

GOOD EARTH

Exploring Missouri's Old Lead Belt

by Benjamin Hoste

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GOOD EARTH: EXPLORING MISSOURI'S OLD LEAD BELT

Benjamin Hoste

David Rees, Committee Chair

ABSTRACT

Unstructured in-depth interviews were used to explore the lasting influences the lead mining industry and its legacy have had on community perceptions and identity within Missouri's Old Lead Belt. The Old Lead Belt is a mining subdistrict within the Southeast Missouri Lead District containing the cities of Bonne Terre, Desloge, Leadington, Leadwood, and Park Hills in which large scale, industrial lead mining occurred between 1864 and 1972. Bourdieu's theory of *habitus*, as outlined by Silviu Serban (2011) and others, was used as a theoretical foundation to guide the main research questions as well as the project's methodology.

SUMMARY OF PROFESSIONAL SKILLS COMPONENT

A portfolio of photographs exploring the landscape and communities of the Old Lead Belt, forever altered by the 108-year history of lead mining in the area.

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Chapter One: Introduction

Photography is a way for me to explore and learn about the world. I am most intrigued by documentary, nonfiction images—photographs that transport me to distant lands and foreign situations, and expose me to unique perspectives that lead me to reflect on my life and our world. Similarly, as a photographer I am most interested in producing documentary, nonfiction work that is driven more by a curiosity about the world than a desire to have a photograph as an end result. In other words, I see photography as a medium for exploring the world and communicating that exploration to others. In fact, the physical act of photographing enables me to seek out the world in unique ways. “The camera is my entrance-ticket. It is also my way of clarifying (for myself) what is going on. Finally, it is a way of passing on this new-found experience to others.”¹ To be photographed is an experience, to make a photograph is an experience, and to see a photograph is an experience. Photographs are powerful—they can communicate truths, moments, ideas, emotions, and feelings.

In many ways my experience at the Missouri Photo Workshop, a weeklong professional photojournalism workshop founded by Clif and Vi Edom in 1949 and run by the Missouri School of Journalism, epitomizes this perspective on photography. As a young photographer with little to no story telling experience, I was completely taken aback in the fall of 2010 in Macon, Mo. Somehow, through a recommendation and some luck, I had found my way into the 62nd Missouri Photo Workshop, and I knew instantly that I was in way over my head. Although I had prior experience as a photographer, I had not produced anything like what I was expected to produce at the workshop. As the week

¹ Hurn, D., Jay, B. (2007). *On being a photographer: A practical guide*. Anacortes, WA: Lenswork. p 62.

progressed my excitement turned into worry, that then became a concern, and finally I experienced fear. What was I doing here? I nearly lost all hope midway through the week. But then, with the guidance of the workshop's amazing faculty and directors, it all came together. I think the turning point was when I took a step back and started thinking less about the pictures I was going to have at the end of the workshop and started thinking more about the act of photographing a story itself. The key, it seems, was to use the camera as a tool to explore a story, to investigate a story in a way that both satisfied my curiosity and communicated some truth about it, and trust that good pictures would follow.

My experience at the workshop was so powerful that I decided to come to Missouri for graduate school. And, in a way, my experience in graduate school has mirrored my experience at the workshop. At first I was completely focused on the coursework, which is important but not the whole story. Over time, I realized that I needed to take that step back and learn to revel in the act of photography and what it means to me.

In searching for a master's project I decided to focus on Missouri, a place I had never been to before coming to the workshop and which I am still learning about. I wanted to do work that explored an area or aspect of my home for the past two years. In looking into events and topics that have defined the region, I stumbled across Missouri's nearly 300-year history of lead mining. As I learned more about this heritage, I could not help but draw parallels between the Southeast Missouri Lead District and other communities that have been defined by practices that involve extracting resources from

the earth, such as coal mining in Appalachia, the lumber industry in the Pacific Northwest, and fracking for oil in North Dakota and elsewhere.

I wondered how three hundred years of lead mining in Missouri has shaped the communities and individuals who live in the Southeast Missouri Lead District. How do generations of families with either direct or indirect ties to lead mining feel about lead today? And what do these communities and people look like? My goal is to understand this slice of Missouri and the various things it has to tell us about the place and the people who live there and their future.

In settling on the scope of this project I chose to focus on the subdistrict of the Southeast Missouri Lead District known as the Old Lead Belt. Lead mining occurred in this area from 1864 through 1972 and it was the first lead mining in Missouri to incorporate modern day industrial mining practices that have come to set the standard for all future lead mining. The decision to focus on this subdistrict and the five small towns within it—Bonne Terre, Desloge, Lead Wood, Leadington, and Park Hills—was one of both interest and necessity. Through my preliminary research it seemed unlikely that the Doe Run Company, the present day corporation that owns and operates the entire lead mining industry in Missouri, would grant access to their ongoing operations given the current political climate and ongoing litigation regarding lead mining in Missouri. In contacting Doe Run, as well as speaking with related parties, this suspicion was actualized early in my fieldwork. Furthermore, the early surface level lead mining that occurred in Missouri prior to the formation of the United States in areas such as Ste. Genevieve and Potosi is simply too distant in the past and too small in scale to offer viable photographic and research opportunities. Mining in the Old Lead Belt, on the other hand, was industrial in

scale and ended only a few decades ago, offering the unique opportunity to explore how a community once solely defined by a single industry changes in the wake of that industry's natural decline and disappearance from the community. In setting the scope of this project in this way I was afforded the opportunity to engage with primary source materials, individuals that once worked in the mines in the Old Lead Belt, and the present day community shaped by the legacy of mining and populated by the descendants of lead miners along with new residents that have moved to the area in recent decades.

Professional Skills Component

For the professional skills component of my master's project I spent thirteen weeks from September 1 through December 1 photographically documenting both the communities and environment within the area of the Southeast Missouri Lead District known as the Old Lead Belt. This photographic project includes all aspects of the community today including the remains of the lead mining industry, the surrounding environment, and the people that form these communities whose lives have been inextricably influenced by the 108-year history of lead mining in the area. The project was self-directed and shaped itself as it progressed, both through personal reflection and feedback from my committee.

The project is both specific to Missouri and timely in its focus. Vast lead deposits were first discovered in the area now known as the Southeast Missouri Lead District in 1719 by French explorer Philip Francois Renault.² Mining commenced one year later and has continued to this day. The area contains the highest concentrations of lead reserved in

² History of Lead Mining In Missouri. (2002, June 2). *St. Louis Post-Dispatch*, p. A12.

the world and currently produces 70% of the lead used in the United States.³ The timeliness of the story is reflected in the fact that the last primary lead smelter operating in the United States, located in Herculaneum, Mo. and operated by the Doe Run Company, is scheduled to shut down permanently at the end of 2013 due to extensive environmental concerns.⁴ Although both the lead smelter in Herculaneum and the ongoing, present day lead mining in the Viburnum Trend, located about fifty miles to the west of the Old Lead Belt, fell outside the scope of this master's project, it is relevant to mention the value of exploring the communities within the Old Lead Belt—41 years after the lead industry left the area—as both Herculaneum and the small mining towns that pepper the Viburnum Trend may suffer a similar fate in the coming years as the lead industry they have come to depend on mines out the area and either opens new mines in virgin areas in the Southeast Missouri Lead District or disappears altogether.

Scholarly Analysis Component

For the scholarly analysis component of my master's project I conducted a dozen unstructured in-depth interviews with community members within the Old Lead Belt whose daily lives have been directly influenced to various degrees by the lead mining industry. I interviewed community members whose work is directly tied to the industry as well as individuals affected by the legacy of mining in other ways. I identified potential interview participants through my preliminary research as well as my photographic work

³ Seeger, C. M. (2008). History of mining in the southeast Missouri lead district and description of mine processes, regulatory controls, environmental effects, and mine facilities in the viburnum trend subdistrict. In: M. J. Kleeschulte (Ed.), *Hydrologic investigations concerning lead mining issues in southeastern Missouri: U.S. geological survey scientific investigations* (pp. 1-33). Rolla, MO: USGS.

⁴ Fenston, J. (2012, August 8). The end of a lead-laced era: Polluting smelter to close after 120 yaers. *KBIA 9I.3*. Retrieved from <http://kbia.org/post/end-lead-laced-era-polluting-smelter-close-after-120-years> on April 24, 2013.

documenting the Old Lead Belt. The interviews were conducted over the course of the thirteen weeks I was living and working in the field.

It was very important to me that the professional skills and scholarly analysis components of my master's project complement one another, with each positively contributing to the depth and accuracy of the entire project. Conducting these in-depth interviews provided valuable first-person accounts of the region and the lead industry that certainly enhanced my ability to make educated photographic decisions. Additionally, the research and reporting that went into my photographic work improved my understanding and knowledge of the Old Lead Belt and improved the quality of the interviews.

Chapter Two: Field Notes

General Dates

My preliminary research and project proposal was written during the Spring 2013 semester under the guidance of Professor Daryl Moen. I met with my committee and they approved my project in May of 2013. Over the course of the summer I continued my preliminary research, which ramped up in mid-August. In September I relocated to Festus, Mo. and aggressively worked in the field on my project until the December 1st, at which point I returned to Columbia, Mo. to complete the project report.

The following field notes are raw notes from throughout the project. I have made an effort to go back and fix typos and small mistakes; however, in the interest of not significantly changing my notes after the fact some mistakes may persist.

August 19, 2013 – Day 1, Area Research

I arrived back in Columbia late on Saturday, August 17 from Chautauqua and am very excited to dive fully into this master's project for the remainder of the year. I did a little bit of work over the summer but nowhere near as much legwork as is needed for me to start making pictures. The next two weeks are going to be spent researching, making lots of calls, setting up living arrangements (for September, October, and November) in Festus or somewhere in St. Francois County, and attending to various personal and academic tasks that need to be dealt with here in Columbia (such as meetings for my GRA position and having my Honda's transmission re-fixed).

I spent a few hours today in the journalism library trying to make a comprehensive list of all the newspapers within the Lead Belt. To accomplish this I made

a list of all the zip codes that are included within the seven counties of the Lead Belt (Dent, Crawford, Iron, Madison, Reynolds, St. Francois, and Washington) plus Jefferson County (the Doe Run smelter is located in Herculaneum near Festus in Jefferson County). Then I cross references this list against a catalog the library had that listed all daily and community newspapers in the United States. It took a while but now I have a list of 11 local newspapers with contact information to get in touch with this week that will certainly prove helpful.

I also put together a map using Google Maps of the Missouri Lead Belt. I'll probably pick up a paper map from AAA and mark out the counties and important places as the project unfolds. But for now, this digital map is helpful to wrap my head around the region.

I had yet to enroll in class for the fall (I am only enrolling in J8190 for this project) and for some reason thought I needed a permission number. After checking with Amy Schomaker and swinging by Martha Pickens's office I realized I can just enroll without a permission number. Took care of that. I also learned that to graduate in December I need to complete my oral defense of my project on or before November 21. I do not think this is possible with the amount of work I need to accomplish this fall. However, I can defend any time before the end of the semester, walk in the December graduation ceremony and have my diploma issued in the Spring of 2014 without any penalty or problems.

I briefly met with David Rees to discuss scheduling my oral defense for the last week of the semester in December and then officially graduating in Spring 2014 and it sounded fine to him. He also mentioned a few people in the Festus area that I should try

and connect with who might be able to help me find a place to stay for September to November. He gave me the contact information for a Mizzou graduate from the area, the editor of the Festus / Crystal Cities MPW Book, and the editor at the Jefferson County Leader in Festus who was helpful when the workshop was there in 2009.

I also briefly met with Joe Johnson, primarily just to say hi and catch up. He and I briefly discussed the status of my project.

August 20, 2013 – Day 2

Today was filled with personal tasks and meetings related to my GRA position. No work was completed on the project.

August 21, 2013 – Day 3

At this time my two biggest immediate goals/challenges seem to be setting up a place to live in the Lead Belt and gaining access to shoot within the Doe Run lead smelter in Herculaneum and a working lead mine. For some reason I thought getting access to the mining facilities would not be that difficult because a fellow grad student had mentioned to me in the Spring that he had already been given access to shoot video in the smelter and that everyone over there was super helpful and friendly. Of course this is not the whole story.

I emailed this other grad student in the journalism school when I returned to Columbia to set up a time to meet with him. He had planned to work on his master's project—a documentary film about Herculaneum and the smelter—over the summer and so I wanted to check in with him on his progress and how difficult it was to work with Doe

Run and shoot in the smelter. Our meeting only lasted ten minutes; apparently he had been dismissed from the journalism school at the end of the spring semester for poor grades. He scraped his project and had little to impart to me.

However, before our meeting I decided to contact Missouri state senator Kurt Schaefer. I did a small picture story on him last fall during his reelection campaign and we got along well. Not only is he a current state senator but he's also an environmental attorney and used to work within the Missouri Department of Natural Resources. I emailed him about my project and to see if he could meet with me next week and he got back to me right away, gave me a few names of people to contact and agreed to meet with me next week.

I also started to comb together lists of scientists to contact both at Mizzou and at other institutions who have done research on lead pollution, mining, and other related topics. I hope to be able to document a scientist as they collect data in the field (if I can find one that is currently doing fieldwork). Getting in touch with these academic/scientific experts will also help strengthen my own depth of knowledge on lead and the lead mining in Missouri.

I also spent about three hours combing the Lexis Nexis, Google News, and the St. Louis Post-Dispatch's website searching for any and all articles published in the last decade that mentioned lead mining in Missouri or directly pertains to lead mining. I dug up about 60 articles that came to about 140 pages of single spaced text. I started reading through all of the articles noting relevant facts, names of sources, and specific locations and things that seem to be visually striking and worth photographing.

August 22, 2013 – Day 4, Searching for Scientists

I spent most of today on the web and on the phone trying to connect with scientists that have done or are currently doing research on lead as well as find a place to live.

I spoke with Pat Martin on the phone today and he was very helpful. He didn't really have any ideas off the top of his head in terms of finding a room to rent, but he said he would look into it for me and was very friendly. He also gave me the names and contact information for a few people at Doe Run and suggested that I get in touch with them sooner rather than later because the company is so large it may take a while to get access figured out (if I can get it).

I also left a message for Sheree Faries-Fite. Emailed Sarah Flagg. And I also found a listing for a room to rent in Festus on Craigslist and was in touch with them about setting up a time to see it next week.

I dropped in on Sara Shipley Hiles today (she wrote a story for Mother Jones about Doe Run in 2006) to mention to her that I was working on this project about the Lead Belt. She had some interesting things to say, expressed interest in my project, and mentioned that Amanda Hinnant's husband is an attorney based in Jeff City who works for Doe Run. She suggested possibly introducing us.

I also got connected with Dr. John Besser at the USGS Columbia Environmental Research Center through Dr. Jones in the Fisheries and Wildlife department here at Mizzou. We spoke briefly on the phone and set up a meeting for Monday. He was super friendly and mentioned a colleague Chris Schmidt who has been doing research on lead for even longer.

I also called and spoke with Doug Goergens who owns the Bonne Terre Mine and leads tours and scuba diving trips in the mine. It sounds epic and fascinating and he seemed open to photography in the mine.

The highlight of all my outreach to professors at Mizzou was getting in touch with Keith Goyne, associate professor in the Soil, Environmental, and Atmospheric Sciences department. He has a current master's student, John Weber, who is currently doing research on the Big River watershed (which cuts through the heart of St. Francois County) pertaining to lead contamination and how best to remediate it. Here's a description of his research from the email he sent: *John's work focuses on transforming the Pb from more bioavailable forms to less bioavailable forms through the addition of phosphate fertilizer, and then to document phosphorus loss from the amended soils using simulated rainfall. The Pb is obviously a human health concern, but we are seeking to determine if the proposed remediation method (phosphorus amendment) might cause other issues in the stream, such as eutrophication, if phosphorus moves off the terrestrial landscape and into the water.*

He mentioned that John is extremely knowledgeable in the region due to his work with the US Fish and Wildlife Service prior to graduate school and that he could put me in touch with local people. This might be the scientist who has ongoing research I can photograph as part of this project. Very excited.

I also traded emails with Grace Yan, a teaching assistant professor in the Parks, Recreation, and Tourism department. Her research is focused on how the development of tourism in areas can change the community's sense of home. Could be some overlap and interest there.

I also learned today that the first weekend in October is Old Miner's Day. I'll have to research what kind of festivities are included.

August 22, 2013 – Day 5

Did not accomplish much today, too many other things to juggle. I did stop over at Matt Schacht's house to pick up a book on the history of Herculaneum that the mayor of Herculaneum made and gave to him back in the summer when Matt was going to do a project on the town. He also gave me some notes and some contact information.

August 26, 2013 – Day 8, USGS Meeting

Today was very eventful. I did some reading during lunch. John Weber gave me a chapter from a Fish and Wildlife document to read before our meeting on Wednesday this week. I also called and set up a meeting with Herculaneum's mayor Bill Haggard for Tuesday. I also set up a meeting tomorrow to see a room to rent in Festus. Pat Martin also got back to me and said he couldn't find anything for me in terms of renting a room that wasn't a flophouse.

I also emailed Kurt Schaefer again about meeting this week. I expect he may blow me off this week.

Today I met with Dr. John Besser at the USGS research center here in Columbia, the Columbia Environmental Research Center. There are about a dozen such USGS research centers around the country with each focusing on slightly different overlapping research areas. John has been studying toxic contaminants for over thirty years, and his colleague Dr. Chris Schmitt predates him and has even more experience in the area. Their

research can pull them to areas outside of Missouri where there is mining and toxic contaminates, mostly heavy metals; however, a lot of their research has focused on Missouri and the Missouri Lead Belt (both the Old Lead Belt and the New Lead Belt).

Not only did they really help me understand what they do at a greater depth but they also gave me a much better general understanding of the Lead Belt. Specifically, there is the Old Lead Belt and the New Lead Belt. Previous to the invention of the diamond drill in the late 19th century, lead was mined from the surface in improvised pit mines. It was not until the development of the diamond drill that mines were able to bypass the surface and get thousands of feet underground. The Old Lead Belt was developed in the late 19th century and prospered through the early 20th century but was pretty much gone by the 1950s. The New Lead Belt is further to the West and East (but not by far) from the Old Lead Belt and is following the Viburnum Trend (you could equate this to a vein of gold) that has incredibly high concentrations of lead, arguably the highest concentrations in the world. Thus, a belt of lead.

The New Lead Belt is slowly creeping south with the northern most mines now closed. The technology used to extract lead from the new mines is far superior to the technology and techniques used in the Old Lead Belt, and as a result there is much less pollution and contaminants in the area. Whereas the Old Lead Belt is ground zero for lead contaminants in chat piles and mine tailings. Although the streams and environment surrounding the mines in the New Lead Belt are contaminated, they are in nowhere near as bad a situation as the Old Lead Belt. The pollution and contaminates in Herculaneum are a totally different story because they are not contaminates that are coming from mine tailings but rather emitted from the smelter (and thus more pure and concentrated and

airborne).

We discussed how the Herculaneum smelter is closing in December and they conjectured that Doe Run would simply ship the concentrated lead (not the ore, but the next step before refinement) overseas. Furthermore, most of the manufacturing that involves lead is already overseas. They used to use railroads to move lead from the mines to the smelter, but abandoned trains in the last couple decades and have since relied on trucks. This has led to an increased amount of contaminants in the environment along the haul roads.

At the research center they have a very large wet lab where they can test various levels of contaminant against various indicator species. Currently, with lead research, they use various invertebrates include fresh water shrimp, muscels, and a variety of worms. Later this year, perhaps in October or November, they are going to begin a new research project that is being funded by the lead industry to reinvestigate some findings from a decade ago. They'll be looking at which harms organisms more, water contaminated with lead or food contaminated with lead. The study is much more complex than that, but that's a good simplification.

Currently, all of the mine tailings are kept in these tailing ponds that are adjacent to the mines and controlling these reservoirs is very important and hazardous. Foul weather has in the past been disastrous in upsetting old tailing piles in the Old Lead Belt and similar situations have occurred or nearly occurred in tailing ponds that are currently in use.

They were able to point me in a good direction in how to think about the environmental contamination point of view and the impact on the natural environment.

They were incredibly helpful and friendly.

August 27, 2013 – Day 9, Herculaneum

Today I drove out to Herculaneum and met with the Mayor, Bill Haggard. Also checked out a place to rent in Festus. Great day.

August 28, 2013 – Day 10, Fish & Wildlife

Today I met with John Weber at US Fish & Wildlife. It was an incredible meeting and I learned a ton.

August 31, 2013 – Day 13, Lead Mansions

Today I hung the Revealing Place exhibit at the gallery in the Art Department with Joe and a few other students. It turned out really well.

What was great was that the director of the gallery, Hannah Reeves, is from Farmington in St. Francois county and was able to talk to me about how she grew up in the Old Lead Belt and used to go sledding on chat piles. She mentioned that there are a number of old lead mansions in the area that used to belong to the lead barons. Sounds really cool and something interesting to check out.

September 2, 2013 – Day 15, Moving Day

Today I packed up all the things I need for my project and moved to Festus. It was a long day but got settled in okay.

September 3, 2013 – Day 16, Strike Out

Today was my first full day down in Festus. I spent the majority of the day working on some other academic work I needed to get done, but in the afternoon I went out to try and make some pictures or explore. After doing a lap through Herculaneum I decided to try and get to the other side of the Mississippi River to try and photograph the smelter at sunset. I drove all the way around through St. Louis (the nearest bridge across the river) and found where I thought I needed to be. There was an older gentleman outside his home watering his plants (it's all farm country here, mostly corn) and he was able to tell me who owned the land next to the river where we were and gave me their address and phone number from the phone book. Instead of calling, it was still light out, I decided to just swing by the guy's place. That was a mistake. I knocked on his door and I think I freaked him out. He came around the side of the house, wasn't too interested in talking to me, and told me to leave.

I'll probably have to write him a letter to explain myself and hope it works out. Otherwise I could try and get river access further north from his property and then walk along the banks south as far as I need to go. It'd be a bit of a hike, but I want to get the picture.

September 4, 2013 – Day 17, First Pictures

Today I finally took my first pictures. I felt as though I really just needed to get started even if the first few end up not being very good. Midday I made some phone calls and did some research. I called to follow up with the contact at Doe Run that John Weber at Fish & Wildlife email introduced me to, Kevin James. I left him a voicemail message.

I'm going to have to follow up with him again either tomorrow or on Friday. He works in the "Environment" department at Doe Run.

John Weber also emailed me about a gentleman, Keith Kinnard, who lives near Leadwood who is a third generation lead miner. His father worked in the mines and so did his grandfather. Fish & Wildlife went onto his property a while back to take some soil samples and said that he was really friendly and forthcoming. After my run in yesterday with the land owners in Illinois I asked John if he could call the man to let him know I would be giving him a call so that he wouldn't be caught off guard when I call.

Speaking of which, yesterday I went down to the Mississippi River on the Missouri side to see how close I was to the river yesterday when I drove over to Illinois. What I realized, almost immediately, was that I had drove way to far south yesterday and that instead of being across the river from the smelter I was across the river from a coal power plant that is further down the Mississippi. I'm not sure how I made that mistake, although the plant didn't look right to me yesterday when I drove over. The bad news is that I was in the wrong spot and have to make a whole nother trip over there. The good news is that I don't have to deal with those land owners that were so dismissive of me.

Down by the river I made my first couple pictures. A photograph of the plant as it juts out in the river and a portrait of a couple girls who just graduated from Hercy High in 2013 and are now in college. They've been best friends for over a decade, their home phone numbers are only off by one digit (the last one), and they come down to the river when they're stressed and want to clear their mind. There was also another pair of people down there that were interesting but I didn't get the chance to speak with them. I may have to revisit the waterfront again. There was also some men who were loading a boat

out of the water, I suspect they were fishing. It may be easier to get someone to take me across the river in a boat then to drive all the way around.

After leaving the river I drove to a Bates Memorial Park, which is currently undergoing lead contamination remediation. They are tearing up all of the dirt, about one foot deep, and I'd say they are about 2/3 done with the job. Then they have to bring dump trucks in and replace all the dirt with clean dirt. I hope that I can find someone who's having the dirt in his or her yard remediated to photograph. Probably will need to speak with someone at the EPA to find out about that or simply stumble across it by talking with residents.

I made an appointment to go by the Missouri Mines Historical Site Mining down in park Hills and chat with the director of the museum there, Art. He's supposed to be an interesting character and really gung-ho about the museum and site. Possibly someone interesting to interview.

When I got home I ended up chatting with some neighbors in Festus who gave me a lot of great local information as well as promised to put me in touch with someone at Doe Run who could help me get access from higher up as well as a man in Festus who used to work at the smelter until the strikes in the 90s.

September 6, 2013 – Day 18, Old Lead Belt

Today was a really eventful day. I visited the Old Lead Belt for the first time, driving down to Bonne Terre with the initial idea being that I would meet Doug Goergens who owns the Bonne Terre mine and runs the scuba diving there. However, I ended up getting caught up with some other things so didn't get to the mine until they were closing.

It didn't matter, however, as Doug was not in today. I'll give him a ring tomorrow and see if I can stop by on Sunday (it's supposed to rain on Sunday, so visiting the mine then might be a good idea). However, I did meet a mine tour guide when I stopped by the mine and he was friendly and welcoming.

Bonne Terre is an interesting little town. The historical center of the town is not on Highway 67 and so the old commercial area is all but dead. Near the highway exit is a car dealership, gas stations, convenience stores—the works—but once you crest the small hill and then descent into Bonne Terre proper there's nothing really. Very depressed. I first met a Lutheran minister who was updating the announcement board in front of his church. The church dates back to 1918 and was built by Slovic immigrants who worked in the mine. Later, some German immigrants arrived in Bonne Terre, also to work in the mine, and eventually the both shared the church having services in different languages at different times of days. When the final Slovic immigrants decided to leave they deeded the church to the Germans.

Just driving around Bonne Terre I stumbled across the Lead Belt Golf Course, which was constructed and paid for by the St. Joe mining company back in the 1940s. The woman working there, Paula, was very friendly, let me borrow a golf cart and drive around the course, but said I would have to speak with the manager before taking pictures but that it probably wouldn't be an issue. I hope to return Saturday when they plan to host a tournament. From it's elevated location, the course offered a nice view of a chat pile as well as the town of Bonne Terre and a water tower in the distance.

I also met Fred McDaniel who was there golfing. He's retired, used to run a hospice care facility in near Jeff City, but grew up in Bonne Terre. Born in 1943, his dad

worked in the mine until it closed. Really friendly and was happy to speak with me and invited me to talk to him again and he said he's show me around Bonne Terre and show me where the old mining buildings used to be. He returned to Bonne Terre to take care of his mother who died of lung cancer.

