

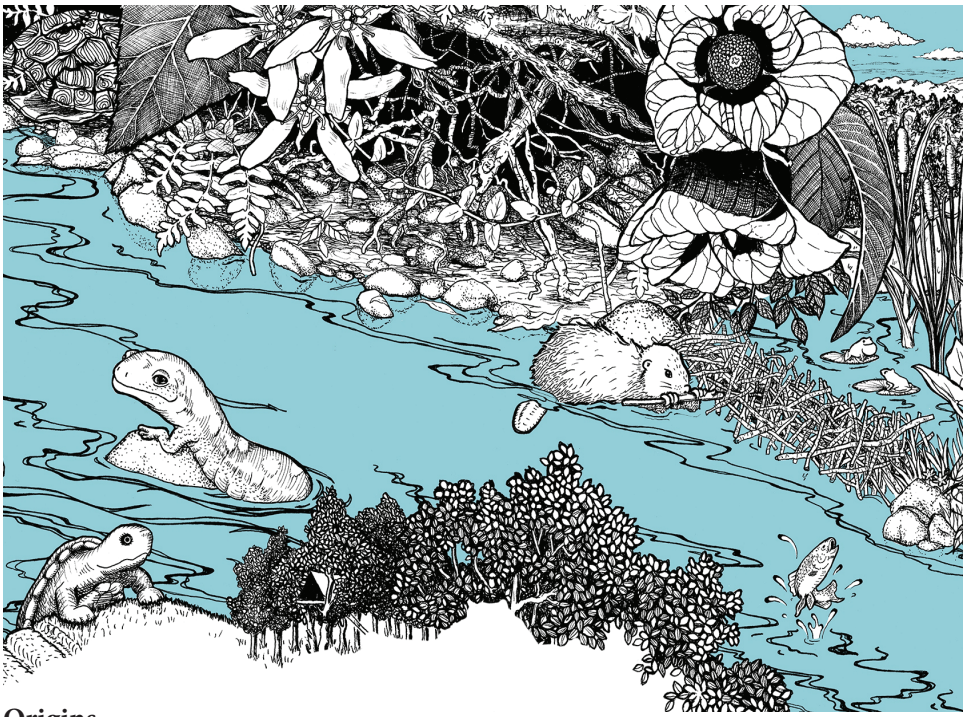


Water Ways

A narrative companion to a series of illustrations about the natural gas industry and its impacts on ecosystems, politics, communities and resistance in the Mid-Atlantic region.

www.TheWaterWays.org





Origins

We begin this story with two turtles. First we focus on the broken shell at the top left of the illustration, which reminds us of the genocide that took place on this land and the forced removal of indigenous people. There has been so much that has been lost: lifeways, languages, species, and sacred connections to land.

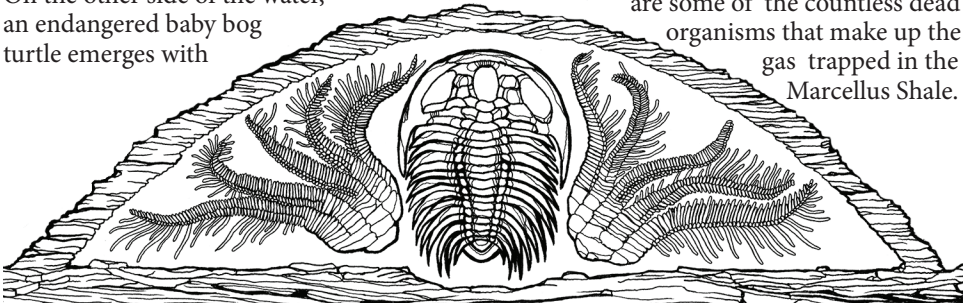
And still there is so much here worth fighting for on Turtle Island. Indigenous people continue to keep their culture and language alive here and elsewhere. This region is full of biological and cultural diversity.

On the other side of the water, an endangered baby bog turtle emerges with

the promise of a future in which life and land are no longer considered property or commodity.

Shale (border) is a fine-grained, sedimentary rock found throughout the world. The Marcellus Shale runs through land that is often called by their state names: New York, Pennsylvania, Ohio, Maryland, W. Virginia and Virginia, and contains natural gasses, which are formed when layers of decomposing plant and animal matter are exposed to intense heat and pressure under the surface of the Earth for hundreds of millions of years. The energy that the prehistoric plants originally obtained from the sun is stored in the form of chemical bonds in the gas. Trilobites and crinoids (bottom center)

are some of the countless dead organisms that make up the gas trapped in the Marcellus Shale.



Natural Gas Infrastructure

This cross section of the earth shows many geological layers including the water table and the Marcellus Shale, which lies between two and nine thousand feet below the earth's surface. Natural gas is extracted from the Marcellus Shale through a method called high volume hydraulic fracturing, or fracking. A well is drilled into the shale deposits deep in the earth, turned 90 degrees and continues to drill horizontally for a mile or more. A toxic mixture of water, sand, and over two hundred volatile chemicals is injected into the well at an extremely high pressure, which shatters the shale rock. Sand particles prop open the fissures in the shale. This releases trapped natural gasses, which travel back up the drill well along with half of the toxic injection mixture, known as flowback.

