The Utopian Potential of the Material

Since the material basis of life is both important and yet not fully within our grasp, we need an approach to address and uncover the potentiality within the material world. Ernst Bloch stands for a deep trust in the world and its materiality. In this chapter we will look at his take on materiality and focus the utopian potential of the material.

In his article *Transcending without Transcendence*, Ben Anderson argues for a transcendental quality of the material world on the basis of a materialist as well as utopian perspective. Anderson begins with Ernst Bloch's *The Principle of Hope* and argues that in the book hope is based on the observation that the world is not finished but in a process of becoming. That becoming is a material claim, as the future emerges out of the realities of this world, within which Bloch detects a utopian potential. This also entails a view of matter not as something dead and unchanging but as in the process of constant change. Anderson concludes that for Bloch transcendence is "no […] position 'out there' or 'up there'" (Anderson 2006, p. 700) but part of the material world. In Bloch's own words: "Without matter we cannot get to the basis of (real) anticipation, