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L'intervista

Beyond "Transitionism": Towards a Materialist History of Energy. Interview with Jean-Baptiste Fressoz

Oltre il "transizionismo": verso una storia materialista dell'energia. Intervista a Jean-Baptiste Fressoz

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Abstract. Jean-Baptiste Fressoz is among the most influential historians dedicated to the history of climate change. In this interview, Fressoz traces his intellectual journey – from the Centre Koyré (Paris) to the CNRS (Paris) through the Imperial College (London) – enriched by discussions on (and with) Ulrich Beck, André Gorz and Bruno Latour, among others. In this dialogue, he explains the role history (and historians) should play today in a critical reflection on climate change. The text is a transcript, elaborated and revised by Fressoz, of a dialogue he had with the interviewers on April 19th, 2026.

Keywords: Fressoz, history of technology, history of materials, history of energy, energy transition, climate change, ecology, decarbonisation.

Riassunto. Jean-Baptiste Fressoz è tra gli storici più influenti che si occupano della storia del cambiamento climatico. In questa intervista, Fressoz ripercorre il proprio

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percorso intellettuale – dal Centre Koyré (Parigi) al CNRS (Parigi), passando per l'Imperial College (Londra) – arricchito da confronti e discussioni su (e con) Ulrich Beck, André Gorz e Bruno Latour, tra gli altri. In questa conversazione, Fressoz si sofferma sul ruolo che la storia (e le e gli studiosi di storia) dovrebbero svolgere oggi nell'ambito di una riflessione critica sul cambiamento climatico. Il testo è la trascrizione, rielaborata e rivista da Fressoz, di un dialogo avuto il 19 aprile 2026.

Parole chiave: Fressoz, storia della tecnologia, storia dei materiali, storia dell'energia, transizione energetica, cambiamento climatico, ecologia, decarbonizzazione.

(1) *We would like to begin our conversation speaking about your intellectual journey. Could you please present to our readers the most important steps that led you to your current research?*

In the early 2000s, I was trained as a historian of science, very much influenced by the Sociology of Scientific Knowledge (SSK) and the Science and Technology Studies (STS). I was fortunate to do my PhD at Centre Koyré in Paris, where I met scholars like Dominique Pestre, Christophe Bonneuil, and Fabien Locher. At the Centre Koyré, colleagues often studied controversies around new technologies (i.e., GMOs, nanotech, etc.). One of the books broadly discussed at the time was Ulrich Beck's *Risk Society.*[1] I was not convinced by his narrative of a radical shift in modernity. Reading through historical archives, I identified a plethora of complaints around pollution, risk, etc., well before the shift to a "risk society" would have occurred.

I decided to study a series of controversies surrounding risk and pollution from the late 18th to the early 19th century. These issues were very much in the public eye at the time. The environment, for example, was seen as the key determinant of public health. Industrialization and pollution met with considerable resistance. Similarly, according to some critics, vaccination was said to lead to the degeneration of the population. The history of risk and the environment was therefore not one of a gradual awakening, heralding Beck's "risk society", but rather one of "disinhibition". Risks are chosen knowingly. Now and then.

In those years, I stumbled upon the works of Eugene Huzar, who wrote two fantastic books, *La Fin du monde par la science*[2] and *L'Arbre de la science,*[3] which could be read as "prophetic" but, in fact, summarized the environmental and technological debates of the time. I reedited these

[1] Beck, *Risk Society.*
[2] Huzar, *La Fin du monde par la science.*
[3] Huzar, *L'Arbre de La Science.*

books in 2008 with my friend François Jarrige.[4] All this brought me to write my first book, *L'Apocalypse joyeuse*.[5] The idea was to analyze what I called the "environmental reflexivity" of past societies and then to explain how this environmental reflexivity had been surpassed.

During my PhD, I also stumbled upon an 1821 French national inquiry on climate change. That discovery later paved the way to the third book I co-authored with Fabien Locher, *Les Révoltes du ciel*.[6]

In 2011, I was recruited as a lecturer at Imperial College (London) to teach undergraduates in science. I thought the Anthropocene would be a good way to connect history with current problems. That led me to write my second book, with Christophe Bonneuil, *L'Événement Anthropocène*.[7] At Imperial College, I met David Edgerton (currently at King's College, London), whose *The Shock of the Old*[8] was a real source of inspiration. I became increasingly suspicious about the history of energy and the narrative it was typically framed in. That turned out to guide my research towards *Sans transition*.[9]

(2) *Publications on environmental history or, more in general, on the Anthropocene are quite (but not enough, we dare say) frequent today. It was maybe less the case when you started your studies. How did you decide to focus on these topics?*

My starting point was not environmental history. Although I worked, alongside other colleagues of my generation, to establish this field in France, I have always been rather skeptical about the value of a label that, like others, serves mainly to define a sub-discipline that one can then claim to have founded. Moreover, the self-justifying discourse of environmental historians – integrating nature or "non-humans" into the writing of history – has always struck me as so ecumenical and so vague that it was hardly conducive to the production of historiographical arguments. My interest in environmental issues was more closely linked to how these issues were addressed in the public and scientific spheres in the 2000s.

In terms of intellectual influences, I did read earlier thinkers of technology, for example, André Gorz or Ivan Illich. I don't know if they really had a direct influence on my recent work, but nevertheless, I've been inspired by their idea that the technological world is not necessarily the best possible world. This led me to focus on counterproductivity. I remem-

[4] Huzar, *La Fin du monde par la science*.
[5] Fressoz, *L'Apocalypse joyeuse*.
[6] Fressoz and Locher, *Les Révoltes du ciel*.
[7] Bonneuil and Fressoz, *L'Événement anthropocène*.
[8] Edgerton, *The Shock of the Old*.
[9] Fressoz, *Sans transition*.

ber reading, when I was still quite young, a wonderful article by André Gorz on the automobile.[10] In that text, Gorz claims that the automobile is creating distance, and it leads him to formulate important ideas on counterproductivity.

If we speak in terms of influence, Latour has been much more influential on my own intellectual education. Basically I devoted myself to the history of science because when I was around 20 years old I read his book on microbes and Pasteur,[11] and I was really struck by the originality and the freshness of the argument compared to what I had studied previously – Karl Popper, his formulation of the logic of scientific discovery[12] and his idea of refutation are very abstract, theoretical, even idealistic. Latour showed another way to write the history of science. And he was also a very good communicator of science studies. For my PhD, I applied the symmetry principle used in the history of science to the history of technology. The first technology I studied was gas lighting in the early 19th century.[13] A fortunate choice because this was a good example of dubious technological progress.

I started to work with Latour at one point in 2006 – he recruited me at Sciences Po to give classes in STS to his students. I was really amazed by the difference between the quality of what he had done when he was working on science and what he wrote afterward, in his works on environmental issues. What made him interesting to me in the first place was his materialist vision of science. He was able to give a materialistic perspective to things we commonly imagine as being very ideal: truth, for instance. And on the other hand, on the environmental problem, which is the most material problem of all, he offered an idealistic vision. This idealistic vision is derived from the contractualist philosophical tradition. It's hardly surprising since Latour had been deeply influenced by Michel Serres' *Le Contrat naturel*.[14] Latour's *Nous n'avons jamais été modernes*[15] and *Politiques de la nature*[16] are direct heirs of Serres' project.

As soon as Latour started to work on environmental issues, there were no more businesses, no more machines, no more quantities. His discourse became more and more metaphysical.

Latour shared the same historical narrative as Beck around the novelty of environmental reflexivity. Actually, Latour was the one who intro-

[10] Gorz, *L'Idéologie sociale de la bagnole.*
[11] Latour, *Pasteur.*
[12] Popper, *The Logic of Scientific Discovery*.
[13] Fressoz, "The Gas Lighting Controversy."
[14] Serres, *Le Contrat naturel.*
[15] Latour, *Nous n'avons Jamais été modernes.*
[16] Latour, *Politiques de la nature.*

duced Beck in France. He wrote the Preface of the 2001 French edition of *Risk Society*.[17] Beck had an interesting way to theorize the issues around risk and the politics of expertise, but it was based on a false history. According to Beck, in the past, in the classic "industrial society", risk had some specific traits, whereas in our contemporary "risk society", everything has changed. Latour agreed with this interpretation of history: the past is used to announce a better, more enlightened present. And interestingly enough, if you read *Risk Society*, there are references to historians, specifically two French historians: Alain Corbin and François Ewald. From the first, he took the idea that in the past, risk was associated with smell and miasmas and was therefore sensible and perceptible; today, however, it is no longer so, which is why, in order to be detected, it requires science and expertise.[18] From the second, François Ewald, Beck took the idea that risks in the past were insurable.[19] This allowed him to say that there had been a radical break with the advent of nuclear technology.

