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Welcome to eco criticism 101. It's a sort of a milestone lecture, in fact. So it's lecture number nine, but the basic lectures for the course which covered the Western tradition, including the introduction, there are a total of 16 of those, so with number 9, we are now half past the halfway point, and on our way kind of downhill from there. So the course isn't quite half over, but we're getting there, and also it's a milestone and so far as we're moving into the modern period, at least in the sense of the early modern period of Western history. We're moving to around four hundred years ago or so. Also it says something about the way that the course is structured, if you hadn't noticed it already, and that is that the first half of the Western tradition covers over four thousand years of Western history. In the second half, which is beginning today, covers the most recent four hundred years. So we've been moving a kind of breakneck speed, and I keep talking about those big jumps, eight hundred years from the early well, it's even further back, from thousands of years from Gilgamesh, to the early Greeks, another seven hundred years, to the Romans, another eight hundred years to Dream of the Rood, another seven hundred, years to Chaucer, and now or we are a little further still. So what this means is the kind of issues we're going to be taking up now are distinctly modern issues, things that we associate with modernity. And that might be surprising because you might think that these would only emerge during the so-called Industrial Revolution, but it is the case that things like urban air pollution, which we'll be looking at today, actually precede the Industrial Revolution, and that's kind of surprising. You might have thought that industry is responsible, principally for air pollution in cities, but it's not necessarily as we'll see today. So it should be interesting, in the sense that we are looking at things that still impact us. We're still impacted by things, like what we saw in the Epic of Gilgamesh, which is deforestation, but these are things that are that are urgent, and in fact we're

gonna be looking at today is the emergence of the first true fossil fuel economy on the planet, which is 400 years ago in London. If we look at that one city, this is kind of where it began, and you can kind of see where it's going to go from there, of you've come at it from the vantage point of the present of modernity, which is why we called early modern. But let's get into that distinction then, which is why it's so important. So back to the Prezi. Notice here we are way up here, and the Renaissance, and notice of course, how much we've covered, which is why I've said that nine-tenths of the history that we covered, we've already moved up from, and we're now firmly here, not only in Europe, but shifting from the continent to England. So a huge amount. Also you may notice a practical thing, the lecture stopped here, so we go from one, two, three, four, all the way up to nine, and then nothing. What that means, I mentioned during the introductory material, we couldn't fit everything on one big Prezi, so there are two of them, and when we start next time, we're gonna be working from the second one. So if you're referencing back to the Prezis, know that this will be the last lecture that you can use number one, for you're going to have to go to number two next. So, let's jump in, number nine here. And let's just go to here: early modern English literature and the emergence of true modern environmental issues. So this is gonna be eco criticism insofar as we're using literary text to some extent, but this is really going to be a good bit of environmental history here. So this is looking at history, practical terms, what's happening to London for example with this air pollution, but coming at it from an environmental perspective. We've done this before using eco environmental history to different degrees, but this one in particular is going to, this lecture in particular is going to focus on a good bit of history to understand what's going on. The early modern period, so we need to talk about this period and how we look at it. So in England, generally the period from 1500 to 1700, is called either the Renaissance or the early modern period. These words

you'll hear often used interchangeably, but they represent two very, very different ways of looking at the period. But before getting into those, two I wanna just focus on those dates there. Those dates are distinctly for England. What I mean by that, is in Europe and I'm really thinking of Italy here, the Renaissance is going to hit a couple centuries earlier, takes a while for it to get to England, until there's a real sort of blossoming of the Renaissance, or early modern period. So just know that the early modern period in London is, we're talking about, we're later. This is late Renaissance, but it just gets there later, it's the way it works.

So Petrarch was an early Italian Renaissance writer. He's one of those people that are a couple centuries earlier than England. He argued in the thousands of years, but the thousand years, the 1000 years between the collapse of the Roman Empire in his own time, there is to him, nothing but darkness and gloom. In other words technologically, with art with everything else, there's just nothing new that happens. So he refers to those as the dark ages. If you ever wonder why we call it the dark ages, I'm gonna talk about why that characterization the problem in a moment, but if you ever wondered why we call it that, well it's Petrarch, and it is a way of suggesting that there is just nothing happening, there's just darkness and gloom.

The Renaissance, in you may know this, the word means literal, it comes from the Latin, they nascentia. It means to be born again. It defines a period of classical revival of classical learning. So the people that we had looking at before we got to the medieval period, the Greeks and Romans, Hesiod and Virgil and Varro and that gang, but especially the art like Virgil and Theocritus and all. The notion is, and this is especially important to Petrarch, is that that classical learning is going to get revived, it stagnates. There's nothing new happening. There's all this gloom for a thousand years, but then it is reborn during the renaissance, and I'll restate that to be clear, what is being reborn?

Principally Greek and Latin art, as well as other things like technology. So it's sees a continuity between Greek and Latin, the Greco-Roman culture, and what becomes early modern. So that's again important, why we're looking at these traditions in particular, Greco-Roman and Judeo-Christian. Christianity had a great deal of continuity during that medieval period, even after the collapse of the Roman Empire. But in the case of Greco-Roman, it kind of stagnates for a while, at least according to Petrarch. We tend to be, and here's a little caveat, we tend to be weary of the term Dark Ages, because it deprecates the period of time between the collapse of the Roman Empire, or the height of the Roman Empire, and the Renaissance. When you do what Petrarch did, and let's think for a moment about what he did. You think of the time before you as dark and backward, you're able to sort of epistemological, and the way you understand yourself, construct yourself and your culture by negatively characterizing the culture before. In other words, this is a time of patriarchs, era of great and knowledge and wonderful things, because the period before was dark and gloomy and nothing. So it's kind of like characterizing your culture is great, by looking at another culture which is what you're doing. It's it's not a multicultural thing, looking at a separate culture altogether, but your own culture at a period of time. So it's ways saying well, aren't we really great. We're so great. How do we know we're great, well let's go look at this other culture, our culture a few hundred years ago, and it was really, really, horrible. So you see yourself in terms of someone else, and you build yourself up by putting them down. That's a very nasty thing to do, and unfortunately that happens in all sorts of ways. People construct themselves. So go-to example is of course sex and gender. So what are men? Men are strong, men are emotionally secure and independent, and analytic and all, why do we know we're this way? Because while women are not strong and not emotionally stable, not

analytic or whatever, so you see it creates what we saw with nature and culture, a binary structure in opposition. But one is consolidated by virtue of the fact that you see the other as being just the opposite in those characteristics. You can see how this works in all sorts of ways, with not just sex, what was class, race, and all sorts of things. It's a very nasty thing to do, to construct a sense of self by creating an other, and that's "other" with a capital O. That is just the opposite and inferior to you, so always be kind of on the lookout for that thinking. You'll see it. Scholars working few decades ago are especially concerned about how all that was working, and it was important, but just be aware of it, because well, you may encounter it unfortunately in your own, our lives. So let's talk about just not art, but technology here, because not only is there rebirth of art and like with Petrarch, and a lot of what we're talking about, we are going to be talking about a rebirth of art, but there is a rebirth of all sorts of knowledge, including technology. So let's look at, and literally look at Rome's Pantheon. So this is constructed, finished in about 125 ad, very early in the Christian era. This is a massive, unsupported dome. Technologically, that was hard to make, one to make this size, was really hard. The Greeks as we saw when we were in our discussion of permanence and the way they tried to hold off the endless flow of Phocis of nature. We're really big on things like marble and all. The Romans make things that look very similar, but they actually made the amount of cement. This dome is entirely made out of cement. Even today, nineteen hundred years later, it is still the largest unreinforced, self-supporting dome on the planet, as far as I know, certainly in the West. So it's quite an accomplishment. The point is, for well over a thousand years, and this is another view of it from the outside, just to give you an idea how big that dome is, but, and this would be Petrarch's point, for well over a thousand years, more, it had been impossible to duplicate that. So imagine being born in an era where you would

look back to something like say
Shakespeare's time, or Chaucer's time,
just go back pretty far if you want, and
those people had technology
that could do things that we never could.
So we build tall skyscrapers
and all, but we could do nothing like
what they did back in Chaucer's time. It
sounds kind of ridiculous to think about,
but that was what was the era the
people were born
into, where they had these things.
If he lived in Rome, you could
go walk over and look at this thing, and
like yeah, how do you do something like
that, nobody could. That's why, when
a renaissance happens, a rebirth, not
just of art, but of technology, it's
heralded is so important, and why
Petrarch and others got a little
full themselves with it. It does
happen, however, during the Renaissance,
during the rebirth. The dome in St.
Peter's Basilica, which was designed by
Michelangelo, we're gonna see
another thing by him today too, is nearly
as wide as the Pantheon and even taller.
This is the dome in St. Peter's Basilica.
So finally, after well over a thousand
years, Western people are able to
duplicate what would happen
in classical times. And make no mistake,
that scene is a really
big deal, that they were able to do it.
and it's a perfect example of a rebirth
of technology and very particular
technology here. So it's not only in
technology, but the arts themselves. So
this is a classical Greek statue, it's
the statue of Hermes with the infant
Dionysus he's holding. If you look at
medieval art, and this is what a counter
to Petrarch, because there's beautiful,
wonderful art in its own type, but a
different type there, but to actually
do classical work like this, you're not
gonna find it in European art in the
Middle Ages. It's just not going to be
there. So Petrarch said, "well
this was a very dark era when it
comes to art," I would disagree with that.
There is amazing art there, but nothing
on this model. However,
Michelangelo's David, let's just see him
here, he boldly and triumphantly
declared that Renaissance
artists had equaled, indeed surpassed, and
as great as that statue of Dionysus was,

well this is better. I mean I don't know, you can decide for yourself, but this is an extraordinary accomplishment. This is the equivalent of St. Peter's Basilica, not technology but in terms of art, and this is why people are still talking about Michelangelo, the same guy just made this and design that. So you could see why people would call it a rebirth there. But that doesn't quite get to the heart of it, because it's a rebirth, and surmounting and going further. St. Peter's Basilica is taller and it's in different ways technologically, even more impressive, and Michelangelo's David, just look at it. It's more impressive. So it's a rebirth, and going further, so that's a way of characterizing this period. I'm just curious, and again we're not taking this poll in class, but how many people have read Renaissance literature before, and why I say that is you may not have encountered much of the literature that we have already seen. You may not have read any sort of Mesopotamian literature like the Epic of Gilgamesh. Maybe you had some classical, some Greek and Latin text, but maybe not as well, and in terms of medieval, I'm not so sure either, but with Renaissance, we are in a more modern period, so you may have encountered like Shakespeare already. Just curious if you have. (Let me get out of there for just a minute, oh sorry I pushed the wrong button, I wanted to do that and get out of there for a minute.) Okay so let's move on. So let's talk about this period as not the Renaissance, but the quote, "early modern period." So must be very clear, we're talking about the same exact period in England from 1500 to 1700 roughly. But we're we're calling something different, and importantly conceptually imagining it as something different. So Dark Ages coined in 14th century by Petrarch, early modern is a relatively recent term, and if you think about it, it makes sense, because the only way you could characterize the early modern period in terms of modern, would be after the emergence of modernity. So, now that we think we're in a truly modern period, we can look back at when this period began, and it's often said that

this period, and particularly in Europe, and again we're focusing on Western history, not other parts of the world, but Europeans often look at the early modern period for the emergence of modernity as to when it really began, and let's give an example of that. Well first off, its defining the early modern in terms of not the past, but in terms of the future. What will become modernity. So in that sense, the Renaissance resembles the past. So to think back, to look back to the Michelangelo's David, it resembles that statue of Dionysus. The Basilica's Dome St. Peters, resembles the Pantheon. It's just it, they look the same, but in this case, the early modern period is going to resemble the future. Sounds a little confusing, because but I mean by that, it's going to resemble our present. So let's look at an example of that. The printing press is a great example. So it arrives in England in 1476, and by the way in 1477, Chaucer's Canterbury Tales are printed as a book, but nothing remotely like it had existed in antiquity, and be very clear by printing press, I mean a very specific type of movable type that that was incorporated, that was new here, and it allowed the printing of books in a really wholesale way. I mean printing presses that existed different ways throughout time and all over the world by the way, but this is a little different, the way this one works. In fact, in the year 2000, Time magazine named the printing press the most important innovation of the millennium. So all the things that happened in a thousand years, from the year one thousand, in the Christian era, to two thousand, and this was thought to be the most important one, because it helped bring about an entirely new future. So it's an excellent icon of the early modern period because it shows something that didn't exist before, that exists in the modern period. So again you can see if you want to characterize a period as Renaissance, statues and look like Michelangelo's David, I gave you one of many examples, but here there there's nothing like the printing press in antiquity. There's nothing like it in the early modern period. There's just nothing like it at all. The only way you can find something like it is to move

forward, and you're gonna find lots of things like it, and you can see why it's so important, why it's important for us, because we are looking at truly modern environmental problems that you wouldn't have been able to find looking back in time. You just can't find urban air pollution caused by the burning of fossil fuels before, and yet our era, in the current era, and the third decade of the 21st, is going to be characterized by fossil fuel economy, and the problems that come with burning them. You can see this, so with Renaissance, we did it, not just with technology, and that's an example of it, but we did it with art as well. So let's do that with the early modern period. So this is Hieronymus Bosch, the Garden of Earthly Delights. So this is 1503. So it's a very, very, beginning of the era when England became the Renaissance. There's nothing quite like this before, Bosch at all. So let me give you a close-up of it here. This is just surreal and totally, outrageously wild. By the way, I should note, that one of the films that we watched, and you may recall Before the Flood, the Leonardo DiCaprio film, he actually opens with this and shows a picture of it. Then apparently, this his parents, had this above his bed when he was a child. I won't like to give anybody advice on how to rule their children, but I wouldn't hang this above any child's bed. It's pretty, I don't know, you decide. In many respects however, you may have looked at this, and if you didn't know, you might think it's a lot more modern, because here's a painting by Salvador Dali, and you can see the same surreal symbolic disconnect take on reality. Well, the fact is, that when Bosch, and when this appeared, there just was nothing like that before, nothing like a medieval period, nothing like it in Rome, Greece, it just wasn't there. The only way you can kind of make sense of this in terms of history, is again not to look back, but to look forward to something like that, and that's why we would, I would characterize Bosch's, as a truly great early modern painting, where I would tend to characterize Michelangelo's David as a truly great Renaissance work of art, and again here is

Michelangelo's David, to show you that these are two very different things.

One is looking back to the past, and surpassing it, fair enough, but the other is hinting at what's to come. There was no way of knowing in the period though, that Bosch, Bosch could have just been seen as a crazy person. The little blip an anomaly, but as it turns out, he sort of presage something that would come later. So hopefully this is clearer than the distinction. You can see it visually there, between Renaissance and early modern.

So this is the whole work. It's actually larger than this. It's a triptych, which means it's in three parts, three separate canvases, and it's a striking work. If you if you get a chance to look at it, one of the great things about the age of the internet and sort of is on the side, you can look at it in high-definition now, as far as I know. I come from an era where you had to go get a book to look at something like this, or you're not even better, go to see it. And it's good to go see things, but it is amazing that if this piques your interest, you can just, a few clicks away, you can take a few minutes of your life and study it a little. Okay, so London in the early modern period. London is a pretty unique city I'm going to say. Well, let's see what we're talking about here. Environmentally, what was occurring in England from 1500-1700 was a very early modern thing, I would argue, because was unlike anything that occurred anywhere else on the planet. If we were just talking about deforestation outside of London, which was happening in this period and before, that would be one thing, and we could characterize that as sort of looking to the past, and not see it as a big innovation, but here of course, we are talking about the large-scale fossil fuel economy emerging. You could call London, in this period, which is why we're going to look at, the first truly modern city on the planet, and as far as technological modernity, is not so much as technological modernity, I'm gonna back in peddle on that, but as far as environmental issues are concerned, why? Because, air pollution, and

that's air pollution not from the burning of wood, but from the burning of fossil fuels, acid rain coming from the burning of fossil fuels and air pollution, wetland loss rapid, consumerism, and a range of different issues we're going to talk about, all emerge here, in this particular city, at this moment in time. So in that sense, it's rather astonishing, and if you were looking for, if you're going back, so for example, if you were an art-history, looking Salvador Dali, and a where is the earliest emergence of this sort of thing that you can find, well, you might land with Bosch, what we just looked at. If you're going back, trying to understand where fossil fuel and economy emerges first in a big way, I think you're gonna come back to London. I've spent a good bit of time looking at them in the past, so I'm particularly fascinated by them. I'm curious, and this is actually a general question I could have asked before, are you surprised to learn that these problems go back as far as they go? Maybe you weren't surprised with deforestation and Gilgamesh, maybe you were surprised they went back that far. You might have thought it just went back a few hundred years, but now we're talking about really modern problems, like urban air pollution caused by the burning of fossil fuels, acid rain, things of that sort. I'm just curious if you're if you're surprised by that or not, and if so, it's worth thinking about why you're surprised. I think we should all know more about this. It's, in other words, this is the biggest issue that we are currently facing as a species: the climate crisis. And it's good to know about where it happened and the features of it, why it happened, what brought it about, and it's history, which in part is what this class is going to do. This is not principally or solely a class in environmental history, if it was, we would have looking more at physical history and all, but because, as we noted from the very first lecture, in the introductory lecture anyhow, our particular approach to history by seeing it

mirrored in text, is going to allow us to see these issues as they emerge along the way too. So, in part, but the problem was because London had this unprecedented population growth, so during the period that we're talking about 1500 to 1700, it grew dramatically, and some estimates put it accrued tenfold during that period, and it developed a host of what we would call truly a modern environmental problems. And an example would be urban air pollution. Right after this period, so if we jump to the year 1800, interestingly London has a connection with Rome in this regard. So in the West, the first city to ever hit a population of 1 million people was back in Virgil's Rome. It happened 2,000 years ago. It happens other parts of the world, there are other cities. Baghdad will do or reach a population of 2 million before London hits it, but in the West, London will be the second city to hit a population of a million people, and that will happen right about the year 1800. So it's a little more recent than the period we're looking at, but the stage is being set for it by this enormous population growth that is happening, and because of that population growth, people need a reliable energy source. And remember what we were talking about, Virgil and Varro, that when their city hit their population of 1 million, it created problems, resource problems. How do you get water to the city? And of course, Rome's famous aqueducts are an answer to that. And then the other question is how do you get food to all those people? And we saw Virgil and Varro were involved in trying to develop farming infrastructure. So here you have another question, because we're in a colder climate, how do you provide an energy source to these people? If you rely on wood, that's not going to work. And they did initially, during this period, because you're going to quickly deforest the area. So let's get into this issue, and let's get straight into the issue of London's air pollution. So by the 13th century, 94% of England had been deforested. 19 out of 20 forests had been destroyed. So as a source, an energy source, wood is no longer available to a lot of people. This is