After Bonne Terre I drove down to Park Hills, only about 15 minutes away, and kind of explored the area there. The downtown commercial district there also had its vacant storefronts and out of business businesses but for the most part was much more lively than Bonne Terre, many businesses in a much larger downtown area. I met a young, 18 year old named Scott Swan who was just hanging out. He said he had just moved to Park Hills from Farmington and that he was looking for a job. He lost his old job at Taco Bell four months ago because he showed up to work 15 minutes late. He got his GED 2 years ago and moved to Park Hills with a friend of his who's using his disability check to pay rent on their two bedroom house priced at \$450 a month. He never knew his parents, was in foster care the first year of his life and then raised by his grandmother. On his right forearm he has ReLentLess tattooed. I asked what it meant, he said "to never give up." I asked him if he had a dream or something he was passionate about and he said no. Later a friend of his walked over, she was very friendly. They both were very friendly. I will probably follow up with him, he may be a good subject for a picture story.

When I was talking to the Lutheran minister and asked him to describe the community, he said the community was very economically depressed, more Baptist and Pentecostal, and not very well educated. He said that the community was mostly older people who were retired or on disability or just living on much less. That there was no

opportunity for young people, no real opportunity. Scott is a perfect example of this. He's had a rough life, very little opportunity, and that only breeds less and less opportunity. At the same time though, he seemed happy, or at least not depressed.

I also got a call back from Doe Run today. I spoke with Jay Doty who works in the community department, whatever that means. He was returning my call from the other day to Kevin James, who John Weber at US Fish & Wildlife set me up with. He was friendly with me on the phone, was patient in listening to me talk about my project, but made it very clear that Doe Run will not cooperate or give me access in any way. When I suggested simply photographing lead ingots he said no. This is a disappointment but not unsurprising. In fact, it allows me to not worry about access and to just focus on what I can photograph.

September 6, 2013 – Day 19, Taum Sauk Mountain

Today was an okay day. I made a few calls to try and make arrangements for the weekend and then drove down to Ironton to check out Taum Sauk Mountain, the highest point in Missouri. On the way I drove through Farmington and Ironton, as well as the very small town of Doe Run. I definitely need to go back to all of these towns and spend a day or two just wandering around them and meeting people.

Taum Sauk Mountain was good, but not quite as good as I had hoped. I was hoping from the lookout tower, which they use during fire season, that I would be able to see far enough west to see some of the tailing ponds in the Viburnum Trend, i.e. the New Lead Belt, but it wasn't quite elevated enough. What can you expect from a mountain

that's only 1,600 feet above sea level. I photographed sunset from the top of the lookout tower with pretty amazing views west, northwest.

On the way back to Festus I stopped at a dirt racetrack in Doe Run and made a few pictures. It was very dark, so it will be interesting to see what comes of it. Met a father who was there racing with his two daughters, age 7 and 11, as well as the grandfather. Really nice family. From Barnhart, Mo, which is incredibly close to Festus. There is also a dirt track in Herculaneum, I suspect they race there as well.

September 7, 2013 – Day 20, Park Hills

Today I got a late start and spent most of the day driving around and meeting new people. It ended up being a really productive day.

I started the day out heading to the Leadbelt Golf Course in Bonne Terre to photograph there. They have a golf course sign and map at the first hole that I wanted to photograph, but I'll probably not be happy with how it turned out. Also photographed the large Chat Pile that is adjacent to the golf course, but again, I'm not sure how interesting it is. I feel as though I'm trying too hard to make pictures and as a result they will end up a bit too on the nose. The highlight of the golf course though was meeting a handful of ladies who were organizing the tournament that took place today to raise money for a homeless shelter, Shared Blessings, in Bonne Terre that they started a few years ago. The shelter is 100% supported by donations and has 40 beds and was opened in 2009. Shelly Bess is the director of the shelter, and Linda Dickerson is the executive director of Habitat for Humanity in St. Francois County. The ladies were super sweet to me but also real, I will definitely revisit them and visit the shelter. Could be very

interesting. They also introduced me to a gentleman, Bill Bunch, who's lived in the area his entire life and works for East Missouri Action Agency that runs Head Start, HUD, and other programs. He agreed to meet with me in the future and talk with me.

They also suggested I check out Elephant Rocks, an old quarry with large limestone rocks jutting out, near Ironton and Arcadia. Also suggested checking out Ford Davidson, one of the bloodiest battles of the civil war was fought there apparently, the mural on the right as you enter Ironton is of that battle and illuminated at night. Also right behind the funeral home in Bonne Terre is the old entrance to the Bonne Terre mine where they would lower donkeys and other tools into the mine. Said that the economy in Bonne Terre shifted to the prison but that none of the prison workers live in Bonne Terre, that they commute in.

I have a meeting with Art Hebrank already set for Monday morning, but was driving past thought I'd just duck in and say hi. He seemed friendly, though mentioned off the cuff that if I wanted to photograph inside the old mine buildings I would need permission from higher up than him.

I went by St. Joe State Park to find out about photographing the off road vehicles there and the people who drive them. The woman I spoke with, Krista, was super friendly and helpful, even offered to let me use one of the park's mules to get around. This of course is not a real mule, but rather a buggy of some kind, which she corrected me when I said I was allergic to horses. They got a good laugh out of that. I arranged to go back on Sunday, although if it rains and there's no dust kick up it may not be ideal. I'm really hoping to get good photos of all the dust from the vehicles.

I then drove around Park Hills and explored a bit. There were plenty of people out on bikes and what not. I found a large Chat Pile there and made some pictures. They're currently using the chat to manufacture sand or something to add to pavement. I should go back during the week and see if I can photograph the pile with machinery working it to give it scale. I also photographed the larger Buckley Chat pile. While leaving Park Hills I photographed this gas station at dusk and met this woman, Monica, who was super friendly, grew up in the area but left for college and only recently returned to help her mom with her restaurant. But now's she back living having fallen in love with man and marrying him in June. She has two boys, whose father was stalking her at one point. She's lived in Park Hills now for 2.5 years. Was born in Bonne Terre. Is 36 years old. She said 73% of kids in the area take pills to combat levels of lead in the environment. That the medium income in St. Francois County is \$13,000. She said lots of meth. They only use regular water for showering and laundry, otherwise drink filtered water and give bottled water to their dog. Her mom, Patty, owns Crossroads Steak House in Bonne Terre. She was open to me visiting with her again, she was open, very friendly, and thought the story about the lead was very important to share.

The Missouri Mine Museum is having an "open house" for the mine on September 14 from 9am - 4pm. Not sure exactly what this is, but could be interesting if they give you access to inside the old mine buildings.

- Scheduled a meeting with Fred McDaniel for Monday at 2pm.
- Scheduled a meeting with Earl Faircloth for Sunday at 4pm.
- Scheduled to shoot at St. Joe State Park at 7:20am on Sunday, Park Rangers will give me motorized cart to drive on sand dunes with.

- Schedule a meeting with Art Hebrank at the Museum of Mines for Monday at 10am
- Statue of Liberty Statue in Park Hills on Countryline Lane
- “Unusual” house with flags on the nearby, perpendicular street
- On the corner of Business 67 and Chestnut in Deslodge is a house that had a bunch of young people outside of it. Worth following up on.

September 8, 2013 – Day 21, Earl Faircloth

All I did today was meet and talk with Earl Faircloth. He is 96 years old, was born just south of Bonne Terre on a farm, and worked for his entire life for the St. Joe Lead Company. He worked in employee relations, it was as a surface job, but often traveled down into the mine for work. He was very forthcoming and interesting and incredibly sharp regardless of his age. Incredible memory. Probably knows more about the mining that occurred in the Old Lead Belt than anyone else I will find. We talked at length about his job, the technological advances and changes that occurred from 1870 until the closure of the Bonne Terre mine in 1961 and the closure of the Park Hills mine in 1972. He also talked about how the St. Joe Lead Company did a lot to help employees, he was very supportive of them, and thought that all the remediation efforts these days are bullshit. That’s the word he used. He talked about the chat piles in an affectionate way, much like I’ve been told people often do. He was fantastic.

After St. Joe left he worked as a tour guide in the Bonne Terre mine for a while until he could no longer travel up and down all the stairs you have to go up and down in order to go into the mine. Now he’s fully retired but still totally able bodied. His wife of

71 years died three years ago and now he has a new girlfriend and they live together in Terre du Lac.

September 8, 2013 – Day 22, Mineral Museum

Today was an excellent day even though I only made two photographs. Learned a lot. I spent three hours in the morning visiting at the Mining Museum in St. Joe State Park. I met with the director of the museum there, Art Hebrank, who's been working there since they opened it 19 years ago, and has been the director for nearly the entire time. He's 71, a rock science nerd, and very much into mining and the history of mining the area. He was friendly and open with me and talked at length about many different subjects. Much luck many of the miners and locals who had family that worked in mining and grew up with St. Joe Lead Company, he was very defensive of the mining company.

I learned some really interesting things. For example, apparently the mill that was located at the now location of the museum (the old buildings are still standing though rusted out) used to have it's own coal power plant that provided all the electricity to the mill and the surrounding city. This is in the 1920s. In the late 20s they decided it was too much for them to continue to generate their own power and went to Union Electric to ask them to produce the power and they would buy it from them. This lead to the final construction of Bagnell Dam, creating the Lake of the Ozarks. I'm sure there's more to it than that, but in a way it's amazing to think that lead mining and its electrical needs lead to the dam.

The museum is a fascinating place with incredible, incredible displays. The graphic design of them and how they're put together is impeccable. I unfortunately ran

out of time but will return to make some pictures. On Saturday they are having an open house with old retired miners that used to work in the mine before it was closed in 1972. That will be a great opportunity to meet more people.

In the afternoon I met with Fred McNeil who grew up in Bonne Terre, his father worked in accounting for the St. Joe Lead Company, and although he spent most of his life not living in Bonne Terre (bouncing between Jeff City, Columbia, and Farmington a few times) he returned in Bonne Terre in the late 1990s to take care of his ailing mother. We talked for a good amount of time and he drove around Bonne Terre pointing out landmarks, original buildings built by the lead company, and other details and memories from his childhood. It was really informative. He also had a really balanced view of the company and the history.

September 11, 2013 – Day 24, Joe Holloway

Today I sort of just drove around and looked for pictures and people to meet. I ended up stumbling across Jesse Holloway and his grandfather Joe Holloway in Park Hills. Jesse was fixing the axel on his Fort Escort in his grandfather's driveway and later I met his grandfather Joe when he came out of the house. Joe used to work for St. Joe lead company before they closed the mine in 1972. He worked there for about a decade as an underground electrician in a machine shop. They had 260 miles of underground trolley track. He said he really liked the job. It was always cool underground and very very dark where they weren't any lights. After the mine closed he said that many people moved to work over in the Viburnum Trend, but that he worked for Crysler for a while and then for Union Electric before retiring. He had a heart attack ten years ago but is now

doing fine. He was super friendly and easy going and accommodating. Would probably make a great interview subject.

I also photographed in the Crossroads Steak House in Bonne Terre, boy am I glad I don't have to work in a place or frequently go to a place where people can smoke inside. It's awful.

September 16, 2013 – Day 29, Scanning

Today was an incredibly busy day. Back in Columbia for a couple days for housekeeping and a few other things has been nice but in all honesty I'm happiest when I'm out in the field every day taking pictures.

I sat down and scanned all 27 negatives that came back from New York. That took a few hours but they seemed to come out nicely. The scanner is quick, less than two minutes to scan a 4x5 negative, and it's relatively easy to get the whole process underway. Way easier than wet mounting.

I also packaged and dropped off the next shipment of photographs to be sent to New York so that I'll be able to pick them up and scan them next Monday before heading out to MPW in Trenton.

September 17, 2013 – Day 30

Today I drove back to Festus from Columbia after being in Columbia for a couple of days. I was able to also figure out what kind of wired lav mic I would need for my interviews and ordered it online, it should arrive next week. I began editing the negative scans too, but only made a small dent in that.

September 18, 2013 – Day 31

Today I completed editing the first batch of scans and uploaded them to this website.

September 21, 2013 – Day 34

Today I met with Edward Pinson at his home and talked with him about his time working in the mines. I met him at the open house at the Missouri Mines Museum last weekend. I also drove around Leadwood familiarizing myself with the area for a return trip as well as Fredricktown.

He was born in what is now Park Hills in 1939 and quit school at 13 to work in a bakery goods factory to help support his family. Including himself, his parents had 11 children. He later moved to St. Louis for another job doing something similar, preparing frosting at a bakery supply company. He said he had to leave and move to St. Louis because there were not enough jobs. However, after getting married he returned to the area he grew up in in 1966 in order to work in the lead mines. He said he didn't want to raise his kids in the city and even though he didn't want to work in the mines it was his only option. His father worked in the mines and died young.

He worked in various lead mines from 1966 until 1999. He worked in the Federal Mine, which was eventually entirely acquired by the St. Joe Lead Company, probably before he started working there, and was shut down in 1972. Afterwards he worked in various mines all over the old lead belt and even the newer trends. He described himself as a troublemaker and said that he would often get in arguments with his supervisors and

other workers that would cause him to seek job transfers or be forced to transfer. He quit working in the mines in April of 1984 during the labor strike and didn't work again in the mines for three years. During this time he worked for a steel company.

Only later did he reveal to me that his whole life he didn't know how to read or write. He realized this around the 4th grade. He can read his name and numbers and some things, but mostly cannot read. Similarly, he cannot write. He said oftentimes supervisors would be upset with him for not following directions or keeping detailed notes and he would often argue back not wanting to reveal that the problem stemmed from him not being able to read. He said that when he was a kid he crashed his tricycle into a parked car and suffered some head trauma and that he thought that may have been the cause of his learning problems. I wonder if he was perhaps dyslexic or something and just never received the help and attention he needed.

Currently he lives north of Farmington and east of Park Hills where he grew up and lived most of his life. On his property is an old house that dates back to 1862, pre civil war, and was lived in by an older gentleman until 1997, at which point he died and Edward and his wife Judy bought the house to have more privacy. They have about 12 acres of land where they live now. The house is interesting in that it's very old and falling apart and abandoned, but not completely decrepit yet. Electricity was added in 1941 and they ran light fixtures and cables exterior to the walls and ceiling because it would have been too much trouble to tear the walls apart.

He and Judy have two sons, both older now and unmarried. His one son Jeff works for the state water department and his other son Bill used to drill water wells all

over the country but now works for a company that drills surface level holes for foundations.

He had a heart attack in 1999 and put in for his pension from Doe Run and was fearful that at his age of only 59 he wouldn't get his pension. He is currently suffering from kidney and lung cancer but is as active as he can be and articulate. But it worked out. His wife worked for a long time at a payday loan place, but no longer works. She was very friendly.

I drove through Fredricktown just checking out the downtown area and looking for Mine La Motte, where the very first European lead mining operations took place. There is a small place along the highway that was built in 1930, otherwise the area is just filled with rolling hills, farmland, and grazing pastures. The mining that began there in the early 1700s was all surface mining.

I decided to drive through Park Hills and drive around Leadwood a little bit on my way home from Fredricktown. Leadwood had a large mining operation that coincided with Bonne Terre and Federal Mine, but I believe lasted a little bit longer before being shut down. The area has an incredibly large area that used to have a massive chat dump that is currently being remediated. The chat pile has been significantly flattened and covered in thick gravel, however, the area set aside is very large and has a good amount of vegetation growing on it.

The town of Leadwood is nestled up next to this large, off-limits area and sits atop a peak with a few rolling hills. It's small, only a thousand people or so, but with its own city hall, middle school, high school, and police. Between Park Hills, Desloge, and

Leadwood I have seen a number of confederate flags and KKK flags hanging in front of people's homes. I have also seen very few black people living in these areas.

October 1, 2013 – Day 44, Keith Kinnard

The last week was spent in Trenton, Mo. with the Missouri Photo Workshop. It was a great experience and was a nice break from things. It was good to be around people again for a while. Although I'm happy to get back to my project. Just need to get back into the hang of things.

Tonight I met with Keith Kinnard, a third generation lead miner who currently works in the mines operated by Doe Run in the Viburnum Trend. John Weber with the USFW set me up with Keith and he's fantastic. Really friendly, open, and honest. I met him at his home near Leadwood, Mo. Where he grew up. Leadwood used to be a booming lead town and now is pretty defunct as it sits adjacent to a huge chat dump and EPA superfund site.

Keith talked with me a lot about his family history, his family, and his work at the mine. He did not start working in the mines until 2006, he used to live in Texas for a while and it wasn't until he got divorces form his first wife and moved back to Missouri did he start working for the mines. He lives at the end of a very long dirt road with a dozen acres, a couple dozen guns, and an above ground pool. His wife, daughter, son-in-law, and grandkids that I met were all nice.

Will have to go back to make photographs and interview him.

October 9, 2013 – Day 52, Bismarck

Today I drove down to Bismarck, which is southwest of Park Hills. It's still in St. Francois County but a bit out of the Old Lead Belt area. I spoke with some nice ladies who worked in City Hall and they photocopied some historic documentation about the town. They said it's been slowly shrinking, however it seemed to be in a lot better shape than say Bonne Terre.

A train pulled into town while I was there, stopped for a while, and then left. I spoke with a conductor or engineer who said it goes in a circle between St. Louis, the boot heel, and Bismarck moving coal around. The train was currently empty but hundreds of cars long.

Although these towns on the perimeter of the Old Lead Belt, Bismarck, Farmington, Ironton, Doe Run, are related to a certain extent they are also a bit out of the focus of my project. They're interesting and I simply wish I had more time to be able to explore this area.

I also met two skateboarders early today in Park Hills, Richard and Andrew Clark. Both were interesting, but Andrew was particularly interesting. He's 20 years old, just enlisted in the Navy, and is going to be leaving Monday for basic training. He agreed to let me meet and interview him tomorrow. It will be good to get my first interview out of the way and he seems like a low-pressure interview subject to start off with. He said he has no problem being on camera.

October 10, 2013 – Day 53, First Interview

Today I met up with Andrew Clark at his home in Desloge to conduct my first interview. As I started to get close to his house I suspected that he lived at this house I

had been eyeing that at one point I saw a bunch of kids hanging out in front of. And it was his house. It seemed like a house where a lot of 15-25 year old outcasts lived and hung out together when I saw it before. I was mostly right once I got inside. Andrew's mom and step father owned the home and live there, but they seemed to be open to letting pretty much anyone else stay there who needed to.

The interview went fine. Andrew is an interesting character who simultaneously hates the KKK but also thinks black people shouldn't come visit their relatives in the prison in Bonne Terre and just stay in St. Louis.

After the interview I gave him a ride down to the Farmington skate park.

October 21, 2013 – Day 64, First Interview Transcribed

About a week ago I conducted my first field interview. It was with Andrew Clark, a 20-year-old resident of Park Hills who is joining the Navy. He is a very interesting character. Grew up in the area, addicted to pills in high school, kicked the habit, now skateboards all day. He has little options because he nearly flunked out of high school so is joining the Navy.

The interview went well and today I imported it into my computer, synced the audio to the video, and transcribed the whole thing.

November 1, 2013 – Day 75, Interview Day

Today was a maddening, overwhelming day. I conducted three interviews today, one with Fred McDaniel, Earl Faircloth, and Bob Thompson. Fred McDaniel was raised in Bonne Terre and his father worked for St. Joe. He left Bonne Terre to work in

Columbia, Jeff City and Farmington during his career as a hospital administrator and state employee. He's wonderful and really interesting. He was the first person I met who had first hand experience with St. Joe that wasn't a die-hard loyalist.

Earl Faircloth was great to talk to again, but old. I can't believe how sharp he is for 96, but at the same time he's old.

I had Bob Thompson yesterday when I stopped by his photography studio in Park Hills and asked if I could interview today. He said sure.

The interviews went well but were exhausting. I don't know how I'm going to do a dozen of these and video record them all. I think I may have to stop shooting video.

I turn 30 tomorrow.

November 14, 2013 – Day 88, Shooting Large Format

I met with my committee earlier this week and they looked over the first couple batches of photographs. Their feedback was super helpful and will help guide the rest of my photography for the project. Dr. Perry also gave some good feedback about the interviews.

David Rees wanted me to write a post about shooting large format and why I had decided to use it and to show some photographs of the process. I'll take some photos in the coming weeks and add it to this post.

Why large format? I really loved shooting medium format in Plato when I was doing my work down there and after that wanted to experiment with large format. Last semester I did some black and white 4x5 work in Fulton and kind of learned the bare mechanics of the camera.

But for my master's project I felt like if I was going to shoot more of an essay rather than picture story I might as well use a medium like 4x5 to really get the full experience. So many photographers I admire and whose work I find compelling and interesting use the format and so I wanted to really dive in and try and do this project with it.

The quality of the images and the detail is fantastic, but I also love how it slows me down and forces me to really engage with my subjects. Although I can now set up and make a picture fairly quickly, the process is still a lot slower than a 35mm DSLR. It also requires a lot of equipment.

The routine I have down now that seems to be working for me is that I have a milk crate in my trunk that has my camera, two lenses (a 150mm and a 210mm) with shutter release cables already attached, a tripod already extended, and a dark cloth in it. Around my neck I'll carry a loupe and strapped on my belt is my light meter. If I happen to be driving around and see a photo I want to make, it doesn't take me that long to pull over get the camera onto the tripod with a lens attached and make an image. However, that rarely happens. Usually what I'll do is either park and engage with someone and then once I ask to photograph them I'll go back and get my camera or I'll simply set up my camera and then walk around with it on my shoulder as I explore an area.

People are often pretty inquisitive about the camera, but in a friendly way. I haven't had anyone really bother me yet.

One of the hardest parts is pulling accurate focus. Sometimes it's a piece of cake and other times it's really tough. If there isn't much light it can be really difficult. I also think my breathing was fogging up the loupe at times and making it harder so now I'm

more conscious of this and try not to breath when I'm focusing, or at least not breath on the loupe.

Exposure is pretty straightforward with a light meter, however, exposing at night or in weird situations often is challenging and forces me to really kind of wing it.

November 18, 2013 – Day 92, More Interviews

Today I interviewed Art Hebrank at the Missouri Mines museum. I knew that when I interviewed him it would take a while, I'm not going to enjoy transcribing this one, he goes on and on.

Also, yesterday I tracked down Jesse Holloway and did an interview with him. Went well. I couldn't believe it when he told me that he has a CCW permit and carries a gun with him pretty much everywhere. But then again, why was I surprised.

November 21, 2013 – Day 95, Hunting Trip

Just returned from a two day hunting trip with Keith Kinnard near the Black River. It's a river that runs near the Arcadia Valley in Iron County. Although we didn't see or kill any deer it was still an interesting experience and hopefully a picture or two came out of it. Keith is a third generation lead miner, grew up in Leadwood and still lives there today. The cabin we stayed in belonged to his son-in-law. It was a weekend filled with lots of beer drinking, chain smoking, and good old boy chitter chatter.

Unfortunately, I accidentally re-exposed one sheet of film while taking them out of the film holders this evening. I'll still have it developed, maybe something will come of it.

While we were on the trip, Missouri executed white supremacist Joseph Paul Franklin at the Bonne Terre prison. I had heard about his execution in advance because of the whole Larry Flynt side of the story, but didn't realize it was going to take place at Bonne Terre. In thinking about it now it makes sense, but at the time I just didn't put two and two together. Anyway, it would have been fantastic to make a photograph of the prison with all the news trucks in front of it on the day he was executed, but that wasn't possible as I was deep in the woods hunting. I'm still trying to figure out how to make a picture of the prison that makes sense. The people that I have spoke to at the prison have been polite but not super helpful, they'll probably just string me along until I run out of time. However, today I was thinking about photographing the view from the prison, across the highway K from the prison is one of the most pristine old red barns and fields you could ever set your eyes on. It's an interesting juxtaposition.

November 2, 2013 – Day 96, Interview with Principal Brad Coleman & Bonne Terre Mine

As I have been conducting more interviews and talking with more people in the area they all keep mentioning how good the Park Hills School is. Today I finally was able to set up a meeting with the Park Hills high school principal Brad Coleman. He's the principal at Central High School and has been living in the area for 12 years. Interestingly enough he was brought into the area to overhaul the school and bring it up to par with the state standards. It seems he's been able to not only do that but also turn the high school into a national ranked and high achieving school.

Our conversation was great, and inspiration. I couldn't believe his charisma and dedication to his job. He made me want to go back to high school as either a student or as a teacher. He's from Texas and later on the drive back to Festus I realized he reminded me of Coach Taylor from Friday Night Lights.

Next week I plan to return to make a few pictures in the school, but I'm really glad I was able to interview him for my project.

I was also finally able to photograph in the Bonne Terre mines today. I got to the mine early in the day, left a message for the owner as well as called his office and left a message for him there. Within a couple hours someone called me back and was like, come on down, you'll have to pay \$20 again to get in but you can take pictures. What a scheming slime ball. I already paid once for the tour, no wonder people in the community hate his guts.

The girl who escorted me around the mine was I was taking pictures was nice but brand new. Apparently Mac has left now and moved onto a sailboat with his wife and is retired. As she was walking around she expressed her interest in learning to scuba dive and I suggested that Doug the owner would probably give a discount to learn. She said no he wouldn't. What a jerk.

The photos in the mine were a disaster. They'll probably come out and be fine, though I was guessing a bit on the exposure. But as soon as I got down there my lenses fogged up big time. It took 30 minutes for them to defog. As soon as it happened I realized that I should have seen it coming. I should have realized taking a lens from a 30-degree car drunk down into a 67-degree humid mine would cause it to fog up.

November 25, 2013 – Day 99, Deer Processing

I was hoping to be able to photograph Keith Kinnard last week disemboweling a deer after he shot it while hunting, but he never saw anything. He had mentioned that his cousin or brother was a taxidermist in Leadwood, while driving around I found his shop and next door was Dale's Deer Processing. I stopped in today and met Marvin Dale, a retired potato chip salesman who processes about 200 deer every hunting season and makes his own deer sausage. Amazing guy really interesting to see them skin and chop up the deer. The scraps they send to a Missouri tiger reserve.

November 26, 2013 – Day 100, Cassandra Benton

It seems that luck finally struck at the very end of this project. Yesterday, Jason Gunter of the EPA finally got back to me. He told me that there were three houses that had recently been remediated by Doe Run in the last couple of weeks but that he couldn't tell me the addresses until he checked with the legal department. He said he would be able to get back to me in a day or two. This morning he emailed me the addresses of the three houses and first thing this morning I swung by the first house in Bonne Terre to find that someone was home, what luck.

I knocked on the door and young woman answers. Cassandra Benton. She's 22, didn't grow up in the area but moved there when she was in 7th grade and attended middle school and high school before getting pregnant and graduating a year early from high school. She moved around a little bit after school but recently returned to Bonne Terre to live with her grandmother and attend nursing school at MAC. Her four-year-old

daughter tested off the charts for blood lead levels and thus they had to have their yard remediated.

Cassandra was super friendly and let me interview her on the spot about Bonne Terre. She also agreed to let me come back later in the day and photograph her with her daughter in front of her home.

I returned in the afternoon and made the picture, along with their family dog who was responsive for tracking in the contaminated dirt. I had wanted to make this picture for the past 100 days and finally it all worked out so easily. Thank god.

November 27, 2013 – Day 101, Final Photographs

Today I got up early to make my final exposures. Tomorrow is Thanksgiving and it's important that I get this film in the mail to New York before the holiday if I have any of hope of getting the negatives back before my defense.

In the late morning I took a panorama of the Federal Mill in Park Hills. I wanted to get up to make the photograph at sunrise but my exhaustion got the better of me. This is when it would have been so nice to have been living in the Park Hills area rather than 30 minutes away in Festus.

After that, I zipped down to Glover, Mo. to photograph the closed smelter there. I'll have to do some digging as to when it closed, but Keith Kinnard said it is now being used to store supplies from the other mines.

I decided to make one last exposure of some sedimentary layers in Park Hills and then it was off to the Festus post office to drop 65 negatives in the mail. This is the largest batch I've sent to New York yet. This 4x5 stuff is expensive.

December 1, 2013 – Day 105, Transcribing Complete

I returned to Columbia yesterday from Festus. It was both relieving and somewhat sad to pack up all my belongings and say goodbye to Festus (and Joey, my roommate's dog there). Over the past few days, including all day today, I've been working on transcribing the remaining interviews I collected. It's been a tedious bit of work but it's finally done.

Now I just need to write up the report and I get ready for my project defense.

Chapter Three: Evaluation

This project was a huge undertaking and I am very pleased with how things developed throughout the process and the final product. From the very beginning I strived to have a professional component and research component that complemented one another and ultimately I feel the two dovetail nicely, significantly increasing both the quality of each part of the project as well as increasing my knowledge and understanding of the Old Lead Belt.

From the outset my committee suggested I narrow the focus of my project from the entire lead mining industry to a more manageable subset of the industry. Within the first month of my fieldwork it became apparent not only that this was necessary for me to be able to complete the project on schedule, but also necessitated by the type of access I was able to negotiate in the area. Additionally, this made the most sense considering what aspects of the project most interested me. In focusing my work on the Old Lead Belt—the communities directly surrounding Park Hills and Bonne Terre—I was able to explore the subject matter at a depth that satisfied both the needs of the project as well as my curiosity.

The decision to use a large format camera for the professional component of the project was at times challenging; however, it was by far one of the most rewarding aspects of the project. Previous to this effort my experience with the medium was limited and after this project I feel at ease behind a large format camera. This photographic approach, although more expensive and time consuming than other photographic mediums, had a positive influence on both the photographic process, forcing me to think much more critically about the images I chose to make and to engage more deeply with

subjects, as well as the final images. I look forward to utilizing the medium in future projects. I also anticipate that as I return to using other photographic mediums in the future this experience will have a significant and positive influence on how I approach image making.

Although I am proud of the photographs I made for this project, I feel I could have improved the work by simply putting myself in more situations and pushing the envelope further with subjects. In very few instances were my requests or inquires rebuffed, rather the opposite was true, residents welcomed me with curiosity and kindness. There were photographic opportunities I missed because I was simply too scared to approach someone or ask permission to make a picture, and although I feel this is a natural human response it is something I need to overcome as a photographer. Part of the challenge is simply overcoming the fear of rejection; however, another internal challenge I face is overcoming a nagging feeling of exploitation and guilt that haunts the back of my mind. Recently, and particularly during the course of this project, I feel as though I have been locked in an internal struggle regarding the motivation of my work. Is it driven by the subject matter or is it driven by my desires? And although I feel sincere in the interests and efforts that brought me to the Old Lead Belt, I fear that my passion for creating work at the highest level possible at times overwhelms the desire to benevolently tell the story of whatever happens to be in front of my lens. Most of the time I see the people, places, and things I photograph as real people, actual places, and physical things; but as I try and conceptualize the project and push myself as a photographer I frequently find myself objectifying what I am photographing, thinking of it as simply an element

of my project, and trying to figure out how I can best utilize it to further my efforts in making great work.

The decision to live in the area was probably one of the best decisions I could have made. Not only did it make working on the project logistically possible, but it also isolated me from distractions and kept me focused 24/7. In hindsight, I wish I had been able to live in Park Hills rather than Festus, as I ended up not including Herculaneum (which is adjacent to Festus) in the project and Festus was a 25 minutes drive from the heart of the Old Lead Belt. As the project developed I tried to spend more time thinking about time of day and how to best photograph particular locations based on quality of light and weather. As the project continued I found myself seeking out photographs, setting up my camera and waiting longer before making an image than I did at the outset. Arranging the nouns, anticipating the verbs. In reflecting on all the places I visited and all the photographs I made, I feel as though most could have been improved by revisiting the location at the ideal time of day or under the most suitable weather conditions for that location; but this is also difficult to accomplish and extremely time consuming. I feel I could have excelled in this area more easily if the scope of the project was even more narrowly defined.

The research component of the project was incredibly time consuming. At times it felt as though it was far more time consuming than intellectually challenging; however, it was incredibly rewarding. Although I tried to conduct interviews in parallel to making photographs, it turned out that the majority of the interviews were conducted in the last few weeks of my time in the area. This was unfortunate because the interviews provided a whole new level of depth and understanding that pushed me to want to explore new

areas and ideas with the camera. I was able to re-inject some of this into my photographic work at the very tail end of my time in the field, but not to the extent I would have liked. But at the same time, this made the interviews much more informed because I had been in the area for quite some time.

I found that developing a good interview guide early in the research process was key to conducting quality interviews, as was identifying quality interview subjects. For the most part I met all of the participants through boots on the ground community engagement; however, participants I met directly were far better interview subjects than those referred to me by other members of the community. Although all the participants I were referred to had interesting things to say, it seemed that their responses were less spontaneous and lead to fewer accidental moments of insight. What do I mean by accidental moments of insight? I found that some of the best comments in interviews did not result from direct questions but rather from unsolicited, off the cuff remarks or tangential responses to an earlier question. These poignant insights, willingly offered up by participants, seemed to less readily come from interview subjects that I was referred to. This observation may have no substantive backing whatsoever; however, my theory is that those I was referred to subconsciously felt as though they were experts of some kind, and perhaps saw their role as to simply provide direct answers to my questions, whereas those I met directly and asked to interview may have saw the interview process as more an opportunity to share their experience and point of view.

Although I am much more interested in working as a photographer than a social scientist, my experience with the research component of the project was so valuable that I am certain that I will incorporate the process I adopted for this project in future

photographic works. Even if I do not plan to conduct social science research in future projects, the process of developing a foundation of research in advance, outlining a clear interview guide based on one's research goals, and then sticking to the interview guide and research questions throughout each interview will provide an invaluable depth of information and context for the photographic process. Additionally, in contrast to the conflicted feelings of motivation that often surfaced for me during the photographic process, those feelings never arose during the course of the interview process. In fact, quite the opposite was the case; the interview process reinforced my genuine interest in the subjects and their stories, squelching any concern I had regarding exploitation.

Ultimately my goals with this project were to learn as much as I could about the Old Lead Belt in order to both satisfy my curiosity and to create work that communicates the legacy and importance of the area. Although I am proud of the work and feel it is successful, I cannot help but feel as though there is so much more to learn, explore, and photograph. One could easily spend twice or three times as much time as I did in the area, talking to more people and making more photographs; however, probably the most important lesson this project taught me was how to conceive of a project in an advance, execute that project, and bring it to completion. I am certain that no matter what projects I undertake in the future, they will always tempt me to work on them longer and in more depth than to bring them to completion. In this regard, this project has been a success.

Chapter Four: Physical Evidence

Photographs

Please refer to PDF file *Good Earth* within the media folder to view the final set of photographs that fulfill the professional component of this project. Per discussions with committee chair David Rees this PDF of images should fulfill the abundant physical evidence requirement for this master's project.

Furthermore, you may peruse the Meta-Data for Photographs included in the appendix of this report.

Chapter Five: Analysis

Introduction

Lead mining in southeast Missouri in the area known as the Southeast Missouri Lead District is more than just an industry; it is an engrained and defining aspect of the environment and community. Although he could not have realized it at the time, when French explorer Philip Francois Renault discovered high concentrations of lead in the region in 1719 (“History of Lead Mining in Missouri,” 2002) he had stumbled across the highest concentrations of lead in the world (Seeger, 2010). Mining commenced the following year and has continued unabated for nearly three centuries, arguably becoming the most significant force that would come to shape and define the region. Presently, lead mining is ongoing in the Southeast Missouri Lead District in the subdistrict know as the Viburnum Trend, but it is destined to fade, potentially quickly, as various economic, environmental, and social influences alter the landscape, maybe even the existence, of the industry. These events will, undoubtedly, have far reaching consequences within the entire region.

The Southeast Missouri Lead District is a formal mining district that includes the large disseminated lead deposits that occur in the Bonneterre Dolomite Formation in Southeast Missouri. The Booneterre Formation is a roughly 300 foot thick layer of sedimentary rock formed from ancient coral reefs over hundreds of millions of years as ancient seas formed and receded around the Precambrian igneous mountains now known as the St. Francois Mountains. After its formation, lead was entrained in the Bonneterre Formation as mineralizing flows passed through the area (Larsen, 1977). Within the entire area known as the Southeast Missouri Lead District there are four distinct lead

mining subdistricts: Fredericktown/Mine LaMotte, the Old Lead Belt, Indian Creek, and the Viburnum Trend. With the exception of Fredericktown/Mine LaMotte, which is where lead was first surface mined by Renault and then intermittently mined through 1959, each of the subdistricts was mined continuously during progressively overlapping time periods. The Old Lead Belt was mined from 1864-1972, Indian Creek was mined from 1953-1982, and mining in the Viburnum Trend began in 1960 and is still active today (“Missouri Lead Mining History by County”, 2013). As an aside, it seems important to note that lead has been mined in southeast Missouri in other areas, although in less quantity, such as Valle Mines, Irondale, and Shirley-Palmer; however, these lead deposits are not part of the Bonneterre Formation, they are from other deposits, and subsequently not included in the Southeast Missouri Lead District.

The history and legacy of the Old Lead Belt subdistrict is particularly interesting due to its longevity, 108 years, and its development and adoption of industrial mining techniques that enabled mining to expand from simple surface level mines to ones hundreds of feet below the surface. At its inception, numerous mining ventures were concurrently operating within the Old Lead Belt; however, within a relatively short period of time the St. Joe Lead Company acquired every single mining company and mine within the Old Lead Belt, effectively transforming the area into a company town. Five adjacent but distinct towns—Bonne Terre, Desloge, Leadington, Leadwood, and Park Hills—comprise the Old Lead Belt today, with the legacy of each deeply entrenched in the industry of lead mining that ceased operation in the Old Lead Belt in 1972.

This research is focused on the Old Lead Belt subdistrict of the Southeast Missouri Lead District, and how the area has transformed in the four decades since mining stopped.

Theoretical Framework

The 20th century French sociologist and philosopher Pierre Bourdieu introduced the theory of *habitus*, which considers what one does and the actions in which one engages or practices as the defining features of personal identity. It is a useful entry point for exploring the close relationship between an individual's identity and their larger social context, sociologist Silviu Serban (2011) explains:

Habitus is an abstract entity identified within the interval between a bodily and spiritual dimension, and is the *only* possible foundation of individual identity (the practical identity based on *habitus* is the only true identity). The only true knowledge of individual identity can be a sociological self-knowledge of *habitus* [...] for Bourdieu, concepts and theories are not to be objectified, but used to illuminate and explain particular puzzles in sociological analysis (we are deeply marked by the contexts in which we find ourselves) (p. 249).

Bourdieu's theory not only suggests that the lead industry has defined and shaped the communities within the Old Lead Belt, but that the individual identities of community members are intrinsically tied to this industry. This point of view suggests that individual identity has historical roots in the practices of the community and that the future of the community and its members are built on these practices. My question is what happens to a community when the defining practices of the community change significantly or disappear? More specifically, what happens to the individuals in the community,

especially their sense of self, when their livelihood and the livelihoods of all of those around them disappear?

The concept of habitus. Pierre Bourdieu, born 1930, was a French sociologist, anthropologist, and philosopher perhaps best known for his 1979 book *Distinction: A Social Critique of the Judgement of Taste*, in which he argues that the powers within society—e.g. social capital, hierarchical class power, economic power, etcetera—define societal tastes or preferences and, as a result, a person’s own interests are defined by one’s social class or experience with or access to these tastes or preferences in their society. The book was later voted by the International Sociological Association as one of the ten most important sociology books of the 20th century (“Books of the Century,” 1998). This theory on the relationship between societal taste, social class, and individual identity is couched in his broader theory of habitus.

On a most basic level, habitus can essentially be understood as how the broader social context of one’s life has a defining influence on personal identity. As an example, Bourdieu uses habitus to explain how the children of educated parents have higher success rates of educational attainment (Prieur & Savage, 2011). “Cultural and economic capitals create patterns of social differentiation that are linked to fundamental processes of social stratification and inequality” (Serban, 2011, p. 249-250). In Bourdieu’s view, these patterns of social differentiation do not exist solely outside of an individual as a way of grouping community members; rather, community members absorb these differentiations into themselves, incorporating them into their own personal identity or sense of self. Overall, Bourdieu employs habitus to illuminate and explain puzzles of what appear to be voluntary differentiations or distributions among groups in a society

that emerge in sociological research by recognizing that “we are deeply marked by the contexts in which we find ourselves” (Silva & Warde, 2010, p. 2). In other words, we come to inhabit, as the term habitus suggests, our social roles and experiences.

While habitus may seem to suggest that individuals are powerless in shaping their own lives when stacked up against the overwhelming influence of societal context, Bourdieu is also keenly aware of the interplay between large-scale social change and the struggles of daily life (Calhoun, 2012). Habitus is a bidirectional and reciprocal process, individual social action is shaped by social context, but individual action also plays a vital role in defining and reshaping social contexts as these actions are played out in the real world. Thus, habitus is a dynamic process that changes in relation to social, cultural, and economic conditions through the actions of individuals (Glastra & Vedder, 2009). For example, in returning to Bourdieu’s discussion of taste in *Distinction: A Social Critique of the Judgement of Taste*, he points out the cyclical nature of social process in how the reigning powers in a society define the societal context in ways that shape the personal preferences of individuals, who in developing and modifying these preferences, influence how the reigning powers define society. It is important to reinforce the notion that this process is a complex and fluid process with no fixed outcomes. Individuals and society continually create and recreate one another with the goals that organize these transactions typically motivated by local or contemporary needs or concerns rather than deterministic outcomes.

Scholars have used the construct of habitus to understand how individuals and social contexts work together. The social context examined can be large in scope, for example an entire nation or society, or much smaller in size, such as a community or any

type of sustained social group. In the paper “Habitus as Topic and Tool: Reflections on Becoming a Prizefighter”, Wacquant (2011) uses habitus as a theoretical framework for his ethnography of the Chicago boxing gym *Woodlawn Boys Club*. Through the lens of habitus, Wacquant saw the boxing gym as more than a local gathering place. For Wacquant, this gym was a complex microcosm with its own history, culture, aesthetic, social practices, and intense emotional and moral life that defined the individuals who participated in the gym (Wacquant, 2011). For Wacquant, habitus was more than a framework for the research, it “supplied at once the anchor, the compass, and the course of the ethnographic journey [...] it is the *topic* of the investigation” (Wacquant, 2011, p. 81). For example, the concept of habitus states that individuals have various sets of dispositions shaped by their social location and experience in the social context. Wacquant found that these varying dispositions ultimately made a direct contribution to the level of success that each boxer had both in the gym and the ring, and that this success subsequently shaped the reputation of the gym itself (Wacquant, 2006).

Wacquant himself was in constant communication with Bourdieu throughout his research (Wacquant, 2011). Upon learning that Wacquant had adopted the role of participant-observer, a method championed by the American sociologist Erving Goffman, and signed up to learn how to box, Bourdieu sent him an encouraging note that read: “Stick it out, you will learn more about the ghetto in this gym than you can from all the surveys in the world” (Wacquant, 2011, p. 86). This correspondence proved fruitful in several ways and Bourdieu even traveled to Chicago on numerous occasions to visit Wacquant. They ultimately co-authored the book *An Invitation to Reflexive Sociology*, in

which they explore the connection of habitus, social space, and individual dispositions (Bourdieu & Wacquant, 1992).

In reflecting on his ethnography (published as the book *Body & Soul: Notebooks of an Apprentice Boxer*), Wacquant (2011) argues in favor of adopting the role of participant-observer by immersing oneself completely in the subject at hand. However, he underscores the importance of arming oneself with a theoretical framework beforehand so that one may be able to objectivize the experience to some degree, rather than have the experience define the research(er) (Wacquant, 2011). In his research, habitus served this role.

By incorporating the theoretical framework of habitus into my research, along with aspects of its method, I hope to better understand how community members living in the Old Lead Belt identify themselves in relation to this industry. Given that this community was established on a single, historically determined industry, I expect that the individuals living in the region will view their own identity in relation to this industry. However, as the lead industry has moved out of the region over the last four decades, I also expect that it has left behind not only tailings from the mines, but also evidence of its presence in the identities of the people who still live there.

Background Literature

In researching the Old Lead Belt and the history of lead mining in the Southeast Missouri Lead District, three main categories of literature emerged: historical research about the state of Missouri and its legacy of mining, scientific research articles regarding lead mining practices and its health and environmental consequences, and primary source

documents including news articles and publications from within the mining industry (such as business prospectuses and technical manuals). I found no evidence of social science research that examined the influence of lead mining on the communities in the Old Lead Belt. For example, the Missouri Lead Study of 1977—a two volume, eleven hundred page, comprehensive study examining the lead contamination resulting from industrial development in the Old Lead Belt, a volume that is self-described as ‘interdisciplinary’—does not include any social science research or even research discussing the health effects of lead contamination on those living in the Old Lead Belt (Wixson, 1977).

However, social science research examining other communities that have been defined by practices that involve extracting resources from the earth, such as coal mining in Appalachia, have been done. Although this kind of research has not been conducted in the Old Lead Belt, examining past research in similar and parallel American communities is valuable as a guide for this research.

Historical context of lead and the Old Lead Belt. Lead is a chemical element and malleable metal. It is a member of the group of heavy metals alongside other metals such as iron, cobalt, copper, mercury, and zinc. Some heavy metals are required by living organisms in small and varying levels to survive, for example, human beings require small amounts of iron and cobalt, whereas, other heavy metals are severely toxic, such as mercury and lead, to living organisms. Even in small amounts some heavy metals, such as arsenic, cadmium, lead, and mercury, can pose a significant health risk due to their tendency to bioaccumulate and biomagnify within individual organisms, ecosystems, and food chains.

Lead has been used for thousands of years due to its prevalence and malleability. Lead jewelry in the form of beads dating back to 6400 BC has been discovered in the region of modern day Turkey (Heskel, 1983). The earliest large-scale lead mines date back to 3000 BC (Lubick, 2008). The Roman Empire was the first society to use lead widely, most prominently for indoor plumbing, and it was the largest preindustrial producer, generating an estimated 80,000 metric tons of lead a year, mostly as a byproduct of smelting silver (Callatay, 2005). Roman vintners also used lead as an additive to balance wines that were deemed too acidic or to sweeten wines that had begun to turn into vinegar (Gough, 1998). Despite causing low grade lead poisoning that came to be known as 'dry gripes' or 'dry colic,' which consisted of abdominal pains and constipation, the practice of using lead and lead compounds as an additive in wine continued for centuries until late in the 17th century when lead was identified as the source of the problem by German physician Eberhard Gockel (Gough, 1998). However, this knowledge spread slowly and the practice of using lead in products that were consumed by humans did not fully cease for another 50 years (Gough, 1998). As an aside, the effects of this long-term use of lead in consumed products have been used to challenge the conventional idea that widespread lead poisoning may have contributed to the downfall of the Roman Empire (Nriagu, 1983; Scarborough, 1984).

Although it is possible to find naturally occurring, refined, metallic lead in nature, it is quite uncommon. Lead is most commonly found in ore that contains other metals such as copper, zinc, and silver, and lead is mined alongside these other metals and extracted from the ore. Most ores contain very little lead, less than ten percent; however,

due to the high value of lead even ores with as little as three percent lead are economically viable to mine (“Lead Mining Machine,” 2005).

The Southeast Missouri Lead District spans seven counties directly southwest of St. Louis and contains the largest and most highly concentrated known lead ore reserves in the world (Seeger, 2008). Despite being a city founded on the fur trade, more money has passed through St. Louis as a result of lead mining than fur (McHenry, 2006). French explorer Philip Francois Renault was the first to bring industrial lead mining to southeast Missouri in 1720 after discovering the lead rich ore on a mining exploratory expedition on behalf of France’s King Louis XV the previous year (“History of Lead Mining in Missouri,” 2002). Prior to Renault’s arrival the only lead that was mined in the area was surface mined by Native Americans and most likely used to craft jewelry and make paint, and later to manufacture bullets (Broihahn, 2008; Habicht-Mauche, 2005). Renault’s mining operation involved over 200 skilled laborers, as well as hundreds of African slaves. The refined lead was transported by mules and then floated down the Mississippi River to New Orleans, ultimately destined for Europe (McHenry, 2006). Renault’s mining exploits ended in 1744 when he packed up and returned to France (McHenry, 2006).

France’s control of Missouri, along with the surrounding area, ended in 1762 when France gave the land to its ally Spain. However, in 1800, during the reign of Napoleon Bonaparte the land was retaken by France and then sold three years later to the United States as part of the Louisiana Purchase (Kennedy et al., 2008). Although lead mining continued throughout the 18th century, significant growth in both mining development and population did not occur in the region until the United States purchased

the region from France (McHenry, 2006). The final major development in lead mining took place near the end of the Civil War when the demand for lead, mostly for weaponry, had reached its highest levels to date (McHenry, 2006). Mining technology improved in response to demand, most notably with the invention of the diamond drill, which allowed for improved techniques in pinpointing the locations of rich ore deposits deep underground and reaching ore as deep as 1,000 feet (McHenry, 2006). Prior to the diamond drill, a mine could only be excavated to about 100 feet in depth (McHenry, 2006). As lead profits accelerated more business investments were made both in lead mining and the region, laying the foundation for the Southeast Missouri Lead District that exists today (McHenry, 2006).

As lead mining in southeast Missouri grew into the widespread, industrial scale mining operation that it is today, many smaller mining companies were absorbed by larger ones such as the St. Joe Lead Company and subsequently the Doe Run Company. In fact, the Doe Run Company currently operates all of the lead mines in Missouri as well as other lead mines and smelters around the world. This corporate consolidation in the early 20th century led to the development of numerous mining towns, and “by 1917 major communities had developed as a result of the mining industry” (McHenry, 2006, p. 30). An increase in the volume of mining, the existence of deeper mines, and improved mining technology led to record profits in the early 20th century, For example, in 1830 the Southeast Missouri Lead District produced 3,600 metric tons of lead whereas in 1921 it produced 178,735 metric tons of lead valued at over \$16 million (McHenry, 2006).

Beginning in the late 19th century Missouri state law prohibited mining companies from engaging in businesses not specified in their charter in an effort to prevent the

formation of company towns. Despite this law, mining companies operated company stores, leased farming land, provided utilities, and conducted other business through subsidiaries (Brownlee, 1977). Another significant change in the region emerged in the early 20th century with labor unionization. Backed by the American Labor Union and the Western Federation of Miners, union organizers representing the newly formed Industrial Workers of the World—colloquially known as ‘Wobblies’—attempted to unionize lead miners in the Old Lead Belt (Thompson, 1955). They called for strikes to force a pay raise, but the lead companies squashed the unionizing effort by offering a twenty-five cent pay raise, which was large enough to appease the miners, before miners could unionize and a strike could occur (Thompson, 1955). A subsequent attempt in 1924 by national labor organizers to unionize lead miners also failed; however, local unions eventually emerged in the region (Thompson, 1955).

Another significant event also related to work conditions appeared in the form of social unrest. By 1917 the major mining companies controlled vast swaths of land, closed it to all prospecting, and established company towns on non-mineable land that were filled with immigrant laborers that were imported in large numbers, mostly from Europe (Brownlee, 1977). Socio-economic segregation between community members and recently arrived immigrant laborers fueled strained relations between mining companies and communities, and the mounting tensions ultimately erupted in the Lead Belt Riot of July 13-14, 1917 (Brownlee, 1977). This riot occurred when the United States was on the brink of entering World War I, a significant event for an industry that was important to arms manufacturing. The mining companies attempted to capitalize on the anticipated wartime demand for lead by revamping mining practices through the introduction of

modern, industrial discipline. This included a restructuring of shift scheduling and underground mining practices and guidelines; however, when these efforts were met with resistance from miners who preferred more traditional (and less efficient) mining practices, the mining companies simply replaced their work force with immigrant labor (Brownlee, 1977). What followed was a two-day riot in which gangs made up of laid-off miners and other local men rounded up immigrants and forced them and their families onto departing trains (Thompson, 1955). The riot escalated in the evening of the first day and “by dark a mob of about a thousand roamed the district throwing rocks at the homes of immigrants and occasionally firing into them” (Brownlee, 1977). Foreigners either hid or fled into the woods during the night and those that were caught were beaten (Brownlee, 1977). More than thirty-five hundred immigrants were forced to leave the Old Lead Belt during the riot (Thompson, 1955). By the time the requested state troops had arrived the riot was over with most immigrants having been expelled from the area (Thompson, 1955).

Community resentment towards the mining companies did not substantially decrease in the wake of the riot; in fact, it increased (Brownlee, 1977). Although technological improvements had drastically improved mining practices and the efficiency and profitability of lead mining in the previous 50 years, it had done little to improve the harsh working conditions for miners. As Brownlee (1977) recounts, “handheld drills, picks and shovels were the basic tools, and men had to work underground, stooped over or standing in water” (p. 407). Furthermore, relations were further strained by the mining companies that continued their efforts to exert enormous control over mining

communities, including banning saloons on company leased land and passing legislation that regulated drinking (Brownlee, 1977).

The 1930s brought more hardship to the Old Lead Belt. Much like other industries during the Great Depression, the lead mining industry was hit hard. Lead prices were depressed, banks closed, and nearly everyone lost their savings (Thompson, 1955). In 1931 wages and salaries were cut by 20% across the board with miners only working three weeks out of every five in an attempt by the mining companies to distribute the burden evenly (Thompson, 1955). Because both the price of lead and demand for lead collapsed—for example, the Western Telephone Company's orders for one hundred thousand metric tons of lead per year ceased for three years—the large Herculaneum smelter, built in 1892 and located 25 miles north of the Old Lead Belt along the Mississippi River, was closed and mined ore was simply stockpiled for nearly five years until the demand for lead and prices began to recover (Thompson, 1955).

Although lead mining practices have improved in the last one hundred years with the advent of the machine shovel (which replaced the need for miners with picks and shovels to hand load ore deep within the mines) and improved safety measures (Gibson, 1972), contemporary lead mining is carried out in more or less the same manner as it was a hundred years ago. Shafts up to one thousand feet deep are dug straight into the ground from which a catacomb of horizontal mining shafts thirty-six feet wide and fifteen to twenty feet tall, called headings, radiate and meander their way beneath the surface (McHenry, 2006). Explosives are used to expand and lengthen these headings while drill jumbos, front-end loaders, and 40 ton dump trucks are used to mine the ore and transport it to the base of the vertical mine shaft (McHenry, 2006). A primary crusher at the base of

the shaft breaks the ore into smaller pieces before it is hoisted to the surface, further crushed, and then milled through a floatation process (McHenry, 2006). Once milled, the remaining concentrate is transported to a smelter where it is refined into the primary metal (McHenry, 2006).

Missouri has historically been the largest producer of lead in the United States and continues to produce 70% of the lead used in the nation (Seeger, 2008). The United States ranks third in terms of world lead mining production. In 2010 a total of 4.14 million metric tons of lead was mined worldwide with 1.85 million metric tons produced in China, 625,000 metric tons produced in Australia, and 369,000 metric tons produced in the United States (“Lead: World Mine Production,” 2010). In 2010 the commodity price for lead peaked at just over \$2,400 per metric ton (“Lead Monthly Prices,” 2013).

All metals are capable of being recycled and lead is no exception. In fact, lead is the most recycled metal both in the United States (USGS, 2001) and the world (UNEP, 2011). In 2001, 79% of refined lead produced in the United States was refined from recycled scrap, totaling 1.1 million metric tons, the vast majority of which was recovered from lead-acid batteries (USGS, 2001). In the United States 93.3% of lead-acid batteries are recycled due to the “successful collaboration among members of the battery industry, retailers, and consumers” (USGS, 2001, p. 62.6). World wide nearly 80% of all products that contain lead are recycled (UNEP, 2011). Missouri recovers more lead from recycled scrap than any other state (McHenry, 2006).

Presently, 78% of all lead is used to produce lead-acid batteries, most of which are used in automobiles and to provide emergency power to large-scale computer systems (such as data centers) (McHenry 2006). Lead is still used extensively today for soldering,

sound proofing, televisions and computer displays, and to provide radiation shielding from x-ray machines and to contain nuclear waste (McHenry 2006). It is estimated that every American requires approximately eleven pounds of lead each year to maintain his or her lifestyle (McHenry 2006). Historically, lead was used extensively as a gasoline additive and in ammunition, roofing materials, and paint due to its high levels of corrosion resistance and other properties. However, concerns over pollution and lead poisoning have dramatically decreased the use of lead in these ways, mostly through legal restrictions (McHenry, 2006).

Lead mining has also contributed to extensive environmental and health problems in the Southeast Missouri Lead District, with numerous fines levied against mining companies by the Environmental Protection Agency (EPA) (Hawes-Davis, 1993). Environmental contamination directly resulting from lead mining has resulted in seven EPA Superfund sites in the region. At these sites, toxic waste has been dumped either accidentally or knowingly and the EPA has designated them to be cleaned up. The sites include contaminated soil, water, and air from previous and active mining operations and contaminated tailings (EPA, 2013). Industry employees and area residents have also suffered from lead contamination along with severe respiratory and other health problems and mining companies have done little to address these concerns (Hawes-Davis, 1993). For example, in 1988 the Occupational Safety and Health Administration (OSHA) charged the Doe Run Company with over 300 workplace violations related to employee health risks at their Herculaneum smelter and slapped them with the third largest fine in OSHA history (Hawes-Davis, 1993). Then in 2002, after a state sponsored study found that 56% of the children living near the smelter had dangerously high blood-lead levels

(children are especially susceptible to lead poisoning [National Research Council, 1991; Nordin et al., 1998]), the Doe Run Company was forced to buy 160 homes within a three-eighths mile radius of the smelter and raze them after residents moved out (Hiles, 2006). With mounting EPA violations and an appeal pending on a recent \$358 million judgment against the Doe Run Company from a lawsuit brought by 16 former employees (Thorsen, 2012), the company has announced that it will close the Herculaneum smelter, the last primary smelter operating in the United State, in December 2013 (Fenston, 2012). Beginning in 2014 the Doe Run Company will ship all of its lead concentrate overseas to be smelted, currently roughly half of its lead concentrate is shipped overseas.

Scientific studies on lead exposure and contamination. Significant research efforts have investigated the science surrounding lead pollution, contamination, and poisoning with much of this research specifically focused on the Old Lead Belt. Most studies have focused on environmental contamination caused by pollution and mining practices or they have examined the blood-lead levels of those living near ongoing or former lead mining operations.

Some researchers have concentrated on the problems associated with heavy metal contamination in the environment. Jennett and Wixson's (1972) early research outlined the major problem areas in controlling lead mining waste, namely controlling liquid tailings during and after the milling process. In subsequent research, Jennett and Foil (1979) found that under non-runoff conditions, streams within the watershed of lead mining, milling, and smelting operations in the Old Lead Belt are no different from control streams that sit nowhere near lead mining. However, under runoff conditions they found that significant amounts of heavy metals emitted during the mining, milling, and

smelting processes were carried by runoff into nearby streams (Jennett & Foil, 1979). Furthermore, they found that atmospheric emissions that settle in the soil are susceptible to runoff conditions as well.

Health effects from lead exposure occur in multiple ways and due to the high toxicity of lead even low levels of exposure, most often unnoticeable to the victim, can be harmful. To enter the body, lead must be inhaled or swallowed. Lead poisoning was first recognized as a health threat to populations living in urban areas that were exposed to paint, dust, and air pollution containing lead (CDC, 1991). Exposure to lead was found to be particularly dangerous to children due to their hand-to-mouth behavior and enhanced absorption of lead from the gastrointestinal tract (Bryce-Smith et al., 1978). Furthermore, lead poisoning is significantly more detrimental to children under the age of two because their brains are rapidly developing (Bryce-Smith et al., 1978). Adults are also vulnerable. Later research showed that adults and children living in rural areas in close proximity to point sources of lead, typically lead mining operations, had elevated blood-lead levels (Danse et al., 1995). Murgueytio and Evans (1996) decided to focus their research on young children between the ages of six- and seventy-one months who lived near a lead mining area in Missouri and they compared their findings to children of the same age who did not live near lead mining. They analyzed blood samples from both groups of children for traces of lead and found that the blood levels of lead were nearly twice as high among children living near lead mining than those who were not (Murgueytio & Evans, 1996). Their research indicated a correlation between a child's blood-lead level and the lead level in soil surrounding the child's home, which also revealed that the soil samples in lead mining areas had six times the lead levels than did the soil in non-lead

mining areas (Murgueytio & Evans, 1996). Further research by Murgueytio et al. (1998) reinforced this conclusion by finding that children living near lead mining had twice the blood-lead levels than those who did not.

Sterling et al. (2004) evaluated various education approaches to determine which forms of educational interventions would be most effective in helping reduce elevated blood-lead levels in children living in lead mining areas. Their research, conducted in St. Francois County in the Old Lead Belt, examined three different cleaning and health education strategies. One was called the control strategy (so called because it mimicked the conventional practice in the region) and included an informational meeting with a nurse for people at risk as well as the distribution of government pamphlets about the hazards of lead exposure. A second strategy included all the elements of the control strategy along with quarterly newsletters tailored to each participant that included more detailed precautionary measures specifically tailored to the participant's lifestyle and home environment. The third strategy included all of the elements of the first two approaches as well as quarterly cleanings of the home and its surrounds by professional cleaners trained to eliminate sources of lead within the vicinity (Sterling et al., 2004). The researchers found that all three strategies were modestly and comparably effective in reducing blood-lead levels among children living in mining areas. However, the researchers stressed, "the most effective prevention is full abatement of all lead exposure sources. This, however, remains a distant reality for many communities" (Sterling et al., 2004).

Coal mining. Just as the Old Lead Belt's history has been tied to lead, so has West Virginia's to coal. Behind Wyoming, West Virginia is the second-leading coal

producer in the United States and, as a result, their economy and identity have been tied to coal (Bell, 2009). Throughout the 20th century the coal industry has been one of the largest employers in West Virginia and it produced \$3.5 billion of coal in 2005 (Bell, 2009). Although the coal industry enjoys significant support within the state, there have also been many controversial coal mining practices, such as mountaintop removal mining, that have drawn attention and increased negative sentiment towards the coal industry in the past 20 years (Bell, 2009). This complex relation is aptly captured by Bell (2009), who wrote that “West Virginians have had a love-hate relationship with coal through the past century” (Bell, 2009, p. 633).

Bell (2009) employed qualitative research methods to examine whether or not the coal industry has decreased social capital within coal-mining towns in West Virginia. Social capital, first introduced into social science research by Bourdieu (1985) and Coleman (1988), is defined as the features in a community, such as social networks, community norms, and social trust that foster cooperation and coordination within a social community for mutual benefit (Putnam, 1995). Specifically, Bell (2009) used semi-structured interviews with individuals in both a coal-mining community and demographically similar non-coal-mining community to assess the differences between the two communities regarding social capital. Through her research she found that a decrease in social capital had in fact occurred within the coal-mining community (Bell, 2009). Her research indicated that two things caused this loss of social capital: population loss and a breakdown in social trust among community members.

Over the past fifty years, jobs within the coal industry have steadily decreased due to an increase in mechanized mining practices and the use of mountaintop removal

(Burns, 2005). In the same time period West Virginia has lost 40% of its population to migration (Bell, 2009). Bluestone and Harrison's (1982) conclusions on the effects of de-industrialization on communities provide similar insights into a community that suffers massive job losses at the hand of a single industry. "What begins as a behind closed-doors company decision to shut down a particular production facility ends up affecting literally everyone in town, including the butcher, the baker, and the candlestick maker" (Bluestone & Harrison, 1982, p. 67). Bell (2009) also found that the decrease in population had a significant, negative impact on social relationships in the coal-mining community as compared to the social relationships in the non-coal-mining community.

Although Bell's (2009) research indicated that population decline had contributed to a decrease in social capital, her interview responses did not directly address this issue. Therefore, she did not discover if the community members saw changes to the community in the same way that she did. In fact, it seemed that participants in the coal-mining community largely identified the arrival of a non-union mining company in 1981 as the harbinger of social decline within the community. Coal mining in West Virginia has historically been a union industry, a reality that took decades and two 'coal wars' to establish. Therefore, when a non-union coal mining company arrived in town and began to buy up all the union mines the community was immediately divided due to differing views toward unionization (Bell, 2009). Massive picketing and protests pitted neighbors and former coworkers against one another. Union loyalists were against those who decided to abandon the community's shared identity as a union town in order to work outside the union, which they saw as the only way to support their families (Bell, 2009).

Bell's (2009) research ultimately found that the coal-mining community's loss of social capital was a direct result of the decline of its main industry and the resulting population decline. Furthermore, she found that this loss not only had far-reaching consequences in the present day community in terms of community social capital (e.g. community trust) and individual social capital (e.g. self worth), it may also have consequences for the next generation.

The present study. Similarly, with this research I am interested in how the communities within the Old Lead Belt have changed in the four decades since mining operations have ceased in the area. I am particularly interested in what changes the community members perceive and their attitudes towards this legacy. My research questions are:

RQ1: *How has the legacy of lead mining shaped the communities within the Old Lead Belt?*

RQ2: *If the communities of the Old Lead Belt were once defined by lead mining, what defines these communities today?*

RQ3: *What is the future of the Old Lead Belt and its people?*

Methodology

Research was carried out through the use of interviews to explore these three main research questions. Although some level of ambiguity is inherent in the process of speaking with interview participants, interviewing remains one of the most common and powerful methods that researchers have at their disposal for understanding human behavior (Fontana & Frey, 1994). Specifically, unstructured in-depth interviews were

used both in more formal interview situations as well as informally while interacting and observing participants in their daily lives. However, all recorded interviews were conducted in an unstructured, conversational manner, affording participants the freedom to speak openly about their lives and the various ways in which lead mining has played a role.

Prior to collecting data the Institutional Review Board (IRB) at the University of Missouri reviewed and approved this research. Dr. Earnest Perry, as a member of my master's committee and a faculty member at the University of Missouri, served as my IRB sponsor.

To facilitate my research and reinforce my commitment to the community I was studying, I relocated to be close to the Old Lead Belt for the duration of my research. From September 1 to December 1 of 2013, I lived in the town of Festus and during my stay traveled throughout the region, visiting all of the main communities in the Old Lead Belt. In conjunction with embedding myself in the region, I also identified myself to community members, truthfully, as a documentary photography student interested in learning as much as I could about the area and its inhabitants. I chose from the outset not to adopt the role of *participant-observer*. Not only was being a full participant observer impossible because I could not be employed at a lead mine or pose as the descendent of a lead mining family, it would be very difficult to become a member of a longstanding community in which residents are known to one another or have ready ways of discovering one's connection to the area. Rather, I decided to see myself as a *humble learner* as discussed by Wax (1960). In this role, one actively engages with the community they are researching, adopting an almost *tabula rasa* approach when speaking

with participants. In this approach, the interviewer acts as a blank slate, avoiding entering each interaction with preconceptions that might color their findings. Although I was perceived as an outsider by nearly everyone I spoke to, this role allowed me to move easily between divergent and perhaps even conflicting situations while simultaneously embracing each participant on an individual level, fostering their trust, and maintaining accuracy in the research. “The decision of how to present oneself is very important, because after one’s presentational self is ‘cast’ it leaves a profound impression on the respondents and has great influence on the access (or failure) of the study” (Fontana & Fey, 1994, p. 367). Thus, by conducting open-ended, conversational interviews and presenting myself as a humble learner, I was able to build rapport with the community members with whom I engaged, which, in turn, allowed me to see things from their perspective rather than projecting my own preconceptions upon them (Fontana & Fey, 1994).

Because very little qualitative research has been conducted exploring life within the Old Lead Belt and because I approached my research as a humble learner, I felt that conducting extensive in-depth, unstructured interviews across a breadth of the community would be the best method for exploring my research questions. “[Structured interviewing] aims at capturing precise data of a codable nature in order to explain behavior within preestablished categories, whereas [unstructured interviewing] is used in an attempt to understand the complex behavior of members of society without imposing any a priori categorization that may limit the field of inquiry (Fontana & Fey, 1994, p. 366).” This prioritization of *understanding* over *explaining* is precisely what makes in-depth, unstructured interviews the best method for this research.

Participant interviews. I conducted unstructured *in-depth interviews* (Lindlof & Taylor, 2011) with eleven community members and one outside expert to elicit open-ended responses. Each interview was recorded and lasted between 35 and 75 minutes, and occurred in private residences, places of business, and schools. An *interview guide* (see Appendix) was utilized to organize each interview; however, within each interview the guide served as more of a general outline than a rigid structure. The order in which particular questions were asked and the depth to which each question was explored varied across participants and was guided by their responses. Interviews were conducted in such a way as to encourage participants to speak freely and at length and answer questions in an in-depth and open-ended manner.

Criterion sampling (Lindlof & Taylor, 2011) was used to select participants for this study, with the goal that a breadth of community members was represented across the interviews that were conducted. Criterion sampling involves selecting participants within a particular set of predetermined guidelines based on their value to the research goals. Potential participants were approached in person or with an invitation letter to participate. Participants were informed that their interview was ‘on the record’ and would not be confidential and that participation was entirely voluntary. Every potential participant that was approached agreed to participate in the study. Some *snowball sampling* (Lindlof & Taylor, 2011) also occurred, where a community member or interview participant would refer me to other community members to interview. Among the 12 participants interviewed for this research, four were identified through snowball sampling. In each of these situations the recommendation came from a local informant, an insider within a community, who facilitated contact and introductions (Fontana & Fey, 1994, p. 367).

Building rapport quickly, along with establishing trust among those I met and interacted with, proved to be instrumental in connecting me with the community, including the many social groups, individuals, and facilities of which I was previously unaware.

The twelve participants ranged in age from 20 to 96 years old and had varying degrees of familiarity with the lead mining that occurred in the Old Lead Belt. Exactly half of the participants had direct family members, either a parent or a grandparent that worked in the lead mining industry in the Old Lead Belt. One of these participants had actually worked for the St. Joe Lead Company in the Old Lead Belt himself and another participant was currently working as a (third generation) lead miner in the Viburnum Trend lead mining subdistrict. With the exception of the one outside 'expert' participant interviewed for his knowledge and expertise regarding lead contamination within the Old Lead Belt, all of the participants currently reside within the Old Lead Belt. Among the remaining eleven participants, two could be considered 'local experts' regarding specific aspects of the community, one of which was a high school principal with a strong knowledge of the school system and the other was the administrator for the Missouri Mines State Historic Site with a strong knowledge of the geology and mining history of the area.

Analysis. Participant interviews were first transcribed and then coded using *open-ended* and *in-vivo* coding techniques (Lindlof & Taylor, 2011). The goal was not to analyze each utterance but rather to identify converging and diverging ideas and themes across participant interviews. Again, in line with Fontana & Fay (1994), the goal of this research was to better understand the behaviors and relationships of community members in the context of their community and its lead mining legacy without imposing any pre-

established constraints or expectations on their point of view through the research process.

While analyzing the participant interviews, both the primary research questions and the interview guide acted as a framework for identifying and organizing emerging themes.

Results & Discussion

Clearly, the lead mining industry significantly shaped the Old Lead Belt while lead was actively being mined in the area from 1864 to 1972. The industry employed thousands of people in the communities of Bonne Terre, Desloge, Leadington, Leadwood, and what is now known as Park Hills. (Park Hills was formed in 1994 when the adjacent towns of Flat River, Elvins, and Esther were combined.) At first various mining outfits operated simultaneously in the region, but the St. Joe Lead Company quickly bought everyone out. Over time St. Joe successfully connected all of the operating mines in the area into one contiguous, subterranean mega mine (except for the Bonne Terre mine, which remained physically separate). Overall, more than 240 miles of underground rail lines were in place and used to move freshly mined ore to the earth's surface where it was then milled. Over the course of this 108-year span it is estimated that 8.5 million tons of elemental lead was mined (give or take a few million tons), producing around 250 million tons of mining waste. This waste was either deposited in expansive tailing ponds or piled into mounds known as chat piles that eventually grew to be hundreds of feet tall and came to dominate the Old Lead Belt skyline. Not only did the St. Joe Lead Company enjoy a monopoly on lead mining at the time, it also owned both

of the railroads servicing the area, utilizing them to bring in coal to generate electricity and carry out milled ore to be smelted in Herculaneum. The St. Joe Lead Company acted as the area's electric company until the completion of Bagnell Dam in 1931 when they shuttered their coal power plants and handed over the responsibility to the Union Electric Company. In fact, it was the lead company's agreement to purchase energy from Bagnell Dam that was instrumental in green lighting the engineering project that, at the time, produced the largest manmade lake in the United States. This lake, the Lake of the Ozarks, still exists and is one of the defining characteristics of the Ozark Mountains in Missouri. Furthermore, the St. Joe Lead Company also acted as the region's water company—drinking water in the Old Lead Belt is still drawn today from the abandoned mines—as well as operated a registered beef cattle herd, dairy herd, and a handful of company stores that sold goods at near cost to the community. It was, to all effect, a company town.

But when mining ceased in 1972 the power and influence that the lead mining industry held over the area quickly dissipated, leaving behind a handful of communities that had never known a different life or livelihood. In the 41 years that have elapsed since the closing of the Federal Mill and lead mine in Park Hills, how has the legacy of mining contributed to the Old Lead Belt of today?

RQ1: How has the legacy of lead mining shaped the Old Lead Belt? It became quickly apparent through casual conversations with community members as well all of the interviews I conducted with participants that either worked directly for the St. Joe Lead Company or had a relative who worked for them, that an amazing level of company

loyalty still exists within the Old Lead Belt towards St. Joe. One participant I spoke with who worked for St. Joe for 46 years had only positive things to say about the company.

Interviewer: What was it like working for St. Joe?

Earl F.: They were good people to work for. I enjoyed working for them and always got what I considered a square deal and I liked the company because they were a benevolent company, based on the times, and they felt the need to treat the men fairly.

He continued, discussing the many contributions the company made to the community:

Earl F.: There was no community at Bonne Terre...so when St. Joe started operating here one of the first things they felt the need for was a grocery store with enough assortment because most everybody walked, very few people would have a horse or anything. So they built a store and then they purchased at wholesale and they charged 10% over wholesale, which was a very minimum way of selling the groceries, the clothing, it was a complete store. They could live out of that store. They'd get their chewing tobacco there too, which was quite common in the old years. Anyway, then they assisted in building a church and they assisted in building schools and so on. They also of course had a large number of cattle so they had their own beef and they sold in a separate store called the butcher shop because they didn't mix it in with the other groceries for some reason. They also had a dairy where they had milk products and they were sold in their stores.

He then expanded on the extensive reach of the company into the life of the community:

Earl F.: They were involved in everything. They made sure that the streets were built, as I said, they made sure there were school and had church and then they had built a clubhouse. They hired many young engineers and this clubhouse had

17 rooms, a young engineer could come in and—it was a boarding house—where they could live until such a time as they were established in the community. I ate there in the '40s especially, quite often would eat lunch, fifty cents you could get a full meal including dessert and drink and everything. So, in every way they attempted to make the life easier for their employees. However, because of the times it was very hard work.

Another participant, who works as the administrator for the Missouri Mines State Historic Site in Park Hills, which includes an exhibition on the mining that occurred in the Old Lead Belt, affirmed this view in his interview.

Arthur H.: In my 20 years here at the museum, talking to a lot of retirees and a lot of people in the community, in general, everybody thought this was a great company to work for, none of them would leave the company.

He expands on this point later in the interview:

Arthur H.: It's hard for me to find something that they did really bad to the community or to any employees. I just can't find it hardly, and I will point out in this interview I have never worked for this company, I'm not their PR guy, I try to be totally objective with this. It's just I don't hear any bad complaints and I don't hear local people or retirees saying anything bad. I mean, the company walks on water from their viewpoint.

The bond between the community and St. Joe was so strong that one participant recalled that community members often referred to the St. Joe Lead Company as Uncle Joe.

Similarly, all of the participants I spoke with shared an overwhelming pride in the heritage of their community and the legacy of lead mining in the Old Lead Belt.

Participants with direct familial connections to lead mining or who grew up in the area

while lead mining was still happening spoke in more sentimental, even romantic, terms about the Old Lead Belt's legacy. As one participant born and raised in Bonne Terre said:

Shelly B.: Over my lifespan we were close enough that we could go over and play on [the chat dump], because then you could. The cores that came out of the drill—there were billions of them—that laid around and we played with them all of our life. [At the time I] didn't know what they were. My grandpa after he retired he got two boxers and he would take them over there and walk and so I would walk with him when he would walk the dogs and he would explain how those cores came to the top and how the chat dump came to the top and that it's mining waste and not hazardous. Looking back that is some of my fondest memories because we were just raised with it, didn't know anything different, and certainly weren't afraid of it. My uncle when I was just little, me uncle was about 15 years older than me and he rode his sled off the chat dump and broke his collarbone. (laughs) You know, it was just in our backyard and we played with it.

In contrast, participants who came to the Old Lead Belt in more recent years described the legacy in more academic terms. Another participant who moved to the area twelve years ago said:

Brad C.: I think it's an important part of the past of this community that should be celebrated. For example, I've always thought that if this school were to ever change mascots, in my opinion, most schools try to pick a mascot that is a reflection of their community, well the perfect mascot for this school would be the miners because that was the history of this community. But I don't have any feelings one way or another. I think it's important for the community to embrace

the mining industry, although it's not positive or negative, anything I've ever heard about the mining of this area in the past.

It seemed as if for one group—those with a long history there—the legacy of lead mining is part of their culture, perhaps even part of their identity; whereas for the other more recently established group, this legacy is simply a part of the local history. This dichotomy, although subtle at first, was amplified when participants discussed their feelings towards the EPA's remediation efforts to deal with lead contamination resulting from the large amount of mine waste that still exists in the Old Lead Belt. Namely, the participants with lead mining roots were skeptical of any claim related to lead contamination and therefore any remediation effort carried out by the EPA, whereas newcomers were more likely to acknowledge the risks posed by lead contamination and therefore place more value on remediation efforts. For example, one 50-year-old participant who was born and raised in Bonne Terre and whose great-great grandfather emigrated to the Old Lead Belt from Germany to work in the lead mines said:

Shelly B.: Most people, once they find out what it is, are afraid of it. Like they covered it with rock to make it be safe. When if you test us, we're not like Hercy, those people with the smelter, that was a dangerous situation to those people, but not to us. If you test me I've never been high in lead, none of my kids have been high in lead. And then it's people that do not know the story, do not have the legacy, weren't exposed to it when it wasn't covered and they say it's a dangerous place to live and bring bad publicity to something that is not factual. I don't like it when people who haven't lived here say how dangerous it is. We joke, that's what's wrong with us, that we have too much lead in our blood. (laughs) But we've grown up here, all my family is here and we're all fine. It's

not radioactive chemicals or something that we're exposed to. It's *why* we're here.

In contrast, another participant, a single mother whose four-year-old daughter was recently found to have more than triple the acceptable blood-lead level set by the Center for Disease Control, shared this:

Cassandra B.: I was completely terrified. I was beyond terrified. I'm very picky on health and to find out that my daughter's [blood-lead] level was that high; it scared me to no other. And honestly if I told them if they couldn't get our yard [remediated] soon enough I would probably have to go back to Texas because I was not going to keep her around this area if it was going to be a problem for her health.

Interviewer: Have you talked to her about it, does she understand?

