industry in Ohio. "The previous administration was down on fossil fuels, especially coal. They established rules that were extremely difficult to comply with."

In 2015, President Barack Obama announced the [Clean Power Plan](#), which aimed to set rules to reduce carbon emissions from power plants contributing to climate change. The current administration under President Donald Trump has since taken steps to [repeal that plan](#). Such a repeal would put efforts by the federal government to curb climate change in limbo.

Though no mining is ongoing in Athens County, extraction does happen in 16 other counties in Ohio, all in the eastern third of the state. Specifically, 14 mining companies produced coal at 28 surface mines and eight underground mines during ODNR's most recent evaluation year, ODNR spokesman Heis said.

“Most of this coal has been mined out around here,” Harvey said. “It’s not really a big deal I guess that most of it happened in the past. We just have to live with whatever happens in the future.”

Groff says she and others plan to delay the proposed Johnson Run mine as much as they can through public comments and participation.

“It’s wishful thinking, but I keep thinking time is on our side,” she said.