The natural gas is often transported as a Liquefied Natural Gas (LNG), which is 1/600th the volume of its gaseous state. If there is an accident and a leak occurs, the liquid can immediately expand back into an odorless, colorless, highly flammable gas, causing an extremely volatile situation.

The Natural Gas Liquids (NGL) are held as condensate in storage tanks until they are shipped via truck, train or pipeline to storage facilities or refineries. The flowback is left in containment ponds where it

partially evaporates and then is injected back into the earth via wastewater injection wells or is dumped into bodies of water nearby. Both processes poison the earth, air, and water.

Compressor Stations (bottom right) are built along a pipeline route in order to gather and pressurize the gas, shooting it through the next length of pipe. This keeps the gas moving through the pipe. These stations cause a massive amount of air, noise and light pollution, which cause health problems.

A cracker plant (not pictured here) takes ethane, a byproduct of natural gas, and breaks the molecules to create ethylene, which is used in plastics manufacturing. The first cracker plant built in this part of the country is in so-called Pennsylvania and there are seven more cracker plants proposed.

Much of the gas from Ohio, Pennsylvania, and West Virginia travels to Marcus Hook through the Mariner East 1 & 2 pipelines, owned and operated by Energy Transfer Partners (ETP). Most of that gas will be exported as liquid ethane on Dragon ship transport vessels to European petrochemical markets including Scotland and Norway. Ironically, Scotland banned fracking in 2017, stating that fracking is unhealthy for their citizens. This sale proves that Energy Transfer Partners is using these pipelines for their own profit and not for the common good of the people whose land they've stolen by eminent domain. Numerous land owners

have taken them to court to battle their use of eminent domain.



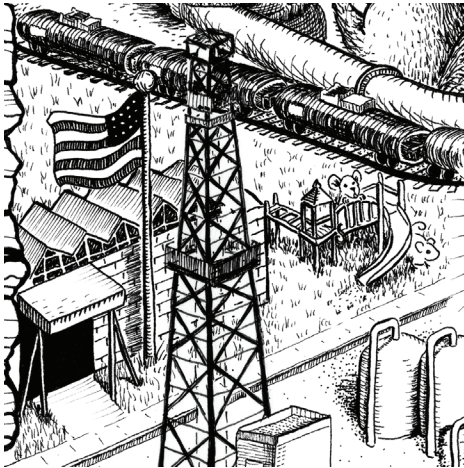
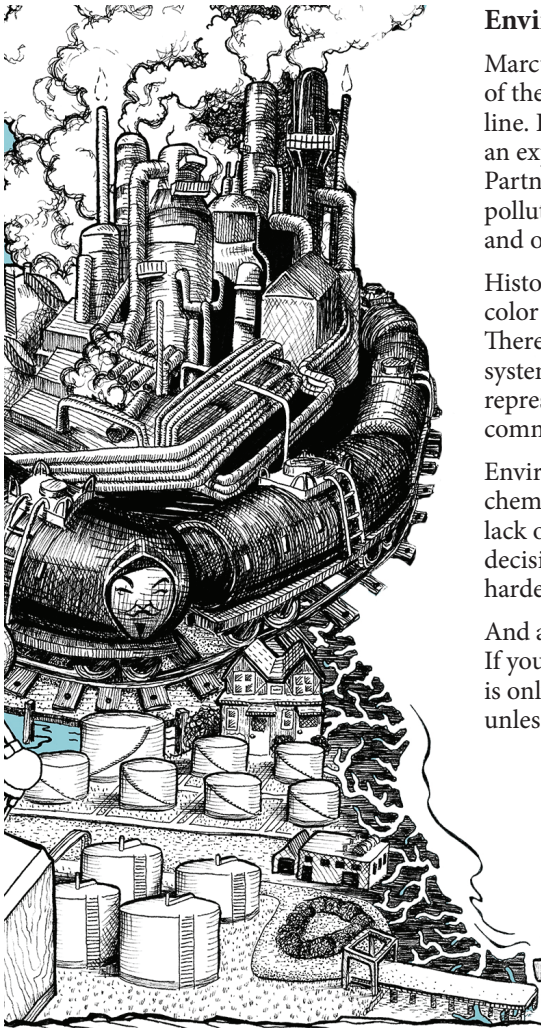
Environmental Racism and Classism

Marcus Hook is a town of 2,400 people. 20% of the population lives below the poverty line. It is home to many industrial sites and an export terminal for Energy Transfer Partners. The massive amounts of air pollution there contributes to asthma and other health effects.

Historically, it is poor people and people of color whose water first gets poisoned. There are many reasons for this, including systematic prejudice, lack of political representation, and segregated or isolated communities.