Cassandra B.: She knows that she was sick and that's why she had to pull her blood, but I told her that she has to do it every couple—she has a problem with needles—and I told her she has to do it every couple months now to make sure that she doesn't get sick again and she has to wash her hands periodically. It's every two hours that we have her, we have a clock right there in the kitchen and we make her check it every two hours and she has to go wash her hands again. Because they said that's what's going on, was that it's most likely getting on her hands and then she's consuming it. But we were worried; at first I didn't understand the dogs tracking in the dirt because my daughter doesn't play in the yard very much because we do have dogs. They use that as a bathroom and it freaks me out, I don't let her playing in it, so we always take her to the park...and I was scared that maybe there was chat in the park. So I don't know if

there is not but it is one thing that makes me a little nervous. So come summer, I'm not really sure what I'm going to do.

Although most participants did not express their point of view as strongly as these two community members did, all of the viewpoints expressed supported this dichotomy to some degree. In most cases their reactions were more tempered, with participants with lead mining roots stating that mining waste posed no risk and that remediation efforts were unnecessary and a waste of government funds, and participants without lead mining roots stating that lead contamination posed some risk, although not severe, and remediation efforts were worthwhile.

It seems clear that this dichotomy was fueled by two key differences between participants with and without family ties or roots to the lead mining industry. First, those with lead mining roots continue to hold some level of loyalty to the industry, especially the company St. Joe that dominated lead mining in the Old Lead Belt. Second, for these individuals, the heritage of lead mining plays a more significant role in their personal and communal identity. Therefore, the government's remediation efforts are seen more as a personal attack by the participants with lead mining roots, both on their families and way of life, whereas participants without mining roots hold no loyalty to the lead industry and do not see the remediation efforts as a personal affront. In fact, this latter group may see remediation as necessary, as it protects them from the dangers associated with the industry.

RQ2: What defines the community today? Not only was the identity of the Old Lead Belt established and defined by the lead mining industry, it is likely that the communities in the Old Lead Belt would not exist or be radically different today without

the emergence of lead mines in the late 19th century and their dominance throughout the 20th century. Reflecting this claim, nearly all of the participants agreed wholeheartedly that the communities within the Old Lead Belt were once entirely defined by lead mining and would not exist if it were not for the lead mining industry. Only a few elaborated on this point, however, with most articulating through their quick and concise response that it was obvious how powerful the lead mines were in establishing and shaping the Old Lead Belt.

Keith K.: Yes. Well, all of these towns were [defined by lead mining]. They all got a chat dump and this is called the Lead Belt area. That's what this whole area is considered, the Lead Belt, because even the smaller towns had a mine of some kind.

The few participants that did not entirely echo this quick and concise response still agreed that lead mining once was the dominant defining characteristic of the Old Lead Belt. However, they also suggested that although the communities that exist today were founded on lead mining, if the lead mining had not occurred, other communities would have been established in the area. For example, in response to a question asking if the communities of the Old Lead Belt would have existed without mining, one participant responded:

Arthur H.: Yeah, quite possibly. You can't predict what would have happened. But certainly they would have never had the significance they had in the past [without the mining], and there's a lot less population here now than there was when the thing was going on full tilt.

Interestingly, when asked to discuss what defines the communities within the Old Lead Belt today, in the absence of lead mining, most participants struggled to come up

with a response, and some did not respond at all. This was in stark contrast to the previous question, which garnered immediate and confident responses. Every participant hesitated to answer, with many offering multiple conjectures as to what defines the communities today. Some participants even responded by stating that the communities in the Old Lead Belt currently had no identity. Included in the diverse offerings were the suggestions that the area was defined by its proximity to St. Louis and function as a bedroom community, the numerous state parks in the area, or the many prisons within and around the area. The most frequent response among all participants when asked directly what defines the communities of the Old Lead Belt today was the declining state of the communities.

Fred M.: Hmm (very long pause) well I don't know. I'd have to think about that.

(long pause) I'm afraid [Bonne Terre] would be identified as a declining community. But I don't know otherwise, I don't know the answer to that.

Another participant echoed this sentiment, and also suggested that perhaps simply the people in the community now define it.

Keith K.: Oh, I don't know. Changing times. Some of it I understand and some of it I don't. But like I said, I think a lot of people—we call them transplants—they have no idea the history behind a lot of our mining history. I'd say if you talk to them, they probably wouldn't be able to answer anything and probably wouldn't care. You know, it's gone in history.

Interviewer: So what do you think defines Leadwood or the Old Lead Belt area today then? What do you think shapes the community?

Keith K.: I guess just the people in it. There isn't much. (laughs) Leadwood is down to where it's got a Dollar General store and a gas station and a school.

That's about all there is here. People nowadays, you know the internet is taking over where the outdoor part just ain't there. I guess it's just a living and surviving in Leadwood anymore. Nothing to do with mining period.

Although participants struggled to discuss what defines the identity of the Old Lead Belt today when directly asked to do so, they eagerly and easily discussed various defining characteristics of the communities within the Old Lead Belt when they were responding to other questions. In this regard, three themes emerged that were each mentioned by nearly every participant, they were: the people, the close-knit smallness of a rural community, and the schools. Among these three themes, the most important and frequently mentioned was the value participants placed on the people in the community, particularly family, often saying that the best part of the community was the people.

Jesse H.: I guess family and friends and everyone being close, a lot of people know everybody. You always have someone you can count on. I've never wanted to move real far away and be away from everybody, not saying I don't want to be out on my own, but I just think there's like a family aspect to this area too.

There's a lot of churches, like a lot of churches, I don't know if you noticed that, but I think that keeps people together also. I don't see myself going anywhere, cause I just like the area. There's not a lot to do, but you have friends and family so what more do you need.

Another participant elaborated on this theme by discussing how her favorite aspects of the community, the people and it being close-knit, were fostered by its small size and slow pace:

Cassandra B.: Everyone knows everyone, everyone knows what's going on and people just stop by and say hello for no reason. If you ever walk through Wal-

Mart around here it's really funny because you'll see all the little people stop and talk for about 20 minutes and just catching up because they ran into each other at Wal-Mart and they know each other from 20 years ago. But honestly I like it, I like seeing the closeness, especially living in New York everyone just passes you by and they're in such a rush to get everywhere they want to go, they don't want to stop and say hello. And it's nice, people actually care around here, they care a lot, sometimes maybe too much, but they care. (laughs)

Additionally, the quality of the schools was mentioned by a majority of the participants as both a defining feature of the community as well as an attraction that has drawn new residents to the area. Three public school districts, North County, West County, and Central, blanket the five communities within the Old Lead Belt, with the community college Mineral Area College serving the entire region. As a participant in this study, the principal at Central High School suggested that the school system has become a symbol of the community much like lead mining once was:

Brad C.: Mining was it; the whole town was built on mining. There are still remnants of that all over the place. But there is nothing else that's really taken the place of mining as a real feature of this community and as a symbol of this community. The school system though has. The school system is nationally recognized, the school system is community based, big time.

And he elaborated on this theme later in the interview:

Brad C.: The opportunities here are not great, no matter what profession you go into. So the school system keeps their parents here, the school system is still attractive. We've enrolled so many kids this year from other local schools who's parents move into our district because they want the schooling for their kids.

(Brad C.)

The juxtaposition between the educational opportunities and economic opportunities for youth in the region could not be more profound. Whereas the quality of the local school system has significantly increased in the past decade, largely due to direct institutional efforts to do so, the employment opportunities for young people after the completion of school are few and far between. One striking fact discussed by the principal at Central High School was that among all of the students in his district, not one had a parent who was a doctor or a lawyer. Although the quality of the school system may attract families in the region to move to the Old Lead Belt, it is questionable whether or not ample infrastructure exists in the community to retain younger members of the community after they complete school. Everyone I spoke with discussed to some extent how the Old Lead Belt functions as a bedroom community for St. Louis and that one would most likely have to commute for a quality job.

Jesse H.: It will be five years in February of 2014 that I've worked there. What I do, I'm a welder and fabricator. There's not really a whole lot down here in that field. Actually, there's one place over by the chat dump, they do fabrication, but they don't really pay, you're lucky to see \$10 an hour out of that shop. That's okay, but it's not enough to get you by, it'd be hard to live on something like that. So I work in St. Louis, which is a higher paying job, obviously, and it's worth the commute because it's better pay and better insurance and stuff like that.

Even though he wanted to continue living in the area as a young adult, he was forced to find work in St. Louis and commute. Another participant, who recently joined the Navy, elaborated on the lack of opportunity in the area:

Interviewer: What do you think defines the community today?

Andrew C.: Hmm... (long pause) probably big city jobs and that's about it really. The community is kind of dysfunctional, it ain't as close knit as it were back in the past when mining was around. Another thing is probably the prison that keeps it together because without the prison not many jobs would be around here. So that's about it really.

Interviewer: Can you talk more about the big city part? Do a lot of people live here and then commute into St. Louis?

Andrew C.: Yeah, a lot of people that live in Bonne Terre and in Park Hills commute to either Cape Girardeau or St. Louis to look for jobs and get better pay and whatnot. A couple people work up at the mining up north I think like in, I forgot the area, but it's mining out west, just like rock quarry mining. They live in Bonne Terre and do that.

Interviewer: What kind of jobs are available in the area here?

Andrew C.: Mostly fast food. There's Proffer's that is owned by a business person in Park Hills, but yeah mostly fast food jobs or factory jobs really.

Interviewer: What do you think is the consequence of people living here and working in other places?

Andrew C.: Not bringing jobs to this area and here soon jobs are leaving, or we see this more and more. This town will slowly die out; a lack of jobs and a lack of interest, and people will just move on.

Interviewer: So do you see that today, do you see the community sort of changing now?

Andrew C.: Yeah, a lot of people want to get out of here. I'm one of them, but I want to get out of here because there ain't no future here really. If I stay here I'll be working at a dead end job like my dad in a factory and at the age of forty my

body will be useless basically from the rigorous work that I'd be doing, so yeah.

But a lot of people are looking towards the city to get out.

Overall, the interviews conveyed a sense of change in the community and suggest that a re-identification of the community and its members is underway. Although lead mining played a significant role in the formation and initial identity of the communities within the Old Lead Belt, the identities of these communities today appear to be more strongly shaped by the individual members of the community. Other aspects of the community, such as schools, churches, and the smallness or rural aspect of the area, that featured prominently in participants' responses as defining aspects of the community have little to do with the legacy of lead mining in the area. The only aspect of the community that bore any connection to the legacy of lead mining, and it was only mentioned by a couple of the participants, was the proximity of the area to numerous state parks that sit on land donated to the state by various mining companies or individuals associated with lead mining. However, the few participants that did mention it seemed to outright dismiss it, suggesting that it was more of a public relations branding effort than anything else.

Robert T.: Well the phone book went to the extreme of selling several years ago the idea of the Parkland, Missouri's Parkland, because we have so many state parks and we're in the middle of a bunch. Others have talked about the number of prisons that are in this area. I don't know that we're defined by either one. We still, I believe the community still holds onto this Lead Belt idea...but I don't know, can you define an area by its history? There's a lot of places throughout the country that are known for more of what happened in the past than what

they're doing now, and maybe that's going to be our place, to hang on to the past while we look for something in the future to expand to.

One fascinating outcome from this research is the schism that exists between the perceived identity and actual identity of the communities within the Old Lead Belt, which suggests that the post-mining identity of the Old Lead Belt is still being formed and has yet to be collectively understood or agreed upon by community members. When asked directly what defines their community today, most participants were unable to respond with confidence, if at all. However, when asked tangential questions, such as what is the best aspect of this community today or what aspect of this community keeps people here, their substantive responses painted a much clearer picture of their understanding of what shapes the Old Lead Belt today. These characteristics may not make the communities within the Old Lead Belt unique among other rural communities in Missouri, or across the United States, but they do suggest that the Old Lead Belt today is not simply defined by the absence of the lead mining industry.

RQ3: What is the future of the Old Lead Belt? Although most participants voiced significant concern over the current economic climate in the Old Lead Belt, none feared that their community would suffer a significant change or loss as a result of the economy. Most attributed the poor economic situation in their community to the national economy and as a result seemed resigned to having little or no control over changing the status quo. Furthermore, when asked to consider how the community might change in the next decade, most felt that there would be little to no change.

Victoria K.: I hope I'm still alive in ten years. (laughs) I don't know that it would be much different. The trees will be a little bigger. You hear people say, "I can't wait until I grow up," when you're driving the [school] bus, "I want to get out of

this town.” But so many times they’re back. This is just a nice kind of lifestyle I think. I like it.

However, some residents voiced concern that the general infrastructure within the community would be more dilapidated in a decade’s time than it is today, especially with an increase in vacant or condemned buildings. But, for the most part, all of the participants did not anticipate much change in the coming years and did not voice a significant desire for things to change either, other than an economic turnaround.

However, when participants were asked what they found to be the most worrisome aspect of the community, many voiced serious concerns, ones that they feared could escalate in the future if left unaddressed. Three participants expressed concern about increasing crime and drugs in the community, which they attributed to individuals coming to the area from St. Louis as a result of the prisons in Bonne Terre and nearby Farmington. In addition, numerous participants voiced serious concerns over the economic future of the area, two of which specifically mentioned the decreasing tax base in Bonne Terre. Years ago the residents of Bonne Terre voted to replace their property tax with a sales tax, which has subsequently suffered as the number of retailers in Bonne Terre has dried up. In recent years, their attempt to reinstate a property tax has failed.

Fred M.: The income the community gets is really limited and so it’s really hard to come up with funding for things to help the city develop. We tried to get the property tax passed twice while I was on the city council and it failed both times, and then it failed once since then...we put out a thousand surveys in the community and we only got 52 surveys back. But oddly enough out of those 52 there was a place to write on the survey suggestions and 33 of the people who responded suggested that we get a property tax, and there was no question about

that on the survey, it was just an open ended question. So the city council thought, “well maybe the community is in the mood to help things develop and maybe progress a little bit.” It was put on the ballot...I’m guessing less than 10% of the people voted...which indicates people live here but they don’t have a lot of an investment in the community. That’s a problem.

On this same point, another participant, who still works as a lead miner in the Viburnum Trend, expressed fear that unforeseen economic or regulatory changes could halt mining.

While all of the participants communicated some sense of pride and interest in maintaining the Old Lead Belt’s mining heritage, a theme emerged among a few that this heritage is slowly being lost. Specifically, two participants identified a decrease in a sense of community as the reason the Old Lead Belt’s heritage is waning.

Andrew C.: This place has a rich vibrant history, and it would be a shame to watch it fade away in today’s modern ignorance with people worrying about everything else besides their own communities. It would just be a waste. Kids nowadays are just more worried about the next thing that’s coming instead of learning about the past or where they came from.

This theme of looking back and expressing apprehension about the future of the community took on various forms. Some participants were more sentimental about the matter and others were more practical. Whereas one participant shared nostalgic feelings for the area’s legacy and wished that the lead mines were still operating in the Old Lead Belt today, others hoped the area’s heritage could be leveraged to bring more visitors to the area in the future.

On this point the members of the community are in agreement, the future of the Old Lead Belt and its residents is far from clear. The collective understanding that arose

from the participant interviews about where the area was heading is neither overly optimistic nor hopeless. Although the Old Lead Belt will most certainly not become a mining ghost town, due to its proximity to St. Louis and ability to function as a bedroom community, the lack of economic potential within the community suggests stagnation at a community level that will continue indefinitely into the future. Perhaps it even foreshadows a slow deterioration in the coming years unless some unforeseen development injects a positive change into the area. Despite this grim forecast, hope for the community, nonetheless, abides and it is centered on the community itself.

John W.: If anything I would guess that they would maintain a fairly good baseline, with maybe a modest level of increase as they can attract more investment. But, no I don't think they'll completely tank and taper off into nothingness...I think that they've just kind of reached the baseline, or the background level to where there's enough people living in the area and those people demand a certain level of services and so it's kind of a community that exists because it's a community.

Conclusion & Future Research

In many ways these findings illustrate Bourdieu's notion of habitus and its role in individual experience and identity. They also expand this view in that they demonstrate the persistence of this process in that even after four decades without lead mining in the area, the perceptions of community members in the Old Lead Belt, of both their community and themselves, remains closely tied to the lead industry and the way things once were when it dominated the region. The main differences in the comments between participants with and without a family history of lead mining reinforce this view. That is,

individuals with a personal history tied to the lead industry define themselves and their community more closely with the legacy of mining. However, this connection is also apparent to some degree in the comments of those with weaker ties to the legacy of mining. This pattern suggests that identification with the industry of lead mining and the specific legacy in the area is pervasive within the entire community, albeit to varying degrees among community members.

The future of the community seems uncertain, and its uncertainty stems from several sources. First, the absence of the lead industry, even though it has been gone for many decades, is still felt. In some ways, the community is still struggling because it is largely defined by what it no longer does than by what it presently is. Second, the lack of a collectively agreed upon community identity, perhaps due to different connections among community members with its history, will also affect its future. Third, the inability of community members to identify, even for themselves, what defines the community in which they live poses a challenge to progress.

These observations suggest that those who live in the Old Lead Belt are deeply marked by the context in which they live, and that the history of the community remains deeply entwined with the community itself and the identities of the people who live there. Living in what was once the global epicenter of lead mining for more than a century, but no longer is, is no easy place to move forward from. History continues to take its toll, and a bleak economy has made moving on even more challenging in the region. In this light, one cannot help but be reminded of William Faulkner's observation that, "The past is never dead. It's not even past" (Faulkner, 1950).

These findings parallel those discovered in West Virginia and discussed by Bell (2009); namely that in both cases the decline of the dominate industry—coal mining in West Virginia and lead mining in the Old Lead—directly led to a loss in community social capital. In fact, one aspect of these findings that is particularly interesting is that participants in both studies cited similar anecdotes as the cause of their community’s decline. Participants in both studies identified the arrival of community outsiders as the problem. In the case of West Virginia it was non-union coal companies and the resulting non-union miners that moved to the area or abandoned their former unions who filled the role of the outsider. In the case of the Old Lead Belt, it was the arrival of new residents following the end of lead mining in the area who had no familial connection to lead mining who were seen as the outsider. Regardless of the significance that the arrival of outsiders had in contributing to the significant change and decline within each community, it seems worthwhile to note this parallel.

This distinction between insiders and outsiders, community members with a familial mining connection and those without, hints at a larger conversation of the distinction between the heritage of the Old Lead Belt and the legacy of the Old Lead Belt. Here, legacy refers to the history of the Old Lead Belt, whereas heritage connotes the culture and way of life associated with the mining that took place. Although no participants in the study openly discussed or made distinctions between the ideas of the Old Lead Belt’s heritage versus its legacy, their overall perspective demonstrated a nuanced view that does draw a distinction. Overall, this point of view suggests that those with familial ties to lead mining, whose lineage dates to the 108-year history of lead mining in the area, embody the heritage of the community. One could even say they are

the heritage. Whereas newcomers who arrived after 1972, when mining ceased in the area, are entirely disconnected from the Old Lead Belt's heritage, both in identity and personal understanding. However, the legacy of the Old Lead Belt is independent of both the residents and events of today. The area's legacy is its history, perhaps preserved by future generations and, in many ways, unchangeable.

This distinction between heritage and legacy, although not a revelation by any means, is profoundly interesting in the case of the Old Lead Belt. The community at present sits at a threshold in time, there are miners still alive who worked in the lead mines when they were flourishing and there are many descendants of these miners still living in the area who grew up while the mines were active. This living heritage presents a pivotal moment that is directly tied to the cultural memory of the community as well as the legacy of the Old Lead Belt. But it will undoubtedly pass on in the coming years. It is possible that much of the angst towards the decline of the community felt by community members with familial connections to lead mining—and expressed as frustration or blame towards outsiders—is to a certain extent a reaction to this threshold or moment in time, one that foreshadows the inevitable eclipse of the Old Lead Belt's heritage by its legacy.

Like all research, this study has limitations. With no prior social science research conducted in the area, the study was in many ways exploratory, which led to the inclusion of a breadth of participants representing a cross section of the community. This tactic provided a valuable introductory look into the people and the community. However, future research could benefit from interviews with a more narrowly defined sample so as to drill down into more specific aspects of the Old Lead Belt. For example, one could focus on younger community members who have more at stake in terms of the future of

the area. Another interesting segment of the community worth exploring further would be members of the community more directly impacted by lead contamination and remediation efforts. Furthermore, with the decrease in average household income in the last decade and significant increase in government assistance, focusing future research on those with the least economic capital could prove fruitful. This might be especially important in relation to the future of the community given the success of the public school system and the community efforts to find support for the schools through local tax and bond measures.

Alternatively, other qualitative methods, or quantitative methods, could be employed to identify significant factors that are supporting or impeding changes that are beneficial to the community and its members. These research efforts should attempt to both *explain* behavior or circumstances as well as *understand* them more deeply. Some of the themes identified in this research may be helpful in these efforts. This project was aided by a theoretical foundation, specifically the notion of habitus, and future researchers are urged to arm themselves with a theoretical stance that helps them go beyond the surface as they engage with a community and its members. Additionally, complementary research could be conducted outside of the Old Lead Belt, such as in the Viburnum Trend or other rural communities with similar characteristics that have no mining legacy to compare and contrast finding with what was discovered in the Old Lead Belt.

This project was eye opening and its findings clearly demonstrate the lasting impact the legacy of lead mining has had on the Old Lead Belt. In fact, so strong is the legacy of mining that, for better or worse, it is questionable whether or not the

communities in the region will ever be able to entirely move past the legacy of their community having been established on the single, historically determined industry of lead mining.

Last but not least, this work would not have been possible without the numerous members of the Old Lead Belt who opened their lives to me and shared their point of view. I would like to acknowledge and say thank you to all of the participants, community members, and fellow researchers who participated and assisted in this project and made me feel, if only for a brief moment, a member of their community.

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APPENDIX

1. PROJECT PROPOSAL

Introduction

Photography is a way for me to explore and learn about the world. I am most intrigued by documentary non-fiction images—photographs that transport me to distant lands and foreign situations, and expose me to unique perspectives that lead me to reflect on my life and our world. Similarly, as a photographer I am most interested in producing documentary non-fiction work that is driven more by curiosity about the world than a desire to have a photograph as an end result. In other words, I see photography as a medium for exploring the world and communicating that exploration to others. In fact, the physical act of photographing enables me to seek out the world in unique ways. “The camera is my entrance-ticket. It is also my way of clarifying (for myself) what is going on. Finally, it is a way of passing on this new-found experience to others” (Jay & Hurn, 2007, p. 62). To be photographed is an experience, to make a photograph is an experience, and to see a photograph is an experience. Photographs are powerful—they can communicate truths, moments, ideas, emotions, and feelings.

In many ways my experience at *The Missouri Photo Workshop*, a weeklong professional photojournalism workshop founded by Clif and Vi Edom in 1949 and run by the Missouri School of Journalism, epitomizes this perspective on photography. As a young photographer with little to no story telling experience, I was completely taken aback in the fall of 2010 in Macon, Mo. Somehow, through a recommendation and a some luck, I had found my way into the 62nd Missouri Photo Workshop, and I knew instantly that I was in way over my head. Although I had prior experience as a

photographer, I had not produced anything like what I was expected to produce at the workshop. As the week progressed my excitement turned into worry that then became a concern and finally I experienced fear. What was I doing here? I nearly lost all hope midway through the week. But then, with the guidance of the workshop's amazing faculty and directors, it all came together. I think the turning point was when I took a step back and started thinking less about the pictures I was going to have at the end of the workshop and started thinking more about the act of photographing a story itself. The key, it seems, was to use the camera as a tool to explore a story, to investigate a story in a way that both satisfied my curiosity and communicated some truth about it, and trust that good pictures would follow.

My experience at the workshop was so powerful that I decided to come to Missouri for graduate school. And, in a way, my experience in graduate school has mirrored my experience at the workshop. At first I was completely focused on the coursework, which is important but not the whole story. Over time, I realized that I needed to take that step back and learn to revel in the act of photography and what it means to me.

In searching for a master's project I decided to focus on Missouri, a place I had never been to before coming to the workshop and which I am still learning about. I wanted to do work that explored an area or aspect of my home base for the past two years. In looking into event and topics that have defined the region, I stumbled across Missouri's nearly 300-year history of lead mining. As I learned more about this heritage, I could not help but draw parallels between the Missouri Lead Belt and other communities that have been defined by practices that involve extracting resources from

the earth, such as coal mining in Appalachia, the lumber industry in the Pacific Northwest, and fracking for oil in North Dakota and elsewhere.

I wondered, how has three hundred years of lead mining in Missouri shaped the communities and individuals who live in the Lead Belt? How do generations of families with either direct or indirect ties to lead mining feel about lead today? And what do these communities and people look like? My goal is to understand this slice of Missouri and the various things it has to tell us about the place and the people who live there and their future.

Professional Skills Component

For the professional skills component of my master's project I plan to spend fourteen weeks from September 1 through December 14 photographically documenting both the communities and environment within the area of Southeast Missouri known as the Lead Belt. This photographic project will include all aspects of the lead industry and the surrounding environment, communities, and people whose lives have been influenced by this industry. This photographic project will be self-directed and will shape itself as it proceeds. Throughout the course of the project I will routinely return to Columbia to present my work and review my progress with my committee.

The project is both specific to Missouri and timely in its focus. Lead was first discovered in the area now known as the Lead Belt in 1719 by French explorer Philip Francois Renault ("History of Lead Mining in Missouri," 2002). Mining commenced one year later and has continued to this day. The area contains the highest concentrations of lead in the world and produces 70% of the lead used in the United States (Seeger, 2008).

The timeliness of the story is reflected in the fact the last lead smelter operating in the United States, which is located in Herculaneum, Mo. and operated by the Doe Run Corporation, is scheduled to shut down permanently at the end of 2013 due to extensive environmental concerns (Fenston, 2012). This event will have significant consequences for the region and the communities that have come to depend on the lead industry.

I am qualified to take on this project based on my extensive work over the past three years as a photographer, graduate student, and graduate research assistant. In 2010 I attended the 62nd *Missouri Photo Workshop* in Macon, Mo., where I was mentored by Dennis Dimick⁵ and Lois Raimondo⁶. As previously mentioned, the experience was so transformative for me I decided (on the spot) to apply to graduate school at the University of Missouri. I was admitted to the graduate program in 2011 and since that time I have completed the photojournalism sequence, achieving exceptional grades in all of my courses. In addition, I have worked as a graduate research assistant with all three professional photojournalism programs—the *Missouri Photo Workshop*, *Pictures of the Year International*, and *College Photographer of the Year*. I believe that I have made positive contributions to the success of each of these programs. I have also made an effort to carry out documentary photography work beyond the requirements of the photojournalism sequence, including a photography project documenting the rural community of Plato, Mo., a small midwestern town that happens to be located at the mean population center of the United States.