especially the case with cities, because cities, they could deforest the area around them, which they did, but then you would have to bring wood from a far distance or some form of wood, and charcoal is something that they would bring too, but this is an era of horse-drawn wagons, and to bring wood over vast distances, it's a problem. And in fact, it's the case that even in the beginning of the 19th century, I may have mentioned before, to transport a ton of goods over 20 miles by way of horse-drawn wagon was more difficult and more expensive than to transported across the Atlantic by way of a sailing ship. So you have a problem here. How do you get an energy source to a city, a growing city, and wood is not the answer. So as a result of all this deforestation, England and particularly London, had to look for other sources of energy, and the first one that they began looking at in a big way was called seacoal. It's a form of coal. Why they call it seacoal? Well, because it's brought in from the coast. Many of London's industries such as brewers, people who relied on fire are too, for proto-industrial practices as well as citizens themselves, began switching from wood, used to coal as early as the 11th and 12th centuries. So this goes back very far, where we're not at the point, where we have a true fossil fuel economy in the 11th and 12th centuries, but fossil fuels are increasingly being relied upon as a reliable energy source. It was widely known however, even at the time this special type of coal, especially seacoal produced a particularly toxic smoke. So as early as 1286, and it's rather amazing to think about, this is the first in the West, Commission to study air pollution caused by the burning of fossil fuels that was set up, and the first law against the indiscriminate burning of fossil fuels comes about in 1307. So these issues go back very far. And by the way, the English get very good at transporting coal, so you might think you'd run into the same problem that we had with horse-drawn wagons, delivering wood to London, how's delivering coal any easier? Well

note that it's seacoal, it's being mined to places like Newcastle, which is along the coast where it could be loaded directly into barges, and those barges could be pulled right up the teems into London proper. So you eliminate the difficulty of transportation in a big way, and those barges are by no means small. These are barges that could hold twice as much as a current tractor and trailer. So they could hold a lot of material, and they brought it into London in a wholesale way, but this particular form of coal, seacoal is what we would call a highly sulfurous coal. It's not like something like anthracite, which doesn't have a lot of sulfur to it. Why I mention it, why it's important seacoal, when burned creates sulfur, and other forms of highly sulfurs. Fossil fuels in general, when burned, release a great deal of sulfur dioxide, which is very dangerous and toxic gas. Furthermore, when that goes up into the atmosphere, it mixes with vapor and comes back to the ground as acid rain, so this is not just a type of fossil fuel, but a particularly nasty type of fossil fuel is being burned here. Keep in mind that this first commission set up in 1286, the centuries before Rome's meteoric population growth, but it was cleared that London was gonna have a major air pollution problem as early as 1286. If you look at the historical record, that's clear. And incidentally as a little aside, why didn't that actually happen sooner, they are setting up a commission, and way back then at 1307, actually setting up laws regarding it. Well there was a pandemic, fortunately a word the people are all too accustomed to now, but there is a pandemic at the time, of course the Black Death, and London's population gets cut in half. So suddenly, you don't need nearly as much wood for fuel, for heating or cooking or whatever, and as a consequence, there's actually a period of reforestation in England that takes place, because the people just don't need that wood as much. There aren't as many. But by the year 1600, that's right in the middle of the period, we're talking about this is when Shakespeare is very active. By the year 1600, London England had rebounded and a

lot of people are moving, and those people are moving to London. So that's where we see the problem re-emerge in a big way, and it is a function of population. More people need mean more energy use, mean having to switch to more coal. How much is remarkable, and why London is particularly interesting, and England is particularly interesting is England is about mining three to four times more coal than the rest of Europe, the year 1600. So yes, is it happening in other parts of the of Europe? Not nearly as much. So in a place like Paris for example, wood is still the principal source of fuel right around 1600, and why? Because well it's a smaller city, and it had larger stands of wood, sustainable stands of wood around it, so was able to supply a lot of its energy, and the bulk of its energy using of this type with wood. It's not the case in England, especially so. And most of that coal is being burned in London proper. So think about that, Londoners are burning more coal than all the rest Europe; all the rest of Europe is not burning as much as in this one city. So when I say it's a true fossil fuel economy, you can see it's just the scale of what's happening, and in part, it's made possible by the fact that the British were getting very good at mining, and that the they had a way of transporting it, which is by water. Those two things together made this possible. Today we've found very efficient ways of mining and transportation, often environmentally a problem on both counts. But it was here that in different ways that those two problems were tackled. So, even at the time however, and this is important, air pollution from sea coal was known to be responsible for wholesale deaths of animals and fish, and fish in particular. Why? Because the sulphur dioxide and other pollutants go up in in the form of smoke into the atmosphere and they come back down again, and they lead to, it creates acid rain. Acid rain hits waterways. It changes the pH and the acidity of those waterways, and some fish or very susceptible to small changes in pH, then die. Then acid rain, especially, it's landing right on plants,