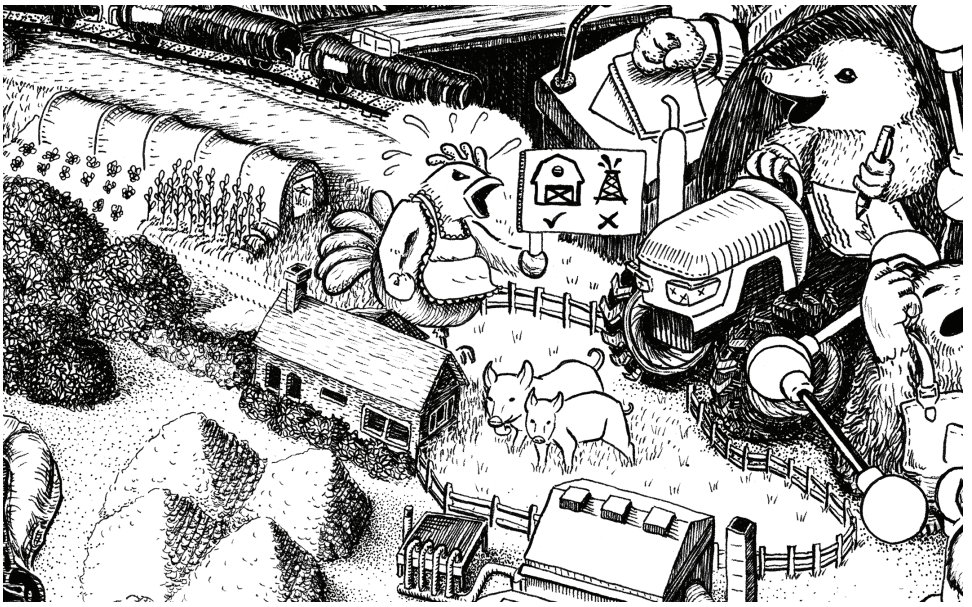
Environmental devastation, be it prolonged chemical exposure, toxic waste, pollution, lack of clean water, or exclusion from related decision making, is always felt first and hardest by oppressed people.

And at the same time, we all live downstream. If your neighbor's water is contaminated, it is only a matter of time until yours will be unless the contaminating source is stopped.



Protecting Our Children

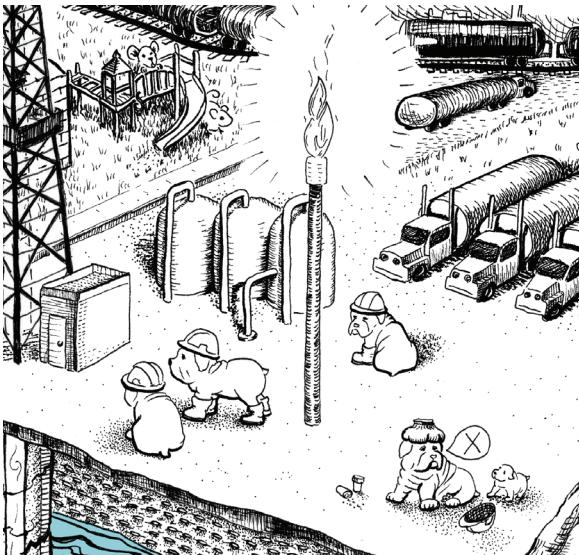
On the far left of this scene is Middletown's Glenwood Elementary School, where ETP plans to lay the Mariner East 2 pipeline. The pipeline would be 650 feet from the playground, which is within the designated "blast zone". This means that when/if there is a leak or explosion of the pipeline, the entire school of 450 students would have less than three minutes to safely evacuate. The Middletown Coalition for Community Safety has rallied around their children to fight the pipeline.



Land, Water & Food Contamination

Near the drill pad site is hen Maggie Henry, an organic farmer. Her land was destroyed by a Shell fracking site on her neighbor's property. During construction, activists protested the drilling and blocked the roads from Shell trucks entering. Shell's response was to leave a hotline number for Maggie to call in case of emergency and continued fracking the

site. Because of the contaminated soil and water, Maggie could no longer guarantee the organic quality of her livestock. She lost her business, lost her land, and has been fighting the oil & gas industry ever since. As of 2013, Shell ran and operated 760 wells in PA with 211 violations. Shell was never fined for these violations and continues doing business the same way.