All of this constitutes a very limited understanding of what risk was in the 19th century. Corbin's book is magnificent, but the way Beck used it was problematic. Both Latour and Beck developed this strange vision of a radical change that happened within the course of their lifetimes. If you read Latour's *Nous n'avons jamais été modernes*, for example, it starts with Latour opening his newspaper and discovering that everything has changed because all the news is about viruses or climate change. Actually, if you open a newspaper from the year 1800, you'll see that it discusses vaccination (is it safe? is it dangerous?) and climate change (which was then a major concern due to deforestation). Thus, there are serious historical flaws in Latour's understanding of the environment. And the problems were not merely historical. Some were also political.

It is indeed extremely gratifying for a generation to proclaim itself as the "first" to have understood certain problems. This narrative absolves the past: it is very useful for polluters.

Furthermore, this narrative is also very idealistic; it presumes that from now on, because we are enlightened, things will change for the better. (An improvement that, however, no one in 2026 sees coming).

Thirdly, this narrative is very appealing to intellectuals, philosophers, and scientists: if environmental issues are seen as a matter of knowledge, consciousness, awareness, and ontology, then philosophers, scientists, and artists will play leading roles. Green enlightenment, we are told, is the product of excellent climatologists, brave scientists, and great phi-

[17] Beck, Bernardi, and Latour, *La société du risque.*
[18] See Corbin, *Le miasme et la jonquille.*
[19] Ewald, *Histoire de l'État providence.*

losophers… There is a kind of new scientism developing around climate change (in France, it is striking to see how the IPCC has been glorified, presented as truth incarnate), and it is quite extraordinary that social constructivists like Latour participated in this neo-scientism.

It is quite clear why Beck and Latour adopted the narrative of a sudden break. This is a classic *tabula rasa* argument. For Latour, the "New Climatic Regime", the Anthropocene, was also a way of criticizing what he called the "old social sciences" (Bourdieu). As they had missed these problems, they were deemed obsolete. Latour was also very opposed to Marx, to the critique of capitalism, which he thought was just a kind of hobby of the intellectual left.

(3) *You found a way to build a bridge between rigorous scientific research and current, compelling societal emergencies. How do you choose the specific topic you decide to analyze? And what is the essential contribution that the viewpoint of an historian can give to the current debate?*

I am always fascinated by the confidence with which people talk about the past as something we know, and also as less enlightened. This was clearly the case of Beck, but also of Latour. My work started as a critique of this abstraction of the past, and the way the past is used to reflect on the present and announce the future. I addressed this point in *L'Apocalypse joyeuse*.

In the current debate on the energy transition, history is constantly invoked. But it is a "false" history, one that plays a discrete but key ideological role. *Sans transition* is just putting the history of energy *à la page* on the issue of climate change. We cannot be satisfied with the general histories narrating a series of transitions when we realize how difficult it is to make a real energy transition now.

(4) *And when it comes to the history of technology, what were your main readings, or what were the main ideas you sought to correct?*

There are two distinct points to consider here. First, the science and technology studies (STS) that I was trained in during the early 2000s. In those years, the so-called "Social Construction of Technology (SCOT)" was particularly popular. The main question to be addressed was how consumers, various interest groups, or stakeholders shape technologies. It was a reaction against what was called "technological determinism." According to the SCOT hypothesis, it is not technology that determines society; rather, society shapes technology. This perspective is actually quite interesting, and might be true for certain technologies. The famous bicycle case study

analyzed by Bijker[20] is a good example. But the problem is that constructivism has also created false hopes regarding decarbonization. When we say that society shapes technology, it gives the impression that we need to desire clean technologies, do the research, find the right regulatory framework to transform the entire material structure of industrial society, and achieve net-zero CO_2 emissions in twenty-five years. There is a great deal of naïve technological optimism behind this idea of society shaping technologies. What makes the problem of climate change so difficult to solve is that technologies are not that easy to transform, far from it. In fact, they put up fierce resistance. Steel has been produced in a specific way for the last century and a half: many people imagine a different way of producing steel (with hydrogen, for instance), but there are material constraints that dictate how steel is made. That's the first problem.