and you may know, plants not only absorb moisture through their roots or groundwater and all, but also they get it through absorbing water. So plant rain hits it, first thing it does it absorbs, and it's absorbing acid rain, which can be a problem. So there were literally different plants respond differently to a change in PH like that, but there were literally whole species that were going extinct at the time, and it was actually causing significant corrosion to building, and first, in fact the first remediation project on a building that is being damaged by fossil fuel-burning, it was a church in the 1630s in London. But the big thing for people, is that it's causing respiratory disease by breathing in all that smoke directly. By the time Milton, is writing Paradise Lost, so we're now six to seven decades away from when Shakespeare was doing a lot of this writing. Respiratory disease from burning all this coal was believed by the most celebrated statistician of the day, this is a guy named John Grawn, to be the second leading cause of death in London, second only to the plague. And by the way, he was likely correct. So it's not only that we know that this was the second leading cause of death in London at the time, people at the time knew it, and they knew that it was causing a lot more problems than just that, humans, and the erosion of building, plants, animals and all that. So it's a big problem at the time, and it was known at the time to be a big problem. So our words "smog" enters the English language as a contraction of two words: smoke fog. And if you stick the two together and you take out a few letters there, you get smog. And it specifically references the particular meteorological condition that is London. So when you think of London, you may think of London's signature fog. That fog is nothing to do with burning of fossil fuels per se, that's kind of it has to do with the way London is situated, the way fog hangs over the city. That's a meteorological thing. However, you can see where the stage is

set for a real problem here. This fog hangs over this particular city. It's one of its signature meteorological things. When you start putting smoke up into that fog, that water moisture and smoke are going to join together, and right there form a very dilute solution of sulfuric acid. I've talked about how it comes back down to the earth as acid rain, but it actually hangs there. So when you breathe in that moist air, that fog, you're breathing in smog, a combination of smoke and fog, and that is, to be specific, you're inhaling a strong acid into your lungs. That's not a good thing to do. You could see that if this situation had been different meteorologically, and there are cities were because of prevailing winds and all, not much hangs over them. In other words you blow, you're sending smoke up in the air and it gets blowing off somewhere else or out to sea. You may, and I've never noticed a problem the way it's noticed here, but in this case, we have just the stage set from the worst possible condition. So it's bad enough that England, but London is burning more coal in one little city than the rest of all Europe combined. It has the worst possible conditions for doing that. So, continuing literature in London's air pollution. So from our point of view, doing eco criticism, it's not perhaps surprising that the air pollution problem, and again, this is the first economy on the planet, large scale economy burning fossil fuels, that this is going to show up in literature. So for example, if you look at depictions of hell, if you look at the medieval and early modern depictions of Hell, you're not going to see them as filled with the same sort of sulphur smoke that you see in London. Sometimes they'll be smoke, but if you could like to Dante for example, and Dante is in Italy, and he writes the Inferno. This is a very important text, but all sorts of descriptions of hell various descriptions and different ways, but what you'll find there is that there are no descriptions of it being this sort of sulfur sea smoky place that we've often connected up with hell in general. And it's arguably because that era, that particular place

doesn't have this particular problem, yet. There are no depictions in Dante's Inferno of highly sulfurous coal smoke, it's just not there. And why would it be? Just like I mentioned a few minutes ago with Paris, in Italy in general, and certainly in Rome, they're not burning fossil fuels. So as a consequence those depictions just don't show up there. It's interesting. (Let me pop out of here for a moment.) And even the choice of the word brimstone, and brynstone, by the way, is a medieval English word, Middle English and Old English actually, that's chosen by the 1611 translators of the King James Bible for famous passages in both Genesis and Revelations of the very beginning of the Judeo-Christian Bible, the Hebrew Bible Genesis, and the very last book of the Christian Bible. For evolution, they talk about the burnings and they talk about brimstone. And they wanted to make hell seem as the worst possible place, so it is characterized by fire and brimstone, but the fact is that's not what those words mean either in Hebrew or in New Testament Greek they refer elected Jehovah's breath and all, but again when the King James Version is first made in 1611, people are trying to find out a way, and find a way of making hell seem really bad, so it's a place of fire and brimstone.

Oh, what's that like? It's just like London on a really bad day. Though you're choked with this horrible, horrible smoke, and Dante, you're gonna choked with a horrible smell, but here it's worse, and not just that it's putrid. I mean, it's horrible. It smells bad and all, but it also is dangerous. It can kill you.