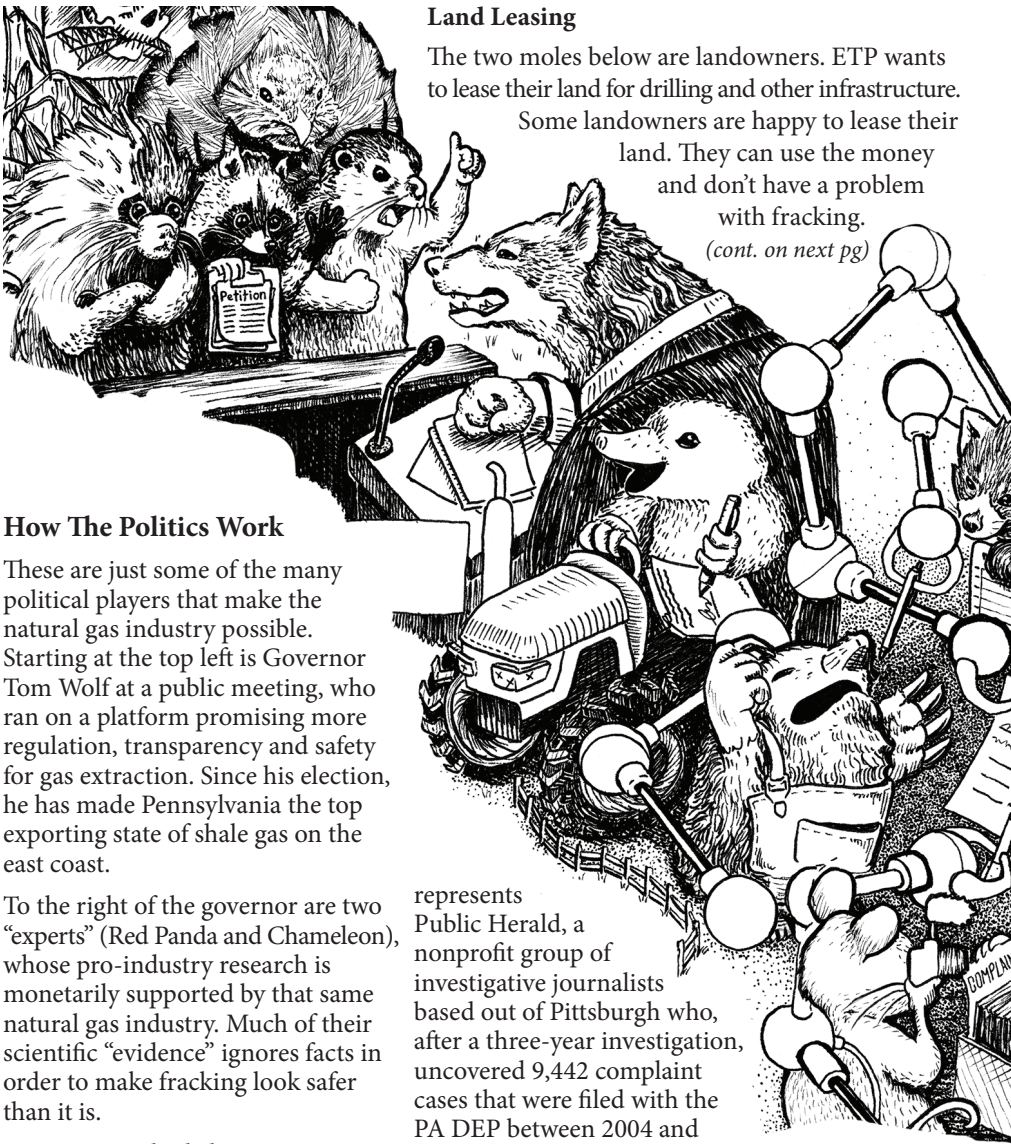
Worker Safety

Fatality rates of oil & gas field jobs are seven times greater than the national average. Natural gas industry jobs are dangerous, exposing workers to workplace conditions that have short-term and long-term health and safety impacts. Workers who come forward to speak out about unsafe conditions are often ostracized from family and friends who are also employed by the industry. People need to work but people don't deserve to work jobs that threaten their wellbeing and the health of their entire communities.

Land Leasing

The two moles below are landowners. ETP wants to lease their land for drilling and other infrastructure. Some landowners are happy to lease their land. They can use the money and don't have a problem with fracking.

(cont. on next pg)



How The Politics Work

These are just some of the many political players that make the natural gas industry possible. Starting at the top left is Governor Tom Wolf at a public meeting, who ran on a platform promising more regulation, transparency and safety for gas extraction. Since his election, he has made Pennsylvania the top exporting state of shale gas on the east coast.

To the right of the governor are two “experts” (Red Panda and Chameleon), whose pro-industry research is monetarily supported by that same natural gas industry. Much of their scientific “evidence” ignores facts in order to make fracking look safer than it is.