The second problem, in my view, lies in STS's obsession with innovation. In the early 2000s, scholars were busy criticizing diffusionism, but what they were studying was the diffusion of "new" technologies, and they were interested in the controversies sparked by innovations. This is the case of controversies regarding risk and environmental issues. It is also the case of the many debates held in France in the late 1990s (and in the United States as early as the late 1970s) concerning technological democracy. A book that had a great deal of influence at that time was *Agir dans un monde incertain*[21] by Michel Callon, Pierre Lascoumes, and Yannick Barthe. Callon was, of course, a great colleague of Latour's. Once again, the emphasis was on the "new", how innovations should be selected more democratically, and shaped by societal desires. But the problem with climate change is precisely that we are facing old technologies we did not design.

This dual focus on the social construction of technology and on innovation is not really suited to thinking about climate change. It may be appropriate for thinking about artificial intelligence or other topics, but not climate change.

An author who really opened my eyes to this issue is David Edgerton, an English historian of technology who wrote a truly major book titled *The Shock of the Old*. In this book, he clearly demonstrates that historians of technology – and, quite simply, society in general – are obsessed with innovation, which prevents us from properly understanding the technological world in which we live. The technologies we live with are both old and new, and old technologies are very important for current growth. This is therefore a very important point, and we should place it at the center of our discussion on climate change. For example, it wasn't until 1950 that

[20] Bijker, *Of Bicycles, Bakelites, and Bulbs.*
[21] Callon et al., *Agir dans un monde incertain.*

emissions from fossil fuels surpassed those from agriculture. What does this mean? It means that, up until the 1950s, the world was primarily agricultural, and that, overall, agriculture was the leading economic sector. People were focused on how to feed animals, how to feed humans, and how to cultivate larger areas of land. Agriculture was the leading source of emissions until the 1950s. If you look at cumulative emissions, it wasn't until 1990 that emissions from fossil fuels surpassed those from agriculture. The scientific data here confirms Edgerton's argument: climate change is, in a way, a perfect example of the "shock of the old".

(5) *So, overall, you don't see any changes in the field?*

The history of technology remains very "innovation-driven," with few exceptions.

A major problem in the history of technology and its relation with the environment is that very often there is a major confusion between materials and technologies. This is really a point I aim to emphasize in *Sans transition*: we often confuse the history of technology with the history of materials, and, conversely, when we talk about the history of technology, we believe we are talking about the history of materials, but we are not. So, when we talk about solar panels, we aren't talking about coal or gas, but about a technological object.

That's an important point, because the history of technology is sometimes marked by major shifts, but the history of materials is not. It's actually a very boring story. It's very easy to teach. Everything in this story grows. You can take almost any material – it just grows, grows, and grows.

I believe that historians of technology haven't yet witnessed this new interest in materials. And even if they have, this interest has been very abstract, as in Timothy Mitchell's work.[22] One might say that it isn't their field, but this new interest has emerged in other disciplines, for example, in economic ecology, in industrial ecology, in short, in all disciplines that take into account, in their analyses, the life cycle of objects. These issues are well known, but they have still not been taken into account by historians.

(6) *You often mention the possibility of finding some traces of the future in the past. This is why we have to go back to historical documents, avoiding as much as possible the projection of our categories to the past.*

I don't believe history should be viewed as a source of lessons. When I began taking an interest in the history of energy (around 2010), it struck me that several of my colleagues suggested we should look to the so-called energy transitions of the past to learn how to navigate today's energy tran-

[22] Mitchell, *Carbon Democracy.*

sition. This is clearly the wrong approach. My book *Sans transition* is a protest against this way of doing history. By analyzing the difficulties of the current transition, it shows why and how the past "transitions" were not, in reality, transitions, but something else. What I've done, in that sense, is to connect the present to the past, but not the past to the present.

However, it would also be an understatement to say that we can't say anything at all about the future: as historians, we know a great deal, it seems to me, about the future of energy. For example, we know a lot about the dynamics – and in particular the symbiotic dynamics – that exist between materials and energy. In 2020, I wrote an article about lighting in the 19th century.[23] Mines consumed enormous amounts of candles and oil, but also wood. I realized that in 1900, in the United Kingdom, more wood was used for pit props than was burned in 1750. That was a turning point, for me: it was no longer simply a matter of accumulation, but of symbiosis. While this idea is not new *per se* (think of input-output tables in economics), I believe it was the first time it had been applied to history. And this application has been very important for understanding the world of materials on a century-long scale.