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⁶ Lois Raimondo is the Shott Chair of Journalism at West Virginia University and holds a master's degree from the University of Missouri School of Journalism.

My plan to document my work for the professional skills component of my master's project includes keeping detailed field notes regarding all of the research, reporting, and photography I conduct. I will communicate regularly, I anticipate weekly, with my committee members, particularly David Rees and Joe Johnson, sharing both my field notes and photographs, to ensure that my project is developing and progressing in a positive direction.

Ultimately, the goal of this project is to publish the work in an editorial publication. I plan to contact relevant publications in the months preceding the start of my project as well as throughout its duration in the hope that an interest in publishing the work can be secured before or shortly after the completion of the project. Furthermore, I would be interested in producing a photo book or equivalent eBook (e.g. iPad App) at the conclusion of the project if the work warrants such publication.

Scholarly Analysis Component

For the scholarly analysis component of my master's project I will conduct a series of in-depth, unstructured interviews with community members within the Lead Belt whose daily lives have been directly influenced by the lead mining industry. The interviews will include various members who work directly in the industry such as miners, smelter employees, and ancillary business owners. I also plan to interview individuals affected by the mining in other ways, including those suffering from exposure to pollution from the mines, community and political leaders, environmental activists, and health care professionals among others. I plan to identify potential interview

participants through my photographic work documenting the Lead Belt and conduct interviews throughout the fourteen weeks I will be photographing.

It is very important to me that the professional skills and scholarly analysis components of my master's project complement one another, with each positively contributing to the depth and accuracy of the entire project. Conducting these in-depth interviews will provide valuable first-person accounts of the region and the lead industry that will enhance my ability to make educated photographic decisions. Additionally, the research and reporting that will go into my photographic work will improve my understanding and knowledge of the Lead Belt and improve the quality of the interviews.

The interviews will be narrowly focused on the influence and impact the lead industry has had on each community and the lives of those within each community. However, within the confines of this topic, the interviews will be unstructured so as to encourage participants to speak freely and openly about their lives. Furthermore, although some time will certainly be spent discussing past events, the primary focus of the interviews will be to discuss what life is like today in the Lead Belt. Interviews may be recorded, with permission, when possible for later use in a multimedia or radio piece.

Because my overarching goal is to understand this slice of Missouri and the various things it has to tell us about the Lead Belt and the people who live there, the primary research questions that will drive my research are:

Research Question #1: How has lead mining shaped the communities within the Lead Belt?

Research Question #2: How has lead mining influenced the lives of individuals within the Lead Belt?

Research Question #3: What is the future of the Lead Belt and its people?

Theoretical Framework

Lead mining in southeastern Missouri in the area known as the Lead Belt is more than just an industry; it is an engrained and defining aspect of the environment and community. Although he could not have realized it at the time, when French explorer Philip Francois Renault discovered high concentrations of lead in the region in 1719 (“History of Lead Mining in Missouri,” 2002) he had stumbled across the highest concentrations of lead in the world (Seeger, 2010). Mining commenced the following year and has continued unabated for nearly three centuries, arguably becoming the most significant force that would come to shape and define the region. Presently, lead mining is ongoing in the Lead Belt, but it is destined to fade, potentially quickly, as various economic, environmental, and social influences alter the landscape, maybe even the existence, of the industry. These events will, undoubtedly, have far reaching consequences within the entire region.

Pierre Bourdieu’s theory of habitus, which considers what one does and the actions in which one engages or practices as the defining features of personal identity, is a useful entry point for exploring the close relationship between an individual’s identity and the greater social context:

Habitus is an abstract entity identified within the interval between a bodily and spiritual dimension, and is the *only* possible foundation of individual identity (the practical identity based on *habitus* is the only true identity). The only true knowledge of individual identity can be a sociological self-knowledge of *habitus* [...] for Bourdieu, concepts and theories are not to be objectified, but used to illuminate and explain particular puzzles in sociological analysis (we are deeply marked by the contexts in which we find ourselves) (Serban, 2011, p. 249).

Bourdieu's theory not only suggests that the lead industry has defined and shaped the communities within the Lead Belt, but that the individual identities of community members are intrinsically tied to this industry. This point of view suggests that individual identity has historical roots in the practices of the community and that the future of the community and its members are built on these practices. My question is what happens to a community when the defining practices of the community change significantly or disappear? What happens to the individuals in the community?

Pierre Bourdieu, born 1930, was a French sociologist, anthropologist, and philosopher perhaps best known for his 1979 book *Distinction: A Social Critique of the Judgement of Taste*, in which he argued that the powers within society define societal tastes or preferences and, as a result, a person's own interests are defined by one's social class or experience with or access to these tastes or preferences in their society. The book was later voted by the International Sociological Association as one of the ten most important sociology books of the 20th century ("Books of the Century," 1998). His theory on the relationship between societal taste, social class, and individual identity stems from his broader theory of habitus.

On the most basic level, habitus can essentially be understood as how the broader social context of one's life has a defining influence on personal identity. As an example, Bourdieu uses habitus to explain how the children of educated parents have higher success rates of educational attainment (Prieur & Savage, 2011). "Cultural and economic capitals create patterns of social differentiation that are linked to fundamental processes of social stratification and inequality" (Serban, 2011, p. 249-250). Overall, Bourdieu employs habitus to illuminate and explain puzzles of what appear to be voluntary

differentiations or distributions among groups in a society that emerge in sociological research by recognizing that “we are deeply marked by the contexts in which we find ourselves” (Silva & Warde, 2010, p. 2).

While habitus may seem to suggest that individuals are powerless in shaping their own lives when stacked up against the overwhelming influence of societal context, Bourdieu is also keenly aware of the interplay between large-scale social change and the struggles of daily life (Calhoun, 2012). Habitus is a bidirectional process, individual social action is shaped by social context but it also plays a vital role in reshaping social contexts as actions are played out in the real world. Thus, habitus is a dynamic process that changes in relation to social, cultural, and economic conditions through the actions of individuals (Glastra & Vedder, 2009). For example, in returning to Bourdieu’s discussion of taste in *Distinction: A Social Critique of the Judgement of Taste*, he points out the cyclical nature of social process in how the reigning powers in a society define the societal context in ways that shape the personal preferences of individuals, who in developing and modifying these preferences, influence how the reigning powers define society.

Scholars have used the construct of habitus to understand how individuals and social contexts work together. In the paper “Habitus as Topic and Tool: Reflections on Becoming a Prizefighter”, Wacquant (2011) uses habitus as a theoretical framework for his ethnography of the Chicago boxing gym *Woodlawn Boys Club*. Through the lens of habitus, Wacquant saw the boxing gym as more than a local gathering place. For Wacquant, this gym was a complex microcosm with its own history, culture, aesthetic, social practices, and intense emotional and moral life that defined the individuals who

participated in the gym (Wacquant, 2011). For Wacquant, habitus was more than a framework for the research, it “supplied at once the anchor, the compass, and the course of the ethnographic journey [...] it is the *topic* of the investigation” (Wacquant, 2011, p. 81). For example, habitus states that individuals have various sets of dispositions shaped by their social location and experience and Wacquant found that these varying dispositions ultimately had a direct influence on the level of success each boxer found both in the gym and the ring, and subsequently on the reputation of the gym itself (Wacquant, 2006).

What is particularly fascinating about Wacquant’s work is that he was in constant communication with Bourdieu throughout his research (Wacquant, 2011). Upon learning that he had adopted the role of participant-observer and signed up to learn how to box, Bourdieu sent an encouraging note that read: “Stick it out, you will learn more about the ghetto in this gym than you can from all the surveys in the world” (Wacquant, 2011, p. 86). In fact, Bourdieu even traveled to Chicago on numerous occasions to visit Wacquant. They ultimately co-authored the book *An Invitation to Reflexive Sociology* together, in which they explore the connection of habitus, social space, and individual dispositions (Bourdieu & Wacquant, 1992).

In reflecting on his ethnography (published as the book *Body & Soul: Notebooks of an Apprentice Boxer*), Wacquant (2011) argues in favor of adopting the role of participant-observer by immersing oneself completely in the subject at hand. However, he underscores the importance of arming oneself with a theoretical framework before doing so that empowers one to objectivize the experience rather than have the experience redefine the researcher (Wacquant, 2011). In his research, habitus served this role.

By incorporating the theoretical framework of habitus into my research and its method I hope to better understand better how community members within the Lead Belt—a community primarily established upon a single, historically determined industry—view their own identity in present day society as the lead industry changes.

Literature Review

Introduction. In researching the Lead Belt and the history of lead mining in southeast Missouri, three main categories of literature emerged: historical research about the state of Missouri and its legacy of mining, scientific research articles regarding lead mining practices and its health and environmental consequences, and primary documents including news articles and publications from within the mining industry (such as business prospectuses and technical manuals). No social science research could be found that has been conducted examining the influences lead mining has had on the communities in the Lead Belt. For example, the Missouri Lead Study of 1977—a two volume, eleven hundred page, comprehensive study examining the lead pollution resulting from industrial development in the Lead Belt and self described as ‘interdisciplinary’ —does not include any social science research or even research discussing the health effects of lead pollution on those living in the Lead Belt (Wixson, 1977).

However, social science research examining other communities that have been defined by practices that involve extracting resources from the earth, such as coal mining in Appalachia and the lumber industry in the Pacific Northwest, have been done. Although this kind of research has not been conducted in the Lead Belt, examining past

research in similar and parallel American communities is valuable as a guide for the proposed project.

Historical Context of Lead and the Lead Belt. Lead is a chemical element and malleable metal. It is a member of the group of heavy metals alongside other metals such as iron, cobalt, copper, mercury, and zinc. Some heavy metals are required by living organisms in small and varying levels to survive, for example human beings require varying though small amounts of iron and cobalt, whereas, other heavy metals are severely toxic, such as mercury and lead, to living organisms. Even in small amounts some heavy metals can pose a significant health risk due to their tendency to bioaccumulate and biomagnify within individual organisms, ecosystems, and food chains.

Lead has been used for thousands of years due to its prevalence and ease of use. Lead jewelry in the form of beads dating back to 6400 BC has been discovered in the region in modern day Turkey (Heskel, 1983). The earliest large-scale lead mines date back to 3000 BC (Lubick, 2008). The Roman Empire was the first society to use lead widely, most famously for indoor plumbing, and it was the largest preindustrial producer, producing an estimated 80,000 metric tons of lead a year, mostly as a byproduct to smelting silver (Callatay, 2005). Roman vintners also used lead as an additive to balance wines that were deemed too acidic or to sweeten those that had begun to turn to vinegar (Gough, 1998). Despite causing low grade lead poisoning that came to be known as ‘dry gripes’ or ‘dry colic,’ which consisted of abdominal pains and constipation, the practice of using lead and lead compounds as an additive in wine continued for centuries until lead was identified as the source of the problem by German physician Eberhard Gockel late in the 17th century (Gough, 1998). However, word was slow to spread and the

practice did not fully stop for another 50 years (Gough, 1998). As a result, it seems unsurprising that some scholars have argued that widespread lead poisoning may have contributed to the downfall of the Roman Empire (Nriagu, 1983); however, this theory is highly contested (Scarborough, 1984).

Although it is possible to find naturally occurring, refined, metallic lead in nature, it is quite uncommon. Lead is most commonly found in ore that contains other metals such as copper, zinc, and silver, and lead is mined alongside these other metals and extracted from the ore. Most ores contain very little lead, less than ten percent; however, due to the high value of lead even ores with as little as three percent lead are economically viable to mine (“Lead Mining Machine,” 2005).

The Southeast Missouri Lead District, also known as the Lead Belt, spans seven counties directly southwest of St. Louis and contains the most highly concentrated known lead ore in the world (Seeger, 2008). Despite being a city founded on the fur trade, more money has passed through St. Louis as a result of lead mining than fur (McHenry, 2006). French explorer Philip Francois Renault was the first to bring industrial lead mining to southeast Missouri in 1720 after discovering the lead rich ore on a mining exploratory expedition for France’s King Louis XV the previous year (“History of Lead Mining in Missouri,” 2002). Prior to Renault’s arrival the only lead that was mined in the area was surface mined by Native Americans and most likely used to craft jewelry and make paint, and later to manufacture bullets (Habicht-Mauche, 2005) (Broihahn, 2008). Renault’s mining operation included over 200 skilled laborers and the refined lead was transported by mules and then floated down the Mississippi River to New Orleans, ultimately

destined for Europe (McHenry, 2006). Renault's mining exploits ended in 1744 when he packed up and returned to France (McHenry, 2006).

France's control of Missouri, along with the surrounding area, ended in 1762 when France gave the land to its ally Spain. However, in 1800, during the reign of Napoleon Bonaparte the land was retaken by France and then sold three years later to the United States as part of the Louisiana Purchase (Kennedy et al., 2008). Although lead mining continued throughout the 18th century, significant growth in both mining development and population did not occur in the region until the United States purchased the region from France (McHenry, 2006). The final major development in lead mining took place near the end of the Civil War when the demand for lead, mostly for weaponry, had reached its highest levels to date (McHenry, 2006). Mining technology improved in response to demand, most notably with the invention of the diamond drill, which allowed for improved techniques in pinpointing the locations of rich ore deposits deep underground and reaching ore as deep as 1,000 feet (McHenry, 2006). Prior to the diamond drill, a mine could only be excavated to about 100 feet underground (McHenry, 2006). As lead profits accelerated more business investments were made both in lead mining and the region, laying the foundation for the Lead Belt that exists today (McHenry, 2006).

As lead mining in southeast Missouri grew into the widespread, industrial scale mining operation of the current day, many smaller mining companies were swallowed up by larger ones such as the Doe Run Lead Company, which still operates in Missouri and around the world. This corporate consolidation in the early 20th century led to the development of numerous mining towns, and "by 1917 major communities had

developed as a result of the mining industry” (McHenry, 2006, p. 30). An increase in the volume of mining, deeper mines, and improved mining technology led to record profits in the early 20th century; for example, in 1830 the Lead Belt produced 3,600 metric tons of lead and in 1921 it produced 178,735 metric tons of refined lead valued at over \$16 million (McHenry, 2006).

At the time state law prohibited the lead mining companies from engaging in businesses not specified in their charter. Despite this, mining companies operated company stores, leased farming land, provided utilities, and conducted other business through subsidiaries (Brownlee, 1977). Early in the 20th century, backed by the American Labor Union and the Western Federation of Miners, union organizers representing the newly formed Industrial Workers of the World—colloquially known as ‘Wobblies’—attempted to unionize lead miners in the Lead Belt (Thompson, 1955). They called for strikes to force a pay raise, but the lead companies squashed the effort by offering a twenty-five cent pay raise before a strike could occur (Thompson, 1955). A subsequent attempt by national labor organizers to unionize lead miners would again fail in 1924, however, local unions would later emerge (Thompson, 1955). By 1917 the major mining companies controlled vast swaths of land, closed it to all prospecting, and established company towns on non-mineable land, filling them with immigrant laborers they imported in large numbers (Brownlee, 1977). Socio-economic segregation fueled strained relations between mining companies and communities and the mounting tensions that ultimately erupted in the Lead Belt Riot of July 13-14, 1917 (Brownlee, 1977).

The riot occurred when the United States was on the brink of entering World War I. The mining companies attempted to capitalize on the anticipated wartime demand for

lead by revamping mining practices through the introduction of modern, industrial discipline. However, when their efforts were met with resistance from miners who preferred more traditional (and less efficient) mining practices, the mining companies simply replaced their work force with immigrant labor (Brownlee, 1977). What followed was a two-day riot in which gangs made up of laid off miners and other local men rounded up immigrants and forced them and their families onto departing trains (Thompson, 1955). The riot escalated into the evening of the first day and “by dark a mob of about a thousand roamed the district throwing rocks at the homes of immigrants and occasionally firing into them” (Brownlee, 1977). Foreigners either hid or fled into the woods during the night and those that were caught were beaten (Brownlee, 1977). More than thirty-five hundred immigrants were forced to leave the Lead Belt during the riot (Thompson, 1955). By the time the requested state troops had arrived the riot was over with most immigrants having been expelled from the area (Thompson, 1955).

Community resentment towards the mining companies did not substantially decrease in the wake of the riot (Brownlee, 1977). Although technological improvements had drastically improved mining practices and the efficiency and profitability of lead mining in the previous 50 years, it had done little to improve the harsh working conditions for miners. As Brownlee (1977) recounts, “handheld drills, picks and shovels were the basic tools, and men had to work underground, stooped over or standing in water” (p. 407). Furthermore, relations were further strained by the mining companies that continued their efforts to exert enormous control over mining communities, including banning saloons on company leased land and passing legislation that regulated drinking (Brownlee, 1977).

Much like other industries during the Great Depression, the lead mining industry was hit hard. Lead prices were depressed, banks closed, and nearly everyone lost their savings (Thompson, 1955). In 1931 wages and salaries were cut by 20% across the board with miners only working three weeks out of every five in an attempt by the mining companies to distribute the burden evenly (Thompson, 1955). Because both the price of lead and demand for lead collapsed—for example, the Western Telephone Company's orders for one hundred thousand metric tons of lead per year ceased for three years—the Herculaneum smelter was closed and mined ore was simply stockpiled for nearly five years until the demand for lead and prices began to recover (Thompson, 1955).

Although lead mining practices have improved in the last one hundred years with the advent of the machine shovel (which replaced the need for miners with picks and shovels to hand load ore deep within the mines) and improved safety measures (Gibson, 1972), contemporary lead mining is carried out in more or less the same manner as it was one hundred years ago. Shafts up to one thousand feet deep are dug straight into the ground from which a catacomb of horizontal mining shafts thirty-six feet wide and fifteen to twenty feet tall radiate and meander their way beneath the surface (McHenry, 2006). Explosives are used to expand and lengthen these shafts while drill jumbos, front-end loaders, and 40 ton dump trucks are used to mine the ore and transport it to the base of the vertical mine shaft (McHenry, 2006). A primary crusher at the base of the shaft breaks the ore into smaller pieces before it is hoisted to the surface, further crushed, and then milled through a floatation process (McHenry, 2006). Once milled, the ore is transported to a smelter where it is refined into the primary metal (McHenry, 2006).

Missouri has historically been the largest producer of lead in the United States and continues to produce 70% of the lead used in the nation (Seeger, 2008). The United States ranks third in terms of world lead mining production. In 2010 a total of 4.14 million metric tons of lead was mined worldwide with 1.85 million metric tons produced in China, 625,000 metric tons produced in Australia, and 369,000 metric tons produced in the United States (“Lead: World Mine Production,” 2010). In 2010 the commodity price for lead peaked at just over \$2,400 per metric ton (“Lead Monthly Prices,” 2013).

All metals are capable of being recycled and lead is no exception. In fact, lead is the most recycled metal both in the United States (USGS, 2001) and the world (UNEP, 2011). In 2001 79% of refined lead produced in the United States was refined from recycled scrap, totaling 1.10 million metric tons, the vast majority of which was recovered from lead-acid batteries (USGS, 2001). In the United States 93.3% of lead-acid batteries are recycled due to the “successful collaboration among members of the battery industry, retailers, and consumers” (USGS, 2001, p. 62.6). World wide nearly 80% of all products that contain lead are recycled (UNEP, 2011). Missouri recovers more lead from recycled scrap than any other state (McHenry, 2006).

Presently, 78% of all lead is used to produce lead-acid batteries, most of which are used in automobiles and to provide emergency power to large-scale computer systems (such as data centers) (McHenry 2006). Lead is still used extensively today for soldering, sound proofing, televisions and computer displays, and to provide radiation shielding both from x-ray machines and to contain nuclear waste (McHenry 2006). It is estimated that every American requires approximately eleven pounds of lead each year to maintain their lifestyle (McHenry 2006). Historically, lead was used extensively as a gasoline

additive and in ammunition, roofing materials, and paint due to its high levels of corrosion resistance and other properties; however, concerns over pollution and lead poisoning have dramatically decreased the use of lead in these ways, mostly by legal restrictions (McHenry, 2006).

Lead mining has also contributed to extensive environmental and health problems in the Lead Belt, with numerous fines levied against mining companies by the Environmental Protection Agency (EPA) (Hawes-Davis, 1993). Environmental contamination directly resulting from lead mining has resulted in seven EPA Superfund sites in the region—sites where toxic waste has been dumped either accidentally or knowingly and the EPA has designated them to be cleaned up—that include contaminated soil, water, and air from previous and active mining operations and contaminated tailings (EPA, 2013). Industry employees and Lead Belt residents have also suffered from lead from poisoning along with severe respiratory and other health problems and the mining companies have done little to address these concerns (Hawes-Davis, 1993). For example, in 1988 the Occupational Safety and Health Administration (OSHA) charged the Doe Run Company with over 300 workplace violations related to employee health risks at their Herculaneum smelter and slapped them with the third largest fine in OSHA history (Hawes-Davis, 1993). Then in 2002, after a state sponsored study found that 56% of children living nearby the smelter had dangerously high blood-lead levels (children are especially susceptible to lead poisoning [National Research Council, 1991; Nordin et al., 1998]), the Doe Run Company was forced to buy 160 homes within a three-eighths mile radius of the smelter and raze them after residents moved out (Hiles, 2006). With mounting EPA violations and an appeal pending on a recent \$358 million judgment

against the Doe Run Company from a lawsuit brought by 16 former employees (Thorsen, 2012), the company has announced that it will close the Herculaneum smelter, the last smelter operating in the United State, in December 2013 (Fenston, 2012).

Scientific Studies on Lead Exposure and Contamination. Significant research efforts investigated the science surrounding lead pollution, contamination, and poisoning with much of this research specifically focused on the Lead Belt. Most studies have focused on environmental contamination caused by pollution and mining practices or they have examined the blood-lead levels of those living near lead mining.

Some researchers have concentrated on the problems associated with heavy metal contamination in the environment. Jennett and Wixson's (1972) early research outlined the major problem areas in controlling lead mining waste, namely controlling liquid tailings during and after the milling process. In subsequent research, Jennett and Foil (1979) found that under non-runoff conditions, streams within the watershed of lead mining, milling, and smelting operations in the Lead Belt are no different from control streams that sit nowhere near lead mining. However, under runoff conditions they found that significant amounts of heavy metals emitted during the mining, milling, and smelting processes were carried by runoff into nearby streams (Jennett & Foil, 1979). Furthermore, Jennett and Foil (1979) found that atmospheric emissions that settle in the soil are susceptible to runoff conditions as well.

Health effects from lead exposure occur in multiple ways and due to the high toxicity of lead even low levels of exposure, most often unnoticeable to the victim, can be harmful. To enter the body, lead must be inhaled or swallowed. Lead poisoning was first recognized as a health threat to populations living in urban areas that were exposed to

paint, dust, and air pollution containing lead (CDC, 1991). Exposure to lead was found to be particularly dangerous to children due to their hand-to-mouth behavior and enhanced absorption of lead from the gastrointestinal tract (Bryce-Smith et al., 1978). Furthermore, lead poisoning is significantly more detrimental to young children under the age of two while their brains are still developing (Bryce-Smith et al., 1978). Adults are also vulnerable. Later research showed that adults and children living in rural areas in close proximity to point sources of lead, typically lead mining operations, had elevated blood-lead levels (Danse et al., 1995). Murgueytio and Evans (1996) decided to focus their research on young children between the ages of six and seventy-one months who lived near a lead mining area in Missouri and they compared their findings to children of the same age who did not live near lead mining. They analyzed blood samples from both groups of children for traces of lead and found that the blood levels of lead were nearly twice as high among children living near lead mining that those who were not (Murgueytio & Evans, 1996). Furthermore, their research indicated a correlation between a child's blood-lead level and the lead level in soil surrounding the child's home, which also revealed that the soil samples in lead mining areas had six times the lead levels than did the soil in non-lead mining areas (Murgueytio & Evans, 1996). Further research by Murgueytio et al. (1998) reinforced these findings in that children living near lead mining had twice the blood-lead levels than those who did not.

Sterling et al. (2004) evaluated various education approaches to determine which form of education would be most effective in reducing elevated blood-lead levels in children living in lead mining areas. Their research, conducted in St. Francois County in the Lead Belt, examined three different cleaning and health education strategies. One was

called the control strategy and it included an informational meeting with a nurse for people at risk as well as distribution of government pamphlets about the hazards of lead exposure. A second strategy included all the elements of the control strategy along with quarterly newsletters tailored to each participant that included more detailed precautionary measures tailored to the participant's lifestyle and home environment. The third strategy included all of the elements of the first two approaches as well as quarterly cleanings of the home and its surrounds by professional cleaners trained to eliminate sources of lead within the vicinity (Sterling et al., 2004). The researchers found that all three strategies were modestly and comparably effective in reducing blood-lead levels among children living in mining areas. However, the researchers stressed that "the most effective prevention is full abatement of all lead exposure sources. This, however, remains a distant reality for many communities" (Sterling et al., 2004).

Coal Mining. Just as the Lead Belt's history has been tied to lead, so has West Virginia's to coal. Behind Wyoming, West Virginia is the second-leading coal producer in the United States and, as a result, their economy and identity have been tied to coal (Bell, 2009). Throughout the 20th century the coal industry has been one of the largest employers in West Virginia and produced \$3.5 billion of coal in 2005 (Bell, 2009). "West Virginians have had a love-hate relationship with coal through the past century" (Bell, 2009, p. 633). Although the coal industry enjoys significant support within the state, there have also been many controversial coal mining practices, such as mountaintop removal mining, that have drawn attention and increased negative sentiment towards the coal industry in the past 20 years (Bell, 2009).

Bell (2009) employed qualitative research methods to examine whether or not the coal industry has decreased social capital within coal-mining towns in West Virginia. Social capital, first introduced into social science research by Bourdieu (1985) and Coleman (1988), is defined as the features in a community, such as social networks, community norms, and social trust that foster cooperation and coordination within a social community for the mutual benefit (Putnam, 1995). Specifically she used semi-structured interviews with individuals in both a coal-mining community and demographically similar non-coal-mining community to assess the differences between the two communities regarding social capital (Bell, 2009). Through her research she found that a decrease in social capital had in fact occurred within the coal-mining community (Bell, 2009). Her research indicated that two things caused this loss of social capital: population loss and a breakdown in social trust among community members.