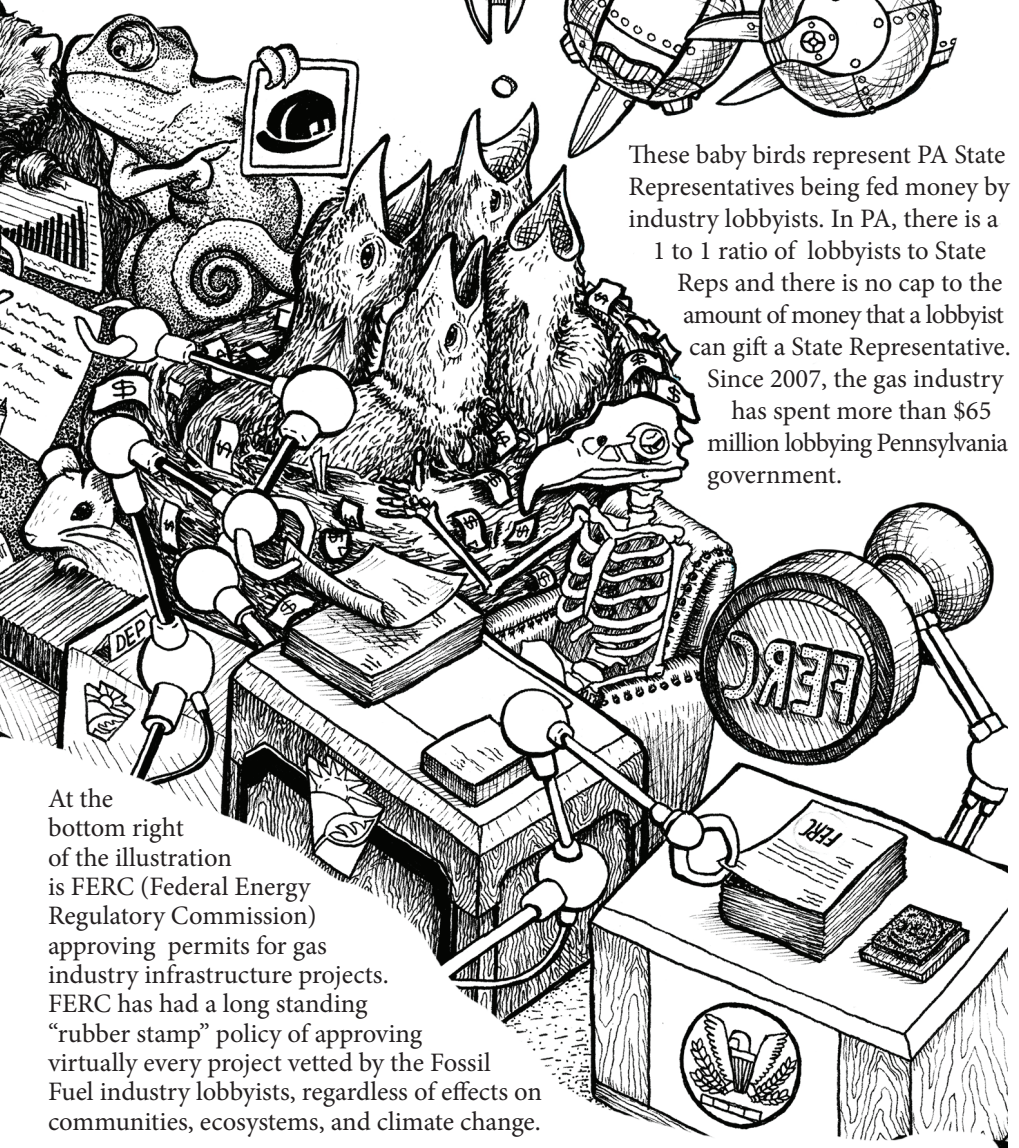
Next is an eagle skeleton sitting at a Pennsylvania DEP (Department of Environmental Protection) desk giving the thumbs up to gas industry permits. DEP is drawn as a bald eagle skeleton because it is extremely underfunded and understaffed and therefore is stretched too thin to do its jobs effectively. The filing cabinet to the left of DEP is being opened by a mouse who is looking through thousands of water contamination complaints left by PA residents. This

represents Public Herald, a nonprofit group of investigative journalists based out of Pittsburgh who, after a three-year investigation, uncovered 9,442 complaint cases that were filed with the PA DEP between 2004 and 2016 that were hidden from the public.

4,108 cases were “water supply” complaints. This can include descriptions like foaming or bubbling water, bad odors, & strange colors. In other cases, residents have experienced stomach aches, rashes, hair loss, animal die-offs and even hospitalization. Out of the thousands of complaints, the DEP has concluded that only 7% are related to oil/gas activities. However, Public Herald accumulated evidence that DEP committed three types of official misconduct while processing these complaints: malfeasance, misfeasance and negligence.

Others, out of concern for the wellbeing of their ecosystem and community, refuse to lease their land. ETP will increase their offer. If the landowner still refuses, ETP will threaten to seize it by eminent domain.

Neighbors are intentionally pitted against one another. Unless a community is already organized to respond to these tactics, this can be an extremely stressful and isolating experience.



These baby birds represent PA State Representatives being fed money by industry lobbyists. In PA, there is a 1 to 1 ratio of lobbyists to State Reps and there is no cap to the amount of money that a lobbyist can gift a State Representative. Since 2007, the gas industry has spent more than \$65 million lobbying Pennsylvania government.

At the bottom right of the illustration is FERC (Federal Energy Regulatory Commission) approving permits for gas industry infrastructure projects. FERC has had a long standing "rubber stamp" policy of approving virtually every project vetted by the Fossil Fuel industry lobbyists, regardless of effects on communities, ecosystems, and climate change.

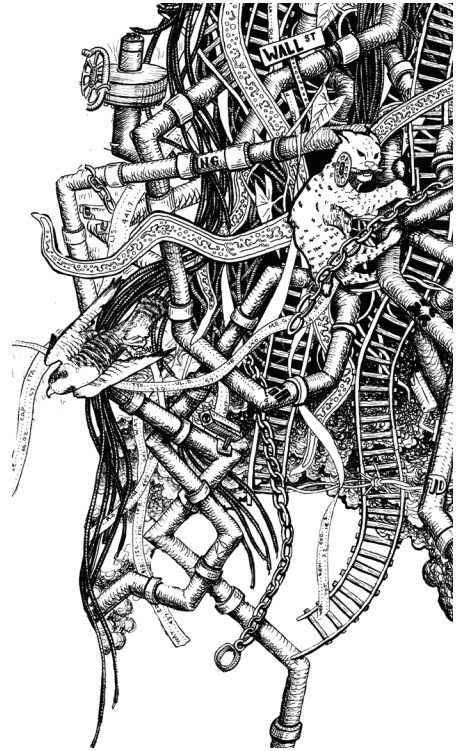
Cultural Context

How is all of this possible? How do we live in a world in which drinking water and breathing air can make us sick? How do we live in a world in which unending growth is the only acceptable sign of success?

How do we live in a world in which the profit of a few is valued over the wellbeing of many?