Symbiotic dynamics are still at work today, though. We are indeed witnessing an increase in the use of renewable energy for the extraction of fossil fuels. This is a massive, global phenomenon: all over the world, mines, oil fields, and gas fields are being electrified, because electricity is particularly efficient. However, electricity is becoming increasingly green, meaning we are using more and more "green" electrons to extract fossil fuels (in ever-increasing quantities). For example, the world's largest floating wind farm, owned by Equinor, is located in the North Sea, and it is used to extract oil in that region. Similarly, throughout the Persian Gulf, solar energy is increasingly being used to produce liquefied natural gas and to extract oil. Likewise, in Texas – the region of the United States with the most abundant production of wind energy – green electricity is increasingly being used to power oil pumps. Symbiotic dynamics between different energy sources were very common in the past, and so is today. Historians must be allowed to make these kinds of connections.

Historians can also highlight the extraordinary power of the "rebound effect", also known as the Jevons paradox. Let's take, for example, electrification. Electrification has a very long story, which began in the first years of the 20th century. In the 1920s, when an industrialist replaced his old steam engine with an electric motor, he reduced the carbon intensity of his industrial force by a factor of ten; yet this did not prevent global carbon emissions from rising. Today, we use renewables, which allow us to

[23] Fressoz, "Une Histoire matérielle de la lumière."

reduce the carbon intensity of electricity by another factor of ten. And yet, the global trend remains the same. There is, therefore, nothing new under the sun here: even with solar panels, capitalism stays the same, and the rebound effect is still at work. What matters is that historians address these kinds of warnings and remind us that technological progress is not as significant as is generally believed today. We are by no means on the threshold of a material revolution that will make fossil fuels suddenly obsolete.

Third, historians can also point out what has remained unchanged. As I have just mentioned, electricity has brought changes, and many good news do exist in this domain. But let's consider what Vaclav Smil called the "four pillars of our industrial civilization": steel, plastic, cement, and ammonia-based fertilizers.[24] In these areas, there has been no significant progress; things are the same as they were a hundred years ago. There have certainly been gains in efficiency, but no structural changes. We historians have much to say about the history of energy, about how energies change, and about the dynamics of technology over the course of a century. Unfortunately, historians have not been involved at all in the discussions on energy transition and on decarbonization. I don't think this is a coincidence. In this field, there are many economists who are obsessed with innovation and creative destruction, and this perspective seems to be prominent. Still, historians should play a greater role. Admittedly, it's a somewhat depressing role, and their story is a bit depressing too, but it's worth listening to, isn't it? Because it challenges the prevailing narrative that suggests we've experienced energy transitions in the past, and that we now need to turn to those who can tell us how to make the new energy transition a success. In reality, things are quite different: we have gone through a history of symbiotic accumulation of all things and materials, and it will be very difficult, if not impossible, in twenty or thirty years, to get rid of all the materials on which we built modernity. So these are three main ways in which historians can, in my view, contribute to the current debate.

In *L'Apocalypse joyeuse*, there is yet another aspect of history's importance that I would like to emphasize here. The aim was not only to demonstrate that, in the past, we were already concerned about risk, or pollution, or climate change, but also to highlight how that concern was managed and regulated. It is interesting to note that the methods we apply to regulate risk today were invented to protect and *promote* industrialization in the early 19th century

This is particularly evident in the "polluter pays" principle, which OECD economists presented in the 1970s as a universal solution, in that it is supposed to increase both environmental protection and economic pro-

[24] Smil, *How the World Really Works*.

duction. In fact, it corresponds to what industrialists sought in the early 19th century: fearing police intervention for operating a polluting factory, industrialists preferred to acknowledge that they were polluting and pay a fine. Here again, it is interesting to note that solutions presented today as new are in reality very old and have not solved the problem at all. They have merely made it more "acceptable."

The same can be said of safety norms. While safety standards are undeniably useful and should be appreciated for their existence, they were initially developed in the 1820s to make technological risks acceptable to society. At that time, people criticized steam engines and gas plants, deeming them dangerous – as they are – which prompted the creation of safety standards as a response. However, by establishing these standards, we not only make risks more acceptable but also legitimize industrialization. It is important to keep this perspective in mind when we examine what we now refer to as environmental regulations.