So if you look at Milton's Paradise Lost for example, Milton wants to make what the devil's are doing there seem especially bad, so they are actually setting up a mining operation, and Milton goes into it in detail. So who is responsible for all this mining? Well Milton becomes quite explicit because the Devils, the Fallen Angels actually teach human beings help to do it. So if you if you think mining is a good thing, Milton would counter no, it is literally demonic. It's the work of devils to do that, and

Milton actually has a solution, and remember during this period people were the problem. And there was an actual work published the beginning of this decade when Paradise Lost is first written in 1660s, by a guy Johnny, Evelin called Foggy Fugium, and that's the first book to take as a subject industrial air pollution caused by the burning of fossil fuels. And Evelin and actually has a solution. If you were to surround London, by huge hedge of trees, that those trees would absorb the smoke pollution and all. It probably wouldn't have worked, because of again, this fog situation that London has, but people are beginning to think about not only the problem, but perhaps solutions, and Milton in describing Eden in Paradise Lost has it similarly surrounded by on by a hedge of trees, and it's been argued, mainly by me, that there may have been a connection between Evelin and Milton in this regard. So the environment and London's air pollution problem. The London air pollution, is just one of many modern problems that emerged during the Renaissance, that emerged during this early modern period. Toxic waste becomes another issue. People are beginning to, people have always dumped things in their waterways that people downstream would eat, but in this case, with something like sulfur dioxide, and acid rain that's becoming a real issue. Rapid consumerism is another issue that we're going to take up, because in this period, there is a growth of proto industrial practices. That mean that England is capable of producing a lot more than England needed. So, if you're at a subsistence level as an economy and you create just enough through your manufacturing to provide what people need, that's one thing, but if you can produce a lot more, then you have to sell people on the idea of buying a lot more. So this is a period where that project really picks up significantly. So again from our point of view, this is a distinctly modern kind of thing, consumerism, we're gonna deal with it in this course, but there the course that's sort of a companion to this one, that comes after, at the Climate Crisis,

what it is and what each of us can do about it, also known as English 23 at UCSB. We'll take that up in detail, but there are host of similar issues that add a new dimension to traditional pastoral, so we've talked about pastoral, where it emerges in Greek and Roman culture, but what about now. Has pastoral died out? And the answer to that is no. Pastoral is alive and well. What's happening here and remember with pastoral people were looking for a simpler life, better life, a more rural life, and they do this generally from the vantage point of the city, and they look to sort of rural outskirts, sort of as far from the city as you can get, where people are living, and because it's written in the city, it's sort of an over the top imagining what that life is like. If you actually lived out there, you may not find it as glamorous, and I mentioned having grown up on the farm, I don't necessarily look back on the farm as being glamorous, wonderful, and simple, but that's the way it was being portrayed. So early modern period, let me just pop out of here for a moment, is deployed more frequently than ever, especially in London. You have so many writers who actually live in London. Some of them actually have houses out in the country as well, but there's an explosion of interest in pastoral. Pastoral becomes incredibly important in this period, and why? Well it's been argued, I would argue, that it's because, in this period people have real major environmental problems of a sort that they never had before. City life in particular, is seen as especially bad, because in this case not only is it dangerous for traditional reasons like crime and disease and things of that sort, but it's arguably even worse now because just living there, just breathing the air can and will kill you. So faced with that, people really want to turn away from, and to imagine something simple or a better, rural nice life and pastoral, this traditional art form that's been around for so long, really fits the bill for that, because it gives us this vehicle for talking about what perfect life people have in the country, and totally ignoring what's

happening in the city. And that been the case forever with pastoral, since it emerges with Theocritus, but now especially, it's it really gets ramped up. So pastoral draw attention to the environment, both pristine and danger environments will be drawn upon by artists. This is especially the case with someone like Ben Jonson, and we're going to read that poem in this course "To Penhurst." So Johnson is writing about a house, the Penshurst estate, which is just outside of London, not 20 miles south of London. So we're not going that far, so when I say I'm on pastoral writers, we saw with Theocritus. Theocritus born a rural Sicily, writing from the other side of the Mediterranean, from the position of one of the biggest cities at the time, Alexandria, he's going very far to imagine a pastoral place. Ben Jonson just has to go 20 miles outside of the city, but that is revealing in itself, because it's clearly the people want to escape the city and are doing it, and not to be too much of a spoiler for the rest of the course, but you can see something important with that, and that is that you don't have to travel hundreds of miles and go on a big voyage across the Mediterranean to get to a simpler place, the way they're being portrayed here. You can actually get there in a single day's journey by horse. So what you're going to see then, is the expansion of London in a huge way because of this, and outside, what had been the traditional walls of London, recall just like Gilgamesh, the city Uruk, London medieval period had literal walls around it. People are going to go and make a huge suburban expansion move and that's going to be taking place during the early modern period, and it's especially happening around London. So London, just like the US in the middle of the nineteenth century, and it speeds up, even more in the middle of the twentieth century. After the Second World War, there's an incredible growth of suburbia, and suburban grows, and you might think that all is just the second half of 20th century, but really this period sees the same thing