It's hard to say, but in reflection, certain ideologies of our society emerge as contributing factors. We see the tools that claim life as property: chains to enslave, and barbed wire to create arbitrary borders. We see symbols of technologies that have been used to rapidly increase this speedy unchecked expansion: railroad cars, ticker tape, wires. We see pipelines being laid through stolen land financed by banks made wealthy from centuries of slave labor. This is the mess in which we are all tangled.

Those in power say, "This is the only way do things and if you say otherwise you're delusional and maybe dangerous." And yet there are millions and millions throughout the world who say, "No. This is not the only way. We will fight to leave our children with a better world than we had." Falcon and Bobcat are putting their lives on the line to defend what they love and dismantle that which causes the most harm.



A Song and a Prayer

A circle of animals fortify their spirits with song and prayer. Creativity is a crucial part of movement building. The arts inspire, empower, inform, enrage, gather and embolden. As human beings, we are shaped by the stories we tell each other. Artists are culture makers- they create our icons, memes, symbols, hashtags and heroes.

Split Rock Sweet Water is a prayer camp led by the Ramapough Lennape in Mawah, New Jersey. It was established at the sacred site Split Rock in solidarity with Standing Rock in 2016, in protest of the Algonquin Expansion Pipeline (AIM) and Pilgrim Pipeline, and in celebration for all of creation in the web of life.

In Lancaster County, PA, nuns and activists built a chapel on the proposed path of the Atlantic Sunrise pipeline. When bulldozers came to destroy their sacred site, people encircled the bulldozers, holding hands and singing hymns until they were arrested.

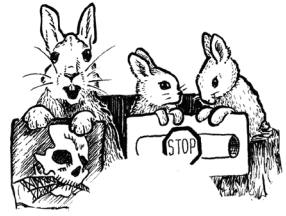
Both of these stories are still unfolding.

Nonviolent Direct Action

On the left, the ash borer beetles and machinery are laying pipes into a clear-cut easement while bats watch from their tree-sit perches. This is the story of the Gerhart family & their land. In 2016, the Gerharts were informed that Sunoco Logistics (now Energy Transfer Partners or ETP) wanted to put their Mariner East 2 pipeline through acres of their property, but they refused. ETP took them to court to take their land by eminent domain although it's clear that the gas will be exported overseas. for the company's profit. The gas company moves ahead with construction without thinking that they need to answer to the public, even while they're still in court. The family and their friends set up a tree sit to protect their land from construction.

Private Police

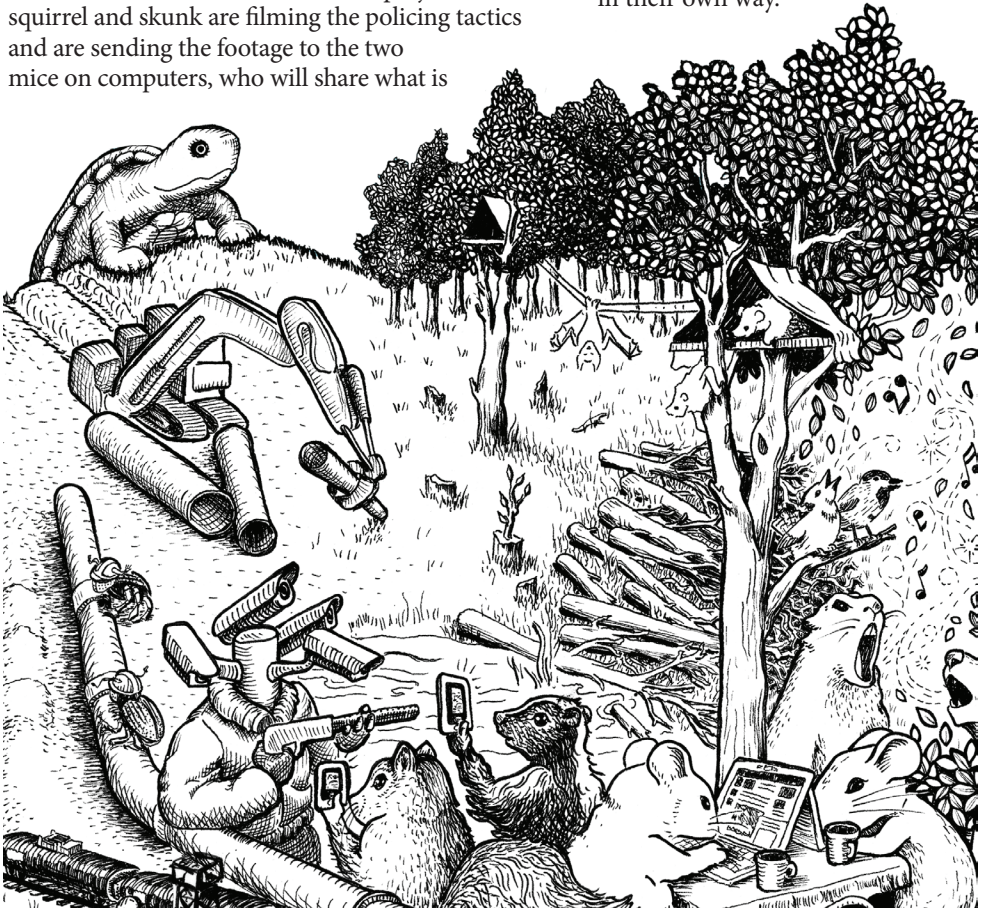
An armed surveillance guard blocks water protectors from accessing their land. ETP hires TigerSwan, a private policing agency, to bully, intimidate, arrest and eliminate those who resist their projects. But the squirrel and skunk are filming the policing tactics and are sending the footage to the two mice on computers, who will share what is



happening at the front lines with the world.