(7) *As you mention towards the end of* Sans transition*, the decisions that have shaped climate governance in the last decades have been taken without consulting the people, especially those populations that are more vulnerable and have already been severely affected by the climate crisis. This book reveals that the history of energy over the last couple of centuries has been shaped by relatively obscure committees, think tanks, lobbyists, and personalities largely unknown to the general public and outside the radar of democratic scrutiny. The IPCC itself is not alien to bureaucratic and technocratic tendencies. Do you think the democratic gap in climate governance can be bridged? In particular, what do you make of the scholarly and political attempts of "opening up" the production of technical and scientific knowledge and policies to public participation? And does the climate crisis impel us to rethink the meaning we give to the word 'democracy', and the role institutions should play in it?*

I'm not sure there's such a thing as climate governance. Rather, as Édouard Morena[25] puts it, there's a "climate jet set" made up of the ultra-rich who pretend to be on the right side of history. And yet, I firmly believe that expertise regarding climate mitigation must be shared, scrutinized, and open to discussion. A more "democratic" – or, quite simply, better-grounded – body of expertise would produce very different results than what we see today. We would likely rely less on hydrogen and negative emissions, and we would be more inclined to start from planetary boundaries and redistribution.

[25] Morena, *Fin du monde.*

(8) *As you mentioned earlier, it's not the historian's job to provide solutions for the future. However, does the history of energy provide us with resources to move beyond transitionism? In* Sans transition*, you explain very well how the concept of the energy transition was popularized by nuclearist lobbies and how it spilled over into environmentalist discourses, eventually becoming dominant in every debate about energy. Was there a minoritarian counter-narrative opposing transitionism that we can revive today? Where should we look for a history of such a counter-narrative?*

Although, as I show in *Sans transition*, the transitionist narrative has become so popular even among experts, critics have existed all along. For instance, in 1974, after the first oil crisis, the Ford Foundation[26] warned its contemporaries that discourses on nuclear energy, breeder reactors, and related topics were all excessively optimistic. At that time, nuclear energy had already received substantial funding, yet it failed to follow through on its promises. According to the Ford Foundation, issues such as the oil crisis required a different approach. It meant abandoning the reliance on a "technological fix"; recalibrating American citizens' priorities; emphasizing education, health, and other immaterial services over material consumption; and, finally, designing fiscal policies accordingly (namely taxing fossil fuels). Obviously, heavier taxation on fossil fuels – as the experience of the *gilets jaunes* in France has recently made clear – affects the poorer classes more, so we'd need appropriate social policies to compensate for that disproportion. The discourse on energy transition is hegemonic, and nevertheless, it has always faced criticism because of its technical unfeasibility and essential utopianism. It's as if the majority of experts knew it would have been impossible to achieve an energy transition, but it was more politically convenient to believe otherwise. Consequently, since the early 2000s, the political consensus has continued to be focused on the technological adaptation to climate change. We see it clearly in the actions fostered by some institutions, like the IPCC's Group 3, which are expected to provide top-level, unbiased knowledge on climate change mitigation. The reality is that we still don't know how to decarbonize entire foundational sectors of the economy, so any promise of complete decarbonization in about 20 years through technological innovations is unrealistic.

(9) *After* Sans transition*, what direction are you taking in your current and future work?*

In a similar line of materialist history, I have recently been researching the materials and energy sources that powered the human body in the

[26] Ford Foundation, ed., *A Time to Choose.*

20th century. This work is closely linked to the history of agriculture. As I mentioned earlier, a striking, yet largely overlooked fact I've come across is that until the 1950s, agriculture, through greenhouse gas emissions and land-use changes, was overwhelmingly the main driver of the Anthropocene. Fossil fuels have surpassed agriculture in terms of emissions only in the second half of the 20th century. When studying the history of the Anthropocene, we must be careful not to passively repeat traditional historiographical categories, however important or influential they might have been. In environmental history, lesser-known actors or phenomena can take center stage. Take, for example, peatlands. Peatlands cover only 3% of the Earth's surface; however, throughout the Holocene, they have stored large amounts of carbon in their soils. For this reason, their drainage by European nation states to expand farming released enormous amounts of CO_2 into the atmosphere, more than those released by steam engines during that same period. However, only the latter has received extensive attention from historians. What's essential for a better understanding of the Anthropocene today is the ability to abandon historiographical clichés and seek out neglected data about our past.

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