happening, as people wanted to escape cities. And writers like Ben Jonson were more than happy to portray life outside of the city, even if it's just 20 miles away. It's very pleasant and desirable. So here's a question. Do you think that literature can play a meaningful role in communicating environmental consciousness? And I'm asking that sort of beginning of where we're going now because, I mentioned things like the King James version of the Bible, but now we're going to look at literature proper, or more sustained look of literature, and literature, how it impacts people's awareness of environmental problems. So let me just restate that differently. We just laid out that there are a ton of environmental problems happening at the time. Air pollution is a big one, but there are others as well. Can literature play an important role in making people aware the problem, and making people aware the environment it's important at a moment of it's destruction which is happening here. I raised that as a question, not so much for you to answer here the way I've asked in this poll, but for something for you to think about as you encounter this literature. Can literature play an important role in doing that? Is it useful in doing it? So as you're reading, think about that. So I'll give you a little PostScript to London's air pollution problems that I'm talking about it in the early modern period, principally the sixteenth and mostly seventeenth centuries, but it continued to grow and make an appearance in artworks for centuries. So Claude Monet wrote this series of paintings, you may be most familiar with his Waterloo, so just beautiful for a pastoral paintings, but he also did a series of the houses of parliament, and just like Water Lilly Pond, if you're familiar with that. That each of the paintings is different because there are different times of the day, different lighting, different seasons and all, and the water lilies all look completely different. Well Monet in fact actually set up the conditions to do that painting, insofar as Water Lilly Garden, but you could also go to

something like Monet does here, to the Houses of Parliament, which are famous iconic buildings in London, and do various paintings of those throughout seasons, different days and all. And if you look at these, you can go back and you can actually use them. It's a pretty good indicator of what the air pollution problem was like at different times. These are pictures during the day, paintings of during the day in London and why they're so gloomy and dark, and why it looks like, this one in particular looks like evening here, why that's the case is because the air pollution was just so bad. By the year 1900, it was it was pretty horrific bad. In London unfortunately, it gets worse. So 1952 England, by the way London had taken on the name of The Big Smoke. You may hear this. You may hear old, what's the city is the big smoke, if you ever get asked that as a trivia question, that was London, but it really comes to a head in 1952. Four thousand people died in a single week, with over twice as many died shortly thereafter. In fact, it's more like over ten thousand people ultimately died as a result of the inhalation of smoke during a single week, and this is smoke, this is smog, that they're inhaling. I mean it's unimaginable. We're we talked about COVID19 and the number of people dying, which is horrific and all, and the death toll was astonishing. But here you have an incredibly high death toll in one city, and it's coming from breathing fossil fuel's smoke. So that tragedy, the Big Smoke of 1952 really helps spawn the modern environmental movement, and in England, the Clean Air Act of 1956. It's four years later to learn to figure out what to do. Is a milestone environmental act. The United States will have its own Clean Air Act falling around a decade later. An Environmental Protection Agency, the EPA will be set up in the beginning of 1970s in the US, but it's really in part this particular event in London that got the world's attention drawn on it, and why not? 10,000 people died as a result of breathing smoke during one week, and of course the irony here is as we've seen the first law against the indiscriminate burning of fossil fuels

in London was set up, as you recall in 1307, and that really is coming 20 years after the first Commission to set up, to study the problem. You would have think, they would have thought, that maybe you people would have been able to do something about the problem earlier, and been thinking about the problem earlier, and they had, but it took a long time to get to where we would actually do something. And with respect to point source pollution, which is pollution coming right out of a power plant, one of the major problems we have here, that would change, and furthermore, you have to recall, at this period in time, people were using coal directly as a heating source still. So coal is a big part of the problem still here, and fossil fuel, other fossil fuels obviously, cars are burning oil at this point in time obviously, and so-called natural gas, methane is being used for industrial and domestic applications as well, but in this period, coal, and especially this very dirty form of highly sulfuric coal, which they had a great deal of in London, is being to burn directly in households. People are getting literally massive, big piles of coal delivered to their houses and they're showing it into furnaces, still at this period in time. So the conditions are really set for particularly bad bout of air pollution, which we see here. So London has this interesting distinction from the very beginning being the first fossil fuel economy on the planet, and the first to realize the problems that come with that, and one of the most important milestones in efforts to make it safer and better. And The Great Smoke of 1952 is an example of that. And this is actually two photographs of it 1952 at the time. This is the middle of the day and partly is that smart is that fog, but that's the problem. So all that smoke is literally meeting up with that fog and hanging there, and people are breathing in that solution of sulfuric acid directly into their lung. It's just the worst possible conditions for a problem like this to emerge. Okay, so we just finished lecture 9 and we can't go forward because there's nothing

here, and so just as a reminder, if you're following along with the Prezi's, when we get to the next lecture, number 10, still going to be in the Renaissance, we're gonna be here for a little while, why? Because it's also the early modern period, and we're gonna see the early modern emergence of these problems, but we can only do that and part two of the Prezi. So get that out and ready and I'll see you next time. Okay take care.