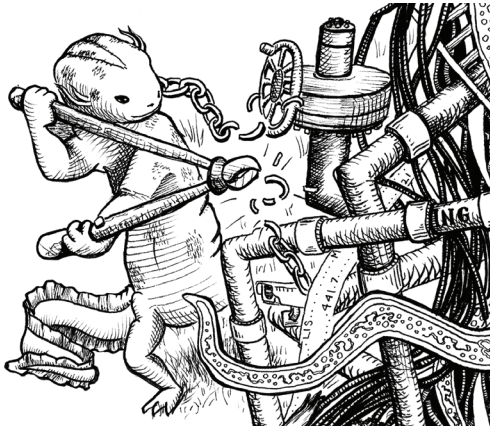
Solidarity

This Mama Rabbit is teaching her young how to participate in public acts of dissent. These rabbits represent the fact that people advocate for justice in many different ways. While they may not feel comfortable disrupting a townhall meeting or locking their bodies to construction equipment, they can hold signs and show their support in their own way.



Valve Turners

The Hellbender represents five activists nicknamed the “Valve Turners” who shut off four pipelines carrying Canadian tar sands oil into the US in 2016. They are on trial right now in four different states and are attempting to use the Necessity Defense, which permits a person to do something illegal when faced with an imminent threat that will do great harm.

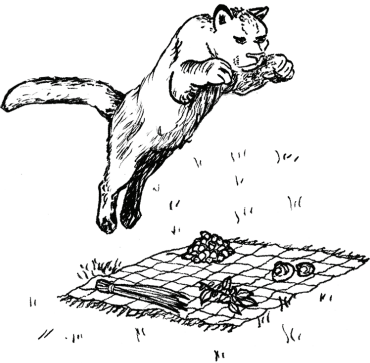
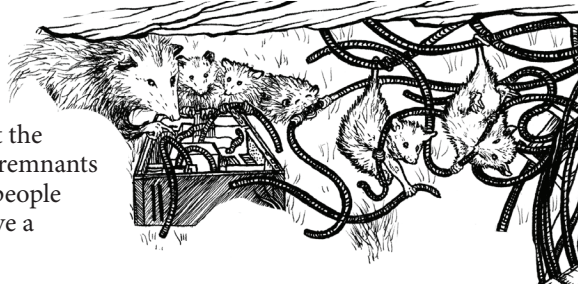


Elder Power

Crone Burdock and Grandma Dandelion lockdown to protect their community’s waterways. Their strong taproots make them nearly impossible to get rid of, and the medicine they offer makes their community healthy. We remember that effective movements build upon the wisdom and experience of elders.

Youth Power

These opossum joeys are gnawing at the monstrous tangle and are using the remnants to rewire a computer tower. Young people bring intelligent, fresh ideas that have a critical role in this fight.



Healing Community

Deirdre the mountain lion has devoted her life to the wellness of her community by protecting water and growing healthy food. She studies nutrition and herbalism because she knows that her community is drinking unsafe water contaminated with heavy metals and eating food grown in unhealthy soil. Here she is seen leaping forward from the edge of her blanket full of medicine: Tulsi, Reishi, Sweetgrass and Acorns.

Feeling Feelings

Monkey and Duck grieve for poisoned waterways, vanished ecosystems, and suffering communities. Grief is a part of being alive, especially here and now, in the midst of such violence and destruction. Mourning is not a sign of weakness. It can be a powerful and healing catalyst.



Defend What You Love

Cattails, wapato, pickerell weeds, water lilies and groundnuts are delicious, nutritious foods that grow in marshlands and ponds. We envision a future in which there is plenty of space for more-than-human life to thrive. In that future, we have remembered how many creatures care for us, and how to care for them. Beaver is tending to an ecosystem because she knows the ecosystem tends to her.

Next to the food marsh, a three sisters garden grows in the sunlight. Corn, beans, and squash, the staple crops of many Indigenous people from this continent, have been grown together for thousands of years by the Lenape. Their seeds, lessons, and medicine have been shared from season to season. They grow stronger together than on their own. In the kitchen they nutritionally complement each other, too.

A wallaby and bear team up to prepare a feast for everyone! We are fighting for a world in which everyone eats well and food is never wasted. The food we eat connects us to the land. This food is grown out of healthy soil by farmers who are valued and celebrated.