Over the past fifty years, jobs within the coal industry have steadily decreased due to an increase in mechanized mining practices and the use of mountaintop removal (Burns, 2005). In the same time period West Virginia has lost 40% of its population to migration (Bell, 2009). Bluestone and Harrison's (1982) conclusions on the effects of de-industrialization on communities provide similar insights into a community that suffers massive job losses at the hand of a single industry. "What begins as a behind closed-doors company decision to shut down a particular production facility ends up affecting literally everyone in town, including the butcher, the baker, and the candlestick maker" (Bluestone & Harrison, 1982, p. 67). Bell (2009) also found that the decrease in population had a significant, negative impact on social relationships in the coal-mining

community as compared to the social relationships in the than non-coal-mining community.

Although Bell's (2009) research indicated that population decline had contributed to a decrease in social capital, her interview responses did not directly address this issue so she did not discover if the community members saw changes to the community in the same way. In fact, it seemed that participants in the coal-mining community largely identified the arrival of a non-union mining company in 1981 as the harbinger of social decline within the community. Coal mining in West Virginia has historically been a union industry, a reality that took decades and two 'coal wars' to establish. Therefore, when a non-union coal mining company arrived in town and began to buy up all the union mines the community was immediately divided due to differing views toward unionization (Bell, 2009). Massive picketing and protests pitted neighbors and former coworkers against one another. Union loyalists were against those who decided to abandon the community's shared identity as a union town in order to work outside the union, which they saw as the only way to support their families (Bell, 2009).

Bell's (2009) research ultimately found that the coal-mining community's loss of social capital was a direct result of the decline of its main industry. Furthermore, she found that this loss not only had far-reaching consequences in the present day community in terms of community social capital (e.g. community trust) and individual social capital (e.g. self worth), but it may also have consequences for the next generation.

Methodology

This research will be carried out through the use of interviews to address and explore my research questions, noted earlier. Although some level of ambiguity is

inherent in the process of speaking with interview participants, interviewing remains one of the most common and powerful methods that researchers have at their disposal for understanding human behavior (Fontana & Frey, 1994). Specifically, in-depth, unstructured interviews will be used both in more formal interview situations as well as informally while interacting and observing participants in their daily lives. However, all interviews will be conducted in an unstructured, conversational manner, affording participants the freedom to speak openly about their lives and the various ways in which lead mining has played a role.

Before I begin this research I will submit an application to the Institutional Review Board (IRB) of the University of Missouri for review and approval for conducting research with human participants. Dr. Earnest Perry is a member of my master's committee and a faculty member at the University of Missouri and he will serve as my IRB sponsor.

Gaining access to participants can be difficult and can vary depending on the situation or community (Fontana & Fey, 1994). I expect that community members will view me as an outsider because I did not grow up in the area and I have no personal or familial ties with anyone in the region. I will introduce myself as a documentary photography student from the University of Missouri and that my goal is to document as accurately and honestly as possible what the people in the are tell me. My aim is to record information about their community as seen through the eyes and experiences of those who live there. In my experience working in Plato, I found that the best way to convey a sincere commitment to a community is through my own actions—by spending large

amounts of time with people, listening to their stories and observing their everyday lives, basically allowing them to tell their story with their own voices and actions.

To facilitate my research and reinforce this commitment to the communities I hope to document, I plan to relocate to the Lead Belt for the duration of my research. In conjunction with embedding myself in the region, I will also identify myself truthfully as a documentary photography student who is interested in learning as much as I can about the area and its inhabitants. I have decided that I will not adopt the role of participant-observer; rather, I see myself as ‘the humble learner’ as discussed by Wax (1960). My hope is that this role will allow me to move easily between divergent and perhaps even conflicting situations while simultaneously embracing each participant on an individual level and fostering trust in me, while maintaining accuracy in the research. “The decision of how to present oneself is very important, because after one’s presentational self is ‘cast’ it leaves a profound impression on the respondents and has great influence on the access (or failure) of the study” (Fontana & Fey, 1994, p. 367). Furthermore, presenting myself as a ‘humble learner’ will prove valuable in building rapport with the community members, allowing me to see things from their perspective rather than projecting my own preconceptions upon them (Fontana & Fey, 1994).

Although interview participants may come from varying backgrounds and fill vastly different roles in their communities, each must be a member of a community within the Lead Belt that has been shaped to some extent by lead mining. Potential interview participants will be identified through my preparatory research on the Lead Belt; however, as my photographic fieldwork progresses I expect that more participants will be identified through local informants. An informant is an insider within a

community that acts as a researcher's guide, both facilitating introductions and at times translating culture, language, and/or jargon (Fontana & Fey, 1994, p. 367). Building rapport quickly and establishing trust among those I photograph (and other members of the community with whom I interact) will be instrumental in connecting me with others in the community including social groups, individuals, and facilities, of which I was previously unaware.

Just as the professional skills component of my master's project will shape itself as it proceeds, so will the direction of my interviews. Throughout the entire project my research questions will ultimately guide the overarching direction of the interviews; however, as I interview more individuals I will utilize their responses to refine the key points of interest within the interview process. Thus, keeping detailed field notes of all of my interactions with potential participants and informants will be imperative. Furthermore, I will regularly share these field notes with my committee and seek their guidance on the progress of my research, particularly from Dr. Earnest Perry.

Because very little qualitative research has been conducted exploring life within the Lead Belt and because I plan to approach my research as a 'humble learner', I believe that extensive in-depth, unstructured interviews across a wide swath of the community will be the best method for exploring my research questions. "[Structured interviewing] aims at capturing precise data of a codable nature in order to explain behavior within preestablished categories, whereas [unstructured interviewing] is used in an attempt to understand the complex behavior of members of society without imposing any a priori categorization that may limit the field of inquiry (Fontana & Fey, 1994, p. 366)." This

prioritization of *understanding* over *explaining* is precisely what makes in-depth, unstructured interviews the best method for my research.

The greatest potential limitation that my research faces will be finding a balance between depth and breadth when interviewing individuals. Because the time I have to work on this project is limited, every decision not only carries an opportunity but also an opportunity cost. Deciding on how much depth versus breadth to have represented among my interviews will be a challenge; however, I trust that both my experience and my committee will help me in this regard.

Future research could drill down and focus on only one aspect of the Lead Belt such as interviewing only miners, focusing on a single community, or looking at only one issue that surrounds lead (e.g. mining practices, pollution, etc.). Alternatively, other qualitative methodologies could be implemented to prioritize *explaining* behavior or circumstances over *understanding*.

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2. MODIFICATIONS TO PROPOSAL

The final shape of this project to a large extent completely falls within the scope of the proposal. The major difference is the specificity of the project versus the broader nature of the proposal. The largest concern voiced by my committee during the approval meeting for my project as that the project needed to be much narrower in scope than the proposal originally set out. I wholeheartedly agreed at the time; however, was unsure how exactly to focus the project. Once I was on the ground and working in the area, narrowing the scope of the project was natural and easy, settling on the Old Lead Belt proved to offer the greatest photographic and research potential.

Furthermore, slight changes were made in terms of collecting media content during the interviews. Originally I had anticipated videotaping each interview, affording me the option of utilizing the video in any potential future publications. I did in fact videotape the first four interviews I conducted, but then realized it was too cumbersome to continue with the limited resources (namely time) at my disposal. Additionally, I felt that without a video camera in the room my interview participants would be more comfortable. In hindsight, I would have loved to be able to collect great video content, but in reality I believe my decision to axe the video collecting was in the best interest of the project.

Finally, it's worth mentioning that my knowledge and understanding of the Southeast Missouri Lead District and its subdistricts was substantially strengthened by this project and as a result I needed to adjust how I referred to the area and its subdistricts—this was clarified in my final report, although remains confusing in the original proposal.

3. IRB APPLICATION

Interview Guide

Interviews will be in-depth and loosely structured as follows, subtle probes asking participants to discuss particular topics at greater length or in more detail will be used to add depth to interviews.

A. Introduction

- a. Can you please introduce yourself and say a little about your background in this community?
- b. What personal or present or past family connection do you have with the lead mining industry?

B. Question One – Legacy of Mining

- a. Can you please discuss the legacy of lead mining in this community?
- b. In what ways is that legacy still visible today in the community?
- c. What are some attitudes members of the community hold towards lead mining?
- d. How do you feel about the legacy of lead mining?

C. Question Two – The Fabric of the Community

- a. At one time this community was defined by lead mining, can you discuss what defines this community today?
- b. How is this community changing today?

D. Question Three – Available Opportunities

- a. What are some opportunities that exist within this community? For young people, older people?

b. How has this changed in recent years?

E. Closing

a. What is the best thing about this community today?

b. What is the most worrisome aspect of this community today?

c. Ten years from now, if I came back to visit, what do you think I would find? What do you hope I would find.

Participant Solicitation Letter

August 25, 2013

Contact Name
Title
Company Name
Address
City, State, Zip

Dear [potential participant]:

My name is Benjamin Hoste and I am a journalism graduate student at the University of Missouri. I am currently working on a research project in your area that is exploring the communities within the Southeast Missouri Lead District (also called the Old Lead Belt). The aim of my research is to understand how the heritage of lead mining has come to shape the communities and lives of individuals that live in the Southeast Missouri Lead District.

I am writing to invite you to participate in my research.

Participation in this research will include an in-depth interview that will take approximately 40-60 minutes and will be scheduled at time that fits your schedule. The interview can take place in your home or a mutually agreed upon location that is safe and comfortable. With your permission, the interview will be recorded with a video camera.

Your interview will be “on the record” and your name may be used in the report that is made public following this study. However, your full interview transcript will not be shared with anyone other than the researcher.

There are no anticipated risks to you for participation in this study, there are also no direct benefits. However, the research will have a direct benefit on the public’s

understanding of the Old Lead Belt, the legacy of lead mining, and the people who currently live there.

If you would like to participate in this study please contact me by phone or email or simply drop the enclosed postcard in the mail and I will get in touch. If you have any questions do not hesitate to get in touch, you can reach me by calling 323-963-4513 or emailing benjamin.hoste@missouri.edu. I look forward to hearing from you.

Best regards,

Benjamin Hoste

Participant Consent Form

You are being asked to take part in a research study of how lead mining has come to shape both the communities and lives of individuals within the Southeast Missouri Lead District. We are asking you to take part because you have been identified as a community member with a unique and valuable perspective based on your life experience within a community in the Southeast Missouri Lead District. Please read this form carefully and ask any questions you may have before agreeing to take part in the study.

What the study is about: The purpose of this study is to learn about how the three hundred year practice of lead mining within southeast Missouri has come to shape the region, its communities, and those that live there.

What we will ask you to do: If you agree to be in this study, we will conduct an interview with you. The interview will be unstructured and include questions about your experience with the lead industry, your profession, your family, and your community. The interview will be in person and take approximately 40-60 minutes to complete. With your permission, the interview will be video tape-recorded.

Risks and benefits: We do not anticipate any risks to you for participating in this study other than those encountered in day-to-day life. There are also no direct benefits to you for your participation; however, there is a benefit to society, namely an improved understanding of the Southeast Missouri Lead District and impacts the legacy of lead mining have had on the area.

Confidentiality: Your answers will not be confidential. Research records will kept on a password protected computer in a locked office, and the raw transcripts and the raw audio recording from your interview will not be shared with anyone other than the primary researcher. However, your responses will be “on the record” and you may be identified in the report that will be made public at the conclusion of this research.

Taking part is voluntary: Taking part in this study is completely voluntary. You may skip any questions that you do not want to answer. If you decide to take part, you are free to withdraw at any time. You may also nullify your interview if you choose to withdraw and any recordings or notes will be destroyed.

If you have questions: The researchers conducting this study are Benjamin Hoste and Prof. Earnest Perry. Please ask any questions you have now. If you have questions later, you may contact Benjamin Hoste at benjamin.hoste@missouri.edu or 323-963-4513. You can reach Prof. Earnest Perrys at perryel@missouri.edu or 573-882-4214. If you have any questions or concerns regarding your rights as a participant in this study, you may contact the Institutional Review Board (IRB) at 573-882-9585 or access their website at research.missouri.edu/cirb/. You will be given a copy of this form to keep for your records.

Statement of Consent: I have read the above information, and have received answers to any questions I asked. I consent to take part in the study.

Your Name (printed) _____

Your Signature _____ Date _____

In addition to agreeing to participate, I also consent to having the interview video tape-recorded.

Your Signature _____ Date _____

Interviewer Name _____ Date _____

Interviewer Signature _____ Date _____

This consent form will be kept by the researcher for at least seven years beyond the end of the study and was approved by the IRB on September 23, 2013.

Campus IRB Exempt Application

Project Number: 1208337

Review Number: 114751

SECTION A - Investigators

(1) Investigators

Name	Dept.	Role	Educational Training Date
Benjamin Hoste	University of Missouri	Pri-Investigator	
Earnest Perry Jr	Journalism	Advisor	12-08-2011
Benjamin Hoste	Journalism	Pri-Investigator	06-12-2012

Restriction: All key personnel are required to be certified for completion of a protection of human research participants education program that is approved by the Campus IRB.

Restriction: All applications must have a Principal Investigator listed.

Restriction: Student applications must have an advisor listed and the advisor must complete the Advisor Approval Form.

(2) Contact Information

Principal Investigator: Benjamin Hoste
Department/Division: University of Missouri
Telephone #: 323-963-4513
Address: 109 Lee Hills Hall
 Columbia, MO 65211
E-Mail: bhd32@mail.missouri.edu

Principal Investigator: Benjamin H Hoste
Department/Division: Journalism
Telephone #: 573/882-4852
 179C Gannett
Address:
 Columbia, MO 65211-1200
E-Mail: benjamin.hoste@mail.missouri.edu

(3) In detail, cite the key personnel's qualifications and experiences with this type of research. *

This includes all personnel on the IRB application.

Benjamin Hoste is a masters student in the Journalism School and completed an IRB approved research project in the summer of 2012 while taking an upper division Qualitative Research Methods course.

Dr. Earnest Perry, as an advisor to Benjamin Hoste, has overseen numerous master's projects that have IRB approval and is experienced with the research method used in this project.

(4) Describe any Conflicts of Interest a study member may have. *

None.

SECTION B - Exclusions from Exemption

(1) Please check if any of the following will be included in your study. If you check an item below, the project cannot be Exempt.

- Children
- More than Minimal Risk
- Pregnant Women
- Prisoners
- Use of Electrodes (physical sensors applied to the body)

(2) If observations are used in this study, are the observations of public behavior? *

If no, the project cannot be Exempt. Please complete the Expedited/Full Board Application.

Yes No N/A

(3) If you are using existing data, will the sources be publicly available or will the information be recorded by you in such a manner that subjects cannot be identified, directly or through identifiers linked to the subjects? *

Existing data means it must be existing at the time of the IRB submission. Data that will be collected and/or analyzed after the IRB submission cannot be Exempt.

If the sources are not publicly available or identifiers will be recorded, the project cannot be Exempt. Please complete the Expedited/Full Board Application.

Yes No N/A

SECTION C - Project Information

(1) Project Title *

The Southeast Missouri Lead District: Exploring the Influence of lead mining on community.

(2) Please provide a description of your project. *

Include the research question in this description.

This project explores the Southeast Missouri Lead District and the influence a single, historical industry—lead mining has been going on for 300 years in Missouri—has on the communities and individuals that surround the industry. My research

questions are:

1. How has lead mining shaped the communities within the Lead Belt?
2. How has lead mining influenced the lives of individuals within the Lead Belt?
3. What is the future of the Lead Belt and its people?

(3) Describe the nature of the involvement of human subjects. *

Please include duration of subject participation.

Participants will be interviewed for roughly 45-90 minutes.

(4) Describe the subject population. *

(e.g. high school or college students, cognitively impaired persons, etc.)

Participants will cover a diverse cross section of the communities that are part of the Southeast Missouri Lead District, however, each will have some connection with the heritage lead mining. Miners, family members of miners, health care professionals, educators, community organizers, etc. will all be considered for participation.

(5) Please identify the number of subjects that will be recruited to participate in your project and the rationale. *

Note: Summarize briefly the statistical consideration or other considerations which determine the total number of subjects.

Because the study is using in-depth interviews, fewer participants are needed. Roughly a dozen participants in total will be interviewed, however, the study is flexible and the number of participants will vary depending on the progress of the study.

(6) Describe the recruitment and collection procedures. *

Include criteria for inclusion and exclusion, if applicable. Please be sure to include a statement that the study involves research in the recruitment materials. Please upload a letter of permission or justification if no permission letter is provided.

Potential participants will be identified through publicly published materials (newspaper articles, community materials, etc.), references from community informants, and on the boots research.

Participants with close familial ties to lead mining or personal experience will be more highly considered for inclusion in the study.

Furthermore, the study seeks to have a diversity of participants in terms of experience and viewpoints, thus, previous interviewed participants will have some influence on the recruitment of further participants.

(7) What is your proposed start date for subject recruitment? *

You cannot recruit until after IRB approval is obtained.

08-01-2013

(8) What is your process for informing subjects about the research? *

*Upload the script, cover letter, etc. that will be used to inform subjects of the research. *A signature should not be requested if it is the only record linking the subject to the research. Remove the signature if not necessary to link the participant's name with the study or data.*

See attached letter.

(9) Does the project involve deception? *

Consider both deception by omission (an important aspect of the study is withheld from the participant) and deception by commission (the participant is deliberately given false information about some aspect of the research). Note: Deception by commission cannot be Exempt.

If you answer yes, an additional form will automatically populate for your completion at the end of this application.

Yes No

(10) If you will be interacting with subjects, what methods will be used to ensure protection of the privacy interests of participants? *

Does the research involve observation or intrusion in situations where the subjects have a reasonable expectation of privacy? Would reasonable people be offended by such an intrusion? Can the research be redesigned to avoid the intrusion?

No. The research will only include interviews. However, the interviews will be "on the record" and participant names will be used. Further, interviews will be tape recorded.

Participants will be notified and it will be clearly communicated that their names will be tied to their interviews.

(11) Where will the research take place? *

Interviews will take place in a safe setting agreed upon by both interviewer and participant. Participant homes, public libraries, or other mutually agreed upon public places will be used.

(12) Is this a collaborative/multi-site study? *

If you answer yes, an additional form will automatically populate for your completion at the end of this application.

Yes No

(13) Is this an international research project? *

Yes No

(14) Check if any of the items below will be included in your study

If you mark an item, an additional form will automatically populate for your completion at the end of this application.

Audiotapes, Videotapes, and/or Photographs

Non-English Speaking Persons

Subject Compensation (including monetary compensation and extra/course credit)

(15) If you will be using a call center to collect the data, please identify the call center.

(16) Will you be accessing personal health information for this research project? *

If yes, an additional form will populate at the end of this application for your completion.

Yes No

SECTION D - Funding Information

(1) Grant Proposal Information

(SKIP this section if your research is not funded.)

A. Please select the name of your sponsor from the drop-down menu.

B. Select the source of sponsorship.

C. Grant Proposal Number:

D. Grant Proposal Status

You must upload your funding proposal for IRB review.

SECTION E - Risks to Subjects

(1) Check any that apply to your study.

Private records such as educational records will be accessed

Private records such as medical charts will be accessed

Subjects may experience physical, psychological, legal, social or economic risks

The study involves collection of information that would be reportable to authorities or collection of information that might render the subject prosecutable under the law (child abuse, alcohol abuse by pregnant women, danger to self or others)

The study involves major changes in diet, exercise, or sleep

The study uses voice, video, digital, or image recordings for data collection that may place subjects at risk of criminal or civil liability, or be damaging to the subjects' financial standing, employability, or reputation

The study will manipulate physical, psychological, or social variables, such as: sensory deprivation, physical stimuli, social isolation, or psychological stress

The study will probe for or present materials in which subjects might consider sensitive, offensive, threatening, or degrading

(2) Please describe any potential risks for subjects associated with the research. *

None.

SECTION F - Confidentiality

(1) Confidentiality

A. Describe the specific methods by which confidentiality will be protected. *

Participation will not be confidential. Subjects will be identified and clearly made aware of this aspect of the study.

B. When you collect and store the data, will it be: *

- Anonymous
- Coded (with link to identity)
- Identified

(2) Data Security**A. Mark all protections that apply for Electronic Data:**

- Secure Network
- Password Access
- Coded (master list kept and secured separately)
- Other

B. Mark all protections that apply for Hardcopy Data:

- Locked Suite
- Locked Office
- Locked File Cabinet
- Coded (master list kept and secured separately)
- Data de-identified by PI or Research Team
- 24 Hour Personnel Supervision
- Other

C. If OTHER, please explain**(3) Data Sharing****A. Indicate positions, other than members of the research team, who will have access to study data: ***

- No one/ Not applicable
- Sponsor
- Colleagues
- Colleagues through NIH data sharing requirement
- Data, Tissue, Specimen Registry(s)
- Other Research Laboratory(s)
- Coordinating Center
- Other

B. If OTHER, please explain**C. Indicate how the data will be shared ***

- Without any Identifiers
- With Identifiers
- With a Linked Code

- As a Limited Data Set
 Other

The IRB will need to review all documents subjects will be presented with during the course of the research study. This includes recruitment materials, cover letters, instruments, etc. Please upload these documents to this application.

Research Involving the Use of Audiotapes, Videotapes, and Photographs

SECTION A - Research Involving the Use of Audiotapes, Videotapes or Photographs

(1) The research will require the use of images that are identifiable. *

Identifiable information is information that contains distinguishing characteristics that would make the individual recognizable to anyone outside the research team. This includes voice patterns, accents, speech, unusual mannerisms, tattoos, scars, or other markings, etc. If identifiable characteristics are removed or blocked out, the information is not identifiable.

Yes No

(2) Please justify the use of identifiable media. *

Because the interviews are in-depth and unstructured taping the interviews will provide a key a valuable resource for collecting and later analyzing data.

(3) Specify if you will be using audiotapes, videotapes and/or photographs? *

Digital Audio Recording

(4) Describe how the audiotapes, videotapes, or photographs will be kept confidential. *

The audio recordings will be kept securely on password protected laptop. Audio files will not be shared with anyone except the primary researcher.

(5) Describe how the tapes and/or photographs will be stored. *

The audio recordings will be kept securely on password protected laptop.

(6) Please specify who will have access to the tapes or photographs. *

None, only the primary researcher.

The above information may need to be included in the consent document. A copy of the consent document must be uploaded with the IRB Application for review.

MU Policy: All audiotapes, videotapes and photographs must be kept with the research records for seven years following the completion of the research.

<http://www.umsystem.edu/ums/fa/management/records/guide/academic#research>

IRB Application Follow Up Questions

Compose and upload a document addressing the following question(s):

- 1. Who is your advisor? The consent lists Dr. Rees, but the application lists Dr. Perry. Please revise your consent accordingly. If your advisor is Dr. Rees, we will need to add him to the IRB application and request his advisor approval.*
- 2. To clarify, subject recruitment will include people from the boots study. Please clarify what that is.*

Below is my response that I filled with the IRB:

1. Dr. Perry is my advisor. I have adjusted the participant consent form accordingly. Professor David Rees is my academic advisor, which is what may have lead to the confusion. My apologies.
2. Subject recruitment will include people from both “boots on the ground” research as well as formal research. For example, potential participants will be identified through meeting and discussing this project with academics with applicable past research, state and federal representatives from applicable agencies, local community organizations, local community leaders, and interaction with the public through fieldwork.



Campus Institutional Review Board
University of Missouri-Columbia

485 McReynolds Hall
Columbia, MO 65211-1150
PHONE: (573) 882-9585
FAX: (573) 884-0663

September 23, 2013

Principal Investigator: Hoste, Benjamin H; Hoste, Benjamin H
Department: Journalism; Journalism

Your Application to project entitled *The Southeast Missouri Lead District: Exploring the Influence of lead mining on community.* was reviewed and approved by the MU Campus Institutional Review Board according to terms and conditions described below:

IRB Project Number	1208337
Initial Application Approval Date	September 23, 2013
IRB Expiration Date	September 23, 2014
Level of Review	Exempt
Project Status	Active - Open to Enrollment
Regulation	45 CFR 46.101b(2)
Risk Level	Minimal Risk

The principal investigator (PI) is responsible for all aspects and conduct of this study. The PI must comply with the following conditions of the approval:

1. No subjects may be involved in any study procedure prior to the IRB approval date or after the expiration date.
2. All unanticipated problems, serious adverse events, and deviations must be reported to the IRB within 5 days.
3. All modifications must be IRB approved by submitting the Exempt Amendment prior to implementation unless they are intended to reduce risk.
4. All recruitment materials and methods must be approved by the IRB prior to being used.
5. The Annual Exempt Form must be submitted to the IRB for review and approval at least 30 days prior to the project expiration date.
6. Maintain all research records for a period of seven years from the project completion date.
7. Utilize the IRB stamped document informing subjects of the research and other approved research documents located within the document storage section of eIRB.

If you have any questions, please contact the Campus IRB at 573-882-9585 or umcresearchcirb@missouri.edu.

Thank you,

Charles Borduin, PhD
Campus IRB Chair

5. META-DATA FOR PHOTOGRAPHS

General Notes

I tried to keep detailed notes regarding the exposure and exact location of each photograph I made. With digital cameras we have come to enjoy and take for granted all the meta-data associated with each image. Recording this information during the process of this project primarily served to keep track of what photographs I have made and specifically where I made them and to trouble shoot any exposure or film holder light leak issues. Meta-data for photographs appear below in reverse chronological order in which the photographs were made.

November 27, 2013 - Wednesday

Sedimentary Layers

Date & Time: 11/27/13 at 1:30pm

Location: 37.832683, -90.526721

Holder: 6B

Exposure: 22 at 1/8

Lens: 210mm

Glover Smelter

Date & Time: 11/27/13 at 12:05pm

Location: 37.477838, -90.691152

Holder: 6A

Exposure: 22 at 1/30

Lens: 150mm

Federal Mill, Park Hills

Date & Time: 11/27/13 at 11:20am

Location: 37.840492, -90.508515

Holder: 3A & 3B

Exposure: 11 at 1/30

Lens: 150mm

November 26, 2013 - Tuesday

Bingo, MAC Elk Lodge

Date & Time: 11/26/13 at 9:20pm
Location: 37.870712, -90.503032
Holder: 7B
Exposure: 5.6 at 1/4
Lens: 150mm

Abbey Hartman, 31

Date & Time: 11/26/13 at 8:00pm
Location: 37.915721, -90.548791
Holder: 7A
Exposure: 5.6 at 1 second
Lens: 150mm

Park Hills City Lights

Date & Time: 11/26/13 at 7:53pm
Location: 37.858837, -90.512753
Holder: 2B
Exposure: 5.6 at 15 minutes
Lens: 150mm

JV Wrestling Match

Date & Time: 11/26/13 at 6:15pm
Location: 37.845816, -90.520585
Holder: 2A
Exposure: 8 at 6 seconds
Lens: 150mm

Principal Bob Coleman, Central High

Date & Time: 11/26/13 at 6:15pm
Location: 37.846312, -90.521368
Holder: 13B
Exposure: 5.6 at 1/4
Lens: 150mm

Zak Dodd & Sabrina Radford

Date & Time: 11/26/13 at 3:30pm
Location: 37.847265, -90.521057
Holder: 13A
Exposure: 5.6 at 1/30
Lens: 150mm

Remediated Home

Date & Time: 11/26/13 at 2:20pm
Location: 37.928690, -90.554726
Holder: 9A & 9B
Exposure: 1 at 1/8

Lens: 150mm

November 25, 2013 - Monday

Bud Tindell

Date & Time: 11/25/13 at 3:50pm

Location: 37.888476, -90.529409

Holder: 4A

Exposure: 8 at 1/8

Lens: 210mm

Leadwood Remediation Trailer

Date & Time: 11/25/13 at 12:50pm

Location: 37.856152, -90.592468

Holder: 5B

Exposure: 34 at 1 sec

Lens: 150mm

Meat Locker

Date & Time: 11/25/13 at 12:20pm

Location: 37.845350, -90.590011

Holder: 14B

Exposure: 22 at 1 minute

Lens: 150mm

Marvin Dane, Portrait

Date & Time: 11/25/13 at 12:20pm

Location: 37.845350, -90.590011

Holder: 14A

Exposure: 5.6 at 1/4

Lens: 150mm

Deer Skinning

Date & Time: 11/25/13 at 12:15pm

Location: 37.845350, -90.590011

Holder: 1B

Exposure: 11 at 6 seconds

Lens: 150mm

Deer Scraps

Date & Time: 11/25/13 at 11:48am

Location: 37.845350, -90.590011

Holder: 1A

Exposure: 5.6 at 1/125

Lens: 150mm

Industrial Chat Pile w/ Runoff

Date & Time: 11/25/13 at 10:45am
Location: 37.861425, -90.509298
Holder: 10A & 10B
Exposure: 45 at 1 second
Lens: 150mm

November 24, 2013 - Sunday

Headframe in St. Joe Park

Date & Time: 11/24/13 at 5:45pm
Location: 37.774497, -90.490555
Holder: 10B
Exposure: 22 at 2 minutes
Lens: 150mm

Headframe in St. Joe Park

Date & Time: 11/24/13 at 5:30pm
Location: 37.774497, -90.490555
Holder: 10A
Exposure: 16 at 16 seconds
Lens: 150mm

Isaiah Thebeau, 11 Birthday Party, Family Fun Center

Date & Time: 11/24/13
Location: 37.914693, -90.529945
Holder: 11B
Exposure: 5.6 at 1 second
Lens: 150mm

Family Fun Center

Date & Time: 11/24/13
Location: 37.914693, -90.529945
Holder: 11A
Exposure: 11 at 5 seconds
Lens: 150mm

Second Hand Store, Sorting Room Neil

Date & Time: 11/24/13 at 2:55pm
Location: 37.923474, -90.545416
Holder: 12A
Exposure: 5.6 at 1/2
Lens: 150mm

Second Hand Store, TVs

Date & Time: 11/24/13 at 2:50pm

Location: 37.923474, -90.545416
Holder: 7B
Exposure: 22 at 35 seconds
Lens: 150mm

Second Hand Store, Sales Floor
Date & Time: 11/24/13 at 2:44pm
Location: 37.923474, -90.545416
Holder: 12A
Exposure: 32 at 1 minute 10 seconds
Lens: 150mm

Second Hand Store, Exterior
Date & Time: 11/24/13 at 2:40pm
Location: 37.923474, -90.545416
Holder:
Exposure:
Lens: 150mm

Bonne Terre Town Overview
Date & Time: 11/24/13 at 2:20pm
Location: 37.922625, -90.544518
Holder: 9A & 9B
Exposure: 32 at 1/8
Lens: 150mm

Model Plane Onlookers
Date & Time: 11/24/13 at 1:40pm
Location: 37.771520, -90.491252
Holder: 8A
Exposure: 11 at 1/125
Lens:

Model Plane Flight
Date & Time: 11/24/13 at 1:40pm
Location: 37.771520, -90.491252
Holder: 4B
Exposure: 11 at 1/60
Lens: 210mm

Chris Davidson, 26
Date & Time: 11/24/13 at 1:00pm
Location: 37.856340, -90.509574
Holder: 4A
Exposure: 5.6 at 1/500
Lens: 150mm

Chat Pile

Date & Time: 11/24/13 at 12:15pm

Location:

Holder: 1B

Exposure: 45 at 1/8

Lens:

Industrial Park

Date & Time: 11/24/13 at 11:25am

Location: 37.863140, -90.509255

Holder: 1A

Exposure: 22 at 1/30

Lens: 150mm

November 22, 2013 – Friday

Lead Air Measuring Device

Date & Time: 11/22/13 at 2:15pm

Location: 37.856535, -90.508470

Holder: 3B

Exposure: 5.6 at 1/30

Lens: 150mm

Bonne Terre Mine – Pillars

Date & Time: 11/22/13 at 1:30pm

Location: 37.922744, -90.551229

Holder:

Exposure:

Lens: 150mm

Bonne Terre Mine – Lake Room

Date & Time: 11/22/13 at 1:20pm

Location: 37.922744, -90.551229

Holder:

Exposure:

Lens: 150mm

Bonne Terre Mine – Mineral Deposits

Date & Time: 11/22/13 at 1:15pm

Location: 37.922744, -90.551229

Holder:

Exposure:

Lens: 150mm

Bonne Terre Mine – Miner's Garden

Date & Time: 11/22/13 at 1:10pm
Location: 37.922744, -90.551229
Holder:
Exposure:
Lens: 150mm

Brian Miller, 31

Date & Time: 11/22/13
Location: 37.927646, -90.543845
Holder: 3A
Exposure: f5.6 at 1/30
Lens: 150mm

Cutting Fallen Tree

Date & Time: 11/22/13
Location: 37.927646, -90.543845
Holder: 14A & 14B
Exposure: f8 at 1/60
Lens: 150mm

November 21, 2013 – Thursday

Keith Kinnard's Yard

Date & Time: 11/21/13 at 12:05pm
Location: 37.849292, -90.609795
Holder:
Exposure: f22 at 1/4
Lens: 150mm

Keith Kinnard

Date & Time: 11/21/13 at 12:05pm
Location: 37.849292, -90.609795
Holder:
Exposure: f5.6 at 1/30
Lens: 150mm

Hunting Trophies

Date & Time: 11/21/13 at 12:05pm
Location: 37.849506, -90.609730
Holder: 9B
Exposure: f22 at 35 seconds
Lens: 150mm

November 20, 2013 - Wednesday

Hunter, Keith Kinnard in Tree Stand

Date & Time: 11/20/13
Location: 37.340760, -90.788065
Holder: 9A
Exposure:
Lens: 150mm

Hunting Cabin (wider shot)

Date & Time: 11/20/13
Location: 37.338400, -90.786999
Holder:
Exposure:
Lens: 150mm

Hunting Cabin

Date & Time: 11/20/13
Location: 37.338400, -90.786999
Holder:
Exposure:
Lens: 150mm

November 18, 2013 – Monday

Exploration Diarama

Date & Time: 11/18/13
Location: 37.837691, -90.508450
Holder: 13B
Exposure: f22 at 1 second
Lens: 150mm

Mineral Museum

Date & Time: 11/18/13
Location: 37.837691, -90.508450
Holder: 13A
Exposure: f11 at 1 second
Lens: 150mm

Historic Bonne Terre Buildings

Date & Time: 11/18/13
Location: 37.924887, -90.551087
Holder: 11B
Exposure: f11 at 1 second
Lens: 150mm

November 17, 2013 – Sunday

Pond Near Highway 67 (tighter shot)

Date & Time: 11/17/13
Location: 37.995359, -90.514898
Holder: 7B
Exposure: f16 at 2 seconds
Lens: 150mm
Note: Pond owner is Bob Morgan, reachable at 573-330-0868

Pond Near Highway 67

Date & Time: 11/17/13
Location: 37.995300, -90.515349
Holder: 7A
Exposure: f45 at 5 seconds
Lens: 150mm

November 16, 2013 – Saturday

Deer Skinning

Date & Time: 11/16/13 at 2:07pm
Location: 37.906107, -90.520326
Holder: 6A & 6B
Exposure: f5.6 at 1/60
Lens: 150mm

Welcome to Leadwood Sign

Date & Time: 11/16/13 at 1:50pm
Location: 37.859178, -90.583257
Holder: 2B
Exposure: f11 at 1/30
Lens: 210mm

Rand Auto Sales, Park Hills

Date & Time: 11/16/13 at 1:00pm
Location: 37.852583, -90.521615
Holder: 2A
Exposure: f8 at 1/30
Lens: 150mm

Dust on the Former Tailing Ponds

Date & Time: 11/16/13 at 12:00pm
Location: 37.814963, -90.508091
Holder: 10B
Exposure: f8 at 1/60
Lens: 150mm

John Voss

Date & Time: 11/16/13 at 11:50am

Location: 37.813535, -90.508252
Holder: 10A
Exposure: f8 at 1/30
Lens: 150mm

November 1, 2013 – Friday

Cowboy Festival Sign

Date & Time: 11/1/13 at 6:45pm
Location: 37.870619, -90.500849
Holder: 5A
Exposure: f22 at 15 seconds
Lens: 150mm

Flat River

Date & Time: 11/1/13 at 6:20pm
Location: 37.829510, -90.536624
Holder: 8B
Exposure: f45 at 1:25 seconds
Lens: 150mm

Fireworks

Date & Time: 11/1/13 at 6:07pm
Location: 37.851344, -90.519721
Holder: 8A
Exposure: f64 at 22 seconds
Lens: 210mm

Chat Pile

Date & Time: 11/1/13 at 1:30pm
Location: 37.859438, -90.518010
Holder: 4B
Exposure: f16 at 1/60
Lens: 150mm

Brothers Photographs

Date & Time: 11/1/13 at 1:30pm
Location: 37.910056, -90.547468
Holder: 5B
Exposure: f16 at 16 seconds
Lens: 150mm

Fred McDaniel

Date & Time: 11/1/13 at 1:30pm
Location: 37.910056, -90.547468
Holder: 5A

Exposure: f5.6 at 1/2
Lens: 150mm

October 31, 2013 – Thursday

VFW Hall, Leadington

Date & Time: 10/31/13 at 4:55pm
Location: 37.830179, -90.475781
Holder: 4A
Exposure: f16 at 1/4
Lens: 210mm

Paul Thornton "Junior"

Date & Time: 10/31/13 at 4:15pm
Location: 37.854356, -90.502045
Holder: 6B
Exposure: f5.6 at 1/250
Lens: 210mm

Tire Pile

Date & Time: 10/31/13 at 4:05pm
Location: 37.854356, -90.502045
Holder: 6A
Exposure: f11 at 1/125
Lens: 210mm

Joe Clark

Date & Time: 10/31/13 at 4:00pm
Location: 37.854356, -90.502045
Holder: 3B
Exposure: f8 at 1/125
Lens: 210mm

Fridge

Date & Time: 10/31/13 at 3:50pm
Location: 37.854356, -90.502045
Holder: 3A
Exposure: f8 at 1/125
Lens: 150mm

Trees

Date & Time: 10/31/13 at 3:25pm
Location: 37.971978, -90.536892
Holder: 1B
Exposure: f16 at 1/8
Lens: 150mm

Broken Gas Station

Date & Time: 10/31/13 at 3:00pm
Location: 37.997896, -90.510746
Holder: 1A
Exposure: f8 at 1/250
Lens: 150mm

Lights

Date & Time: 10/31/13 at 2:52pm
Location: 37.997803, -90.510188
Holder: 5B
Exposure: f11 at 1/125
Lens: 150mm

October 30, 2013 – Wednesday

Dog Pound

Date & Time: 10/30/13 at 5:25pm
Location: 37.872736, -90.529382
Holder: 5A
Exposure: f16 at 1/4
Lens: 150mm

October 22, 2013 – Tuesday

National Mine Headframe

Date & Time: 10/22/13 at 6:05pm
Location: 37.837151, -90.509504
Holder: 8B
Exposure: f5.6 at 1/8
Lens: 210mm

Old Russell Farm

Date & Time: 10/22/13 at 5:00pm-ish
Location: 37.781044, -90.539500
Holder: 8A
Exposure: f32 at 1/15
Lens: 150mm

Park Hills Mural

Date & Time: 10/22/13 at 3:45pm
Location: 37.849290, -90.518927
Holder: 11B
Exposure: f11 at 1/125
Lens: 210MM

St. Joe Cemetery

Date & Time: 10/22/13 at 3:00pm
Location: 37.928190, -90.543171
Holder: 11A
Exposure: f16 at 1/30
Lens: 150mm

67 Overpass Over River

Date & Time: 10/22/13 at 2:20pm
Location: 37.954794, -90.553463
Holder: 14B
Exposure: f45 at 1 sec
Lens: 150mm

Big River Bridge

Date & Time: 10/22/13 at 2:13pm
Location: 37.954794, -90.553463
Holder: 14A
Exposure: f8 at 1/30
Lens: 150mm

October 9, 2013 – Wednesday

Chat Pile

Date & Time: 10/9/13 at 6:15pm
Location: 37.842377, -90.534403
Holder: 11B
Exposure: f32 at 1 sec
Lens: 150mm

Chat Pile

Date & Time: 10/9/13 at 5:47pm
Location: 37.842377, -90.534403
Holder: 11A
Exposure: f32 at 1/15
Lens: 210mm

Chat Pile

Date & Time: 10/9/13 at 5:40pm
Location: 37.842377, -90.534403
Holder: 8B
Exposure: f32 at 1/2
Lens: 210mm

City Hall in Bismarck

Date & Time: 10/9/13 at 4:10pm
Location: 37.768669, -90.625687
Holder: 7B
Exposure: f11 at 1/4
Lens: 150mm

Bismarck Mega-Tan

Date & Time: 10/9/13 at 3:42pm
Location: 37.768304, -90.625510
Holder: 10B
Exposure: f22 at 1/30
Lens: 150mm

Bismarck Empty Oil Train

Date & Time: 10/9/13 at 3:07pm
Location: 37.768527, -90.626089
Holder: 10A
Exposure: f45 at 1/15
Lens: 150mm

Andrew Clark, Age 20

Date & Time: 10/9/13 at 2:00pm
Location: 37.850275, -90.521891
Holder: 5B
Exposure: f11 at 1/250
Lens: 210mm

Richard DuPerron, Age 15

Date & Time: 10/9/13 at 2:00pm
Location: 37.850275, -90.521891
Holder: 5A
Exposure: f11 at 1/60
Lens: 210mm

September 21, 2013 – Saturday

Patriotic Elephant, Blackwell Motors, Farmington

Date & Time: 9/21/2013 at 5:15pm
Location: 37.803456, -90.446234
Holder: 3B
Exposure: f22 at 1/125
Lens: 150mm

Edward Pinson and his Golf Cart, Farmington

Date & Time: 9/21/2013 at 1:03pm
Location: 37.842034, -90.448133

Holder: 3A
Exposure: f22 at 1/8
Lens: 150mm

1862 House, Farmington
Date & Time: 9/21/2013 at 12:50pm
Location: 37.842034, -90.448133
Holder: 4B
Exposure: f45 at 25 seconds
Lens: 150mm

Edward Pinson, Portrait in Garage, Farmington
Date & Time: 9/21/2013 at 12:30pm
Location: 37.842648, -90.448825
Holder: 4A
Exposure: f11 at 1/15
Lens: 150mm

Edward Pinson, Portrait in Home, Farmington
Date & Time: 9/21/2013 at 12:15pm
Location: 37.842872, -90.448691
Holder: 4B
Exposure: f11 at 5 seconds
Lens: 150mm

Photographs, Farmington
Date & Time: 9/21/2013 at 12:07pm
Location: 37.842872, -90.448691
Holder: 6A
Exposure: f16 at 1 second
Lens: 150mm

September 20, 2013 – Friday

Halay Schrimp w/ Fly, Portrait, Rodeo
Date & Time: 9/20/2013 at 6:27pm
Location: 37.873189, -90.500583
Holder: 8A
Exposure: f11 at 1/15
Lens: 150mm

Faith Cowboy Church, Rodeo
Date & Time: 9/20/2013 at 5:40pm
Location: 37.872537, -90.500626
Holder: 1B
Exposure: f32 at 1 second

Lens: 150mm

Dalton and Thomas, Portrait, Rodeo

Date & Time: 9/20/2013 at 5:10pm

Location: 37.872537, -90.500626

Holder: 1A

Exposure: f11 at 1/15

Lens: 210mm

September 14, 2013 – Saturday

Trailer Park Community of 67

Date & Time: 9/14/2013 at 5:37pm

Location: 37.985695, -90.534226

Holder: 4B

Exposure: f32.5 at 1/15

Lens: 150mm

TV and Toys, Shared Blessing Homeless Shelter, Bonne Terre

Date & Time: 9/14/2013 at 5:10pm

Location: 37.915768, -90.548882

Holder: 4A

Exposure: f16 at 1/2

Lens: 150mm

Women's Sitting Room, Shared Blessing Homeless Shelter, Bonne Terre

Date & Time: 9/14/2013 at 5:05pm

Location: 37.915768, -90.548882

Holder: 7B

Exposure: f16 at 1/2

Lens: 150mm

Shelly Bess, Shared Blessings, Bonne Terre

Date & Time: 9/14/2013 at 4:55pm

Location: 37.915768, -90.548882

Holder: 7A

Exposure: f11 at 1/60

Lens: 150mm

Larger Powder Room, St. Joe State Park

Date & Time: 9/14/2013 at 3:00pm

Location: 37.837318, -90.513750

Holder: 9B

Exposure: f45 at 10 seconds

Lens: 150mm

Future Exhibit, Minerals Museum

Date & Time: 9/14/2013 at 2:45pm

Location: 37.837827, -90.508230

Holder: 11B

Exposure: f45 at 1 minute and 45 seconds

Lens: 150mm

Mill Shower, Minerals Museum

Date & Time: 9/14/2013 at 2:03pm

Location: 37.837827, -90.508230

Holder: 11A

Exposure: f11 at 12 seconds

Lens: 150mm

ATV Riding and Dust, St. Joe State Park

Date & Time: 9/14/2013 at 12:35pm

Location: 37.816904, -90.509287

Holder: 6B

Exposure: f11 at 1/500

Lens: 150mm

Powder Room, Last Haul to Bonne Terre, St. Joe State Park

Date & Time: 9/14/2013 at 11:50am

Location: 37.834327, -90.513622

Holder: 6A

Exposure: f16 at 30 seconds

Lens: 150mm

Powder Room, Hobo Graffiti, St. Joe State Park

Date & Time: 9/14/2013 at 11:45am

Location: 37.834327, -90.513622

Holder: 6A

Exposure: f16 at 13 seconds

Lens: 150mm

September 12, 2013 – Thursday

AC Unit, Presbyterian Church, Bonne Terre

Date & Time: 9/12/2013 at 2:15pm

Location: 37.919733, -90.555282

Holder: 14B

Exposure: f8 at 1 second

Lens: 150mm

Water Contamination Warning, Presbyterian Church, Bonne Terre

Date & Time: 9/12/2013 at 2:10pm

Location: 37.919733,-90.555282
Holder: 14A
Exposure: f8 at 1 second
Lens: 150mm

Bell Rope, Presbyterian Church, Bonne Terre
Date & Time: 9/12/2013 at 2:05pm
Location: 37.919733,-90.555282
Holder: 3B
Exposure: f16.5 at 1 second
Lens: 150mm

Stained Glass, Presbyterian Church, Bonne Terre
Date & Time: 9/12/2013 at 1:47pm
Location: 37.919733,-90.555282
Holder: 3A
Exposure: f16 at 1 second
Lens: 150mm

September 11, 2013 – Wednesday

Crossroads Steak House, Bonne Terre
Date & Time: 9/11/2013 at 7:28pm
Location: 37.923035, -90.555640
Holder: 9A
Exposure: f16 at 11 seconds
Lens: 150mm

Joe Holloway, Portrait, Park Hills
Date & Time: 9/11/2013 at 5:50pm
Location: 37.829794, -90.541641
Holder: 1A
Exposure: f8 at 1/60
Lens: 210mm

Jesse Holloway, Portrait, Park Hills
Date & Time: 9/11/2013 at 5:30pm
Location: 37.829794, -90.541641
Holder: 8B
Exposure: f11 at 1/60
Lens: 150mm

Mega Truck, Deslodge
Date & Time: 9/11/2013 at 4:15pm
Location: 37.854993, -90.517527
Holder: 8A

Exposure: f16 2/3 at 1/400
Lens: 210mm

Main Street, Bonne Terre
Date & Time: 9/11/2013 at 3:00pm
Location: 37.923080, -90.556231
Holder: 10B
Exposure: f16 at 1/8
Lens: 150mm

September 9, 2013 – Monday

Sierra + Shawn, Portrait, Bonne Terre
Date & Time: 9/9/2013 at 6:50pm
Location: 37.922130, -90.555738
Holder: 5B
Exposure: f5.6 at 1/125
Lens: 150mm

Chat Pile, Bonne Terre
Date & Time: 9/9/2013 at 6:30pm
Location: 37.926470, -90.562352
Holder: 5B
Exposure: 5.6 at 1/125
Lens: 210mm

September 8, 2013 – Sunday

Grocery Store, Bonne Terre
Date & Time: 9/8/2013 at 5:55pm
Location: 37.920977, -90.534554
Holder: 10A
Exposure: f22 / 1/8
Lens: 210mm

Earl Faircloth, Portrait, Terre du Lac
Date & Time: 9/8/2013 at 5:55pm
Location: 37.900162, -90.616154
Holder: 6B
Exposure: f8 at 1/125
Lens: 210mm

September 7, 2013 – Saturday

Hocker's Gas Station, Desloge

Date & Time: 9/7/2013 at 7:30pm
Location: 37.878660, -90.524265
Holder: 7B
Exposure: f11 at 1 sec
Lens: 210mm

Chat Pile off Buckley Road, Park Hills

Date & Time: 9/7/2013 at 6:30
Location: 37.857022, -90.515319
Holder: 7A
Exposure: f22.5 at 1/2
Lens: 150mm

Park Hills Chat Pile, Low to Ground

Date & Time: 9/7/2013 at 5:30pm
Location: 37.841915, -90.535524
Holder: 6A
Exposure: f22 at 1/30
Lens: 210mm

Park Hills Chat Pile, Eye Level

Date & Time: 9/7/2013 at 5:30pm
Location: 37.841135, -90.534972
Holder: 5B
Exposure: f11 at 1/250
Lens: 210mm

Lead Belt Pumping Supplies Shop

Date & Time: 9/7/2013
Location: 37.836022, -90.532161
Holder: 5A
Exposure: f16/125
Lens: 201mm

Leadbelt Golf Course Chat Pile Skyline

Date & Time: 9/2/2013
Location: 37.929411, -90.544027
Holder: 1A
Exposure: f16 at 1/125
Lens: 150mm

Leadbelt Golf Course First Tee

Date & Time: 9/7/2013 at 12:30pm
Location: 37.932499, -90.543217
Holder: 1B
Exposure: f11.3 at 1/400

Lens: 210mm

Inflatable Monkey, Festus

Date & Time: 9/7/2013 at 11:30am

Location: 38.219188, -90.393341

Holder: 2A

Exposure: f16 at 1/250

September 6, 2013 – Friday

Featured Go-Kart Race, Doe Run Raceways

Date & Time: 9/6/2013 at 9:30pm

Location: 37.736886, -90.507860

Holder: 9B

Exposure: f5.6 at 1/4

Lens: 150mm

Caitlyn Huber, Portrait

Date & Time: 9/6/2013

Location: 37.736886, -90.507860

Holder: 9A

Exposure: f5.6 at 1/4

Car 44, Doe Run Raceways

Date & Time: 9/6/2013

Location: 37.736886, -90.507860

Holder: 8B

Exposure: f5.6 at 1/2

Raceway, Doe Run

Date & Time: 9/6/2013

Location: 37.736886, -90.507860

Holder: 8A

Exposure: f5.6 at 1 sec

Lens: 150mm

Sunset at Taum Sauk Mountain

Date & Time: 9/6/2013 at 7:30pm

Location: 37.568796, -90.718735

Holder: 3B & 4B

Exposure: f16 at 5 sec

Prior to Sunset at Taum Sauk Mountain

Date & Time: 9/6/2013 at 7pm

Location: 37.568796, -90.718735

Holder: 4A

Exposure: f32 at 1/2

Trailer for Sale, Taum Sauk Mountain

Date & Time: 9/6/2013 at 6:30

Location: 37.558995, -90.669501

Holder: 10B

Exposure: f11 at 1/8

Lens: 210mm

"Welcome...Hello" Tagged Mural, Ironton

Date & Time: 9/6/2013

Location: 37.599555, -90.627916

Holder: 10A

Exposure: f11 at 1/60

Lens: 150mm

September 5, 2013 - Thursday

Scott Swan, Portrait, Park Hills

Date & Time: 9/5/2013

Location: 37.849116, -90.517838

Holder: 13A & 13B

Exposure: f5.6 at 1/250

Lens: 150mm

Flat River Cinemas, Closed, Park Hills

Date & Time: 9/5t/2013

Location: 37.851289, -90.520365

Holder: 11B

Exposure: f7 at 1/125

Pastor Charles Henrickson, Portrait, Bonne Terre

Date & Time: 9/5/2013

Location: 37.917507, -90.545529

Holder: 11A

Exposure: f11 at 1/2

Lens: 150mm

Changing of the Board, Bonne Terre

Date & Time: 9/5/2013

Location: 37.917507, -90.545529

Holder: 14B

Exposure: f16 at 1/250

Lens: 150mm

September 4, 2013 – Wednesday

Remediate Soil, Bates Memorial Park, Herculaneum

Date & Time: 9/4/2013

Location: 38.262833, -90.384371

Holder: 12B

Exposure: f45 at 1/2

Lens: 150mm

Calin Brown & Courtney Shelton, Portrait, Herculaneum

Date: 9/4/2013

Location: 38.267887, -90.373256

Holder: 14A

Exposure: f8 at 1/60

Lens: 150mm

Mississippi River by Smelter, Herculaneum

Date: 9/4/2013

Location: 38.267887, -90.373256

Holder: 12A

Exposure: f16 at 1/15

Lens: 150mm