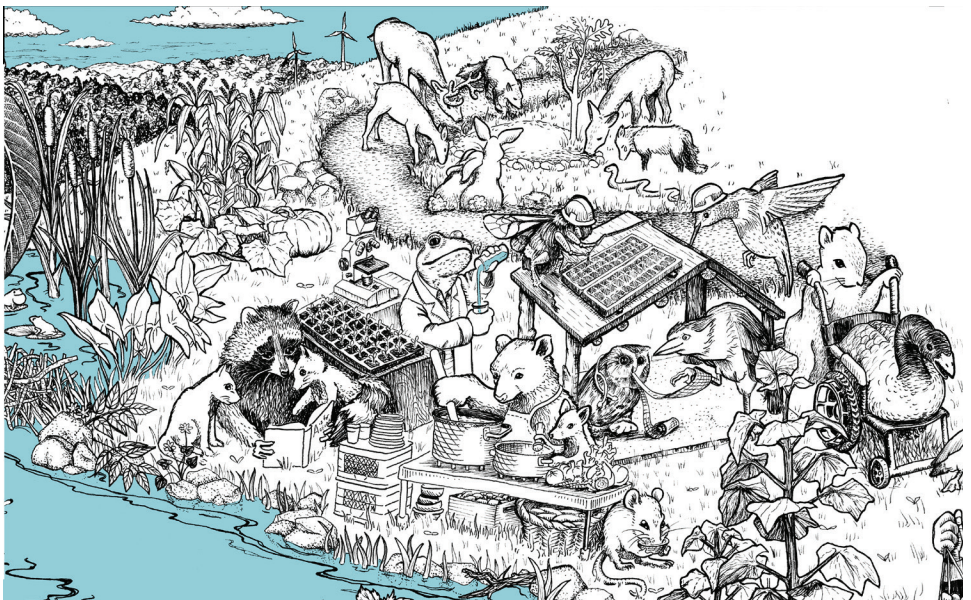
Owl is bandaging up Black Crowned Heron. We are fighting for a world in which everyone has access to healthcare, no matter who they are or where they live.

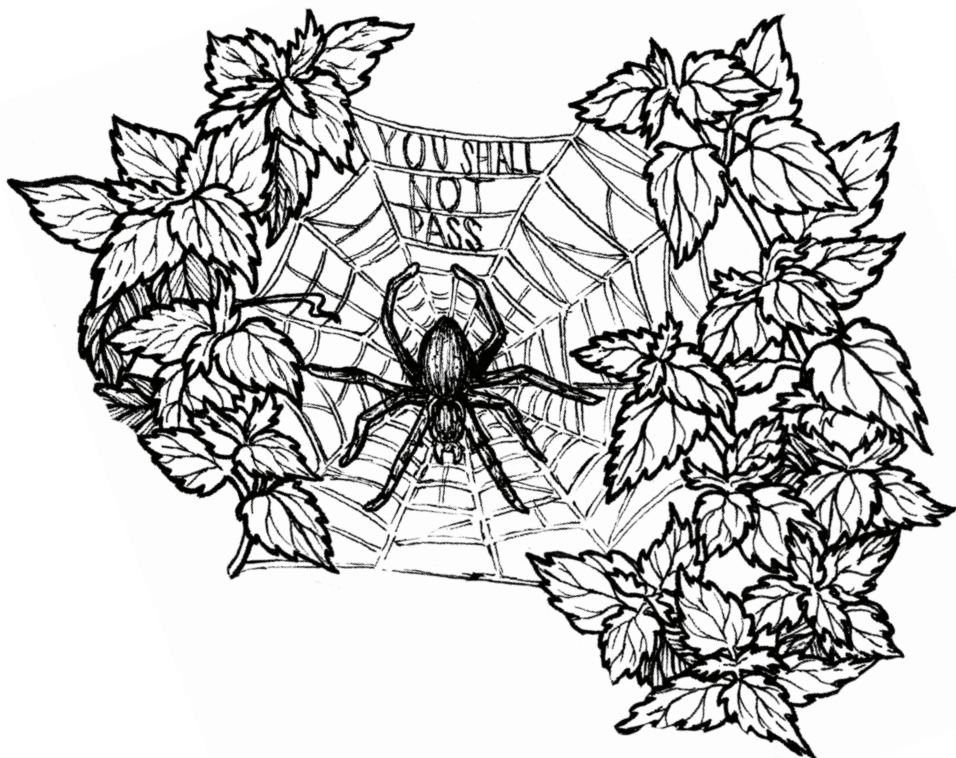
We are fighting for a world in which the land, air, and water upon which we all depend is fiercely protected. We develop better forms of renewable energy that work with the planet, not against it.

Frog is researching how certain species of plants are able to clean water! Frog is using his scientific prowess to develop ways to heal and restore the land and water.

Squirrel & Goose are caring for and including those with different physical abilities. We are also building a world in which the elderly are cared for and included as their abilities change throughout the years.

At the top of the scene, a community says farewell to one of their own. An oak sapling has been planted at the head of the grave. We are fighting for a world in which the cycles that move us are honored, and that includes birth, life, death, and decay. It is understood that death is not something to ignore, hide or mask. Here, all creatures get to die as they lived, with some dignity, agency and deeply rooted community.





Water Ways is a collaboratively drawn series of illustrations...

which tells stories of those who are affected by the natural gas industry. Through educational presentations, storytelling, and workshops utilizing the illustrations, the Water Ways team aims to strengthen networks of grassroots organizing throughout the region and beyond.

The illustration discussed in this booklet is the second in our series. The first is the pipeline map included here. Future

illustrations will continue telling the story of this ever-unfolding epic and cover topics not featured in this piece.

The illustrators on this project are Bri Barton & Meg Lemieur. Thank you to Andrew Geller for help editing this booklet. Our main project partners are E.D.G.E. and the Beehive Design Collective. Our funding for the initial printing of this project came from the Leeway Foundation.

www.TheWaterWays.org
thewaterwaysproject@gmail.com
(484) 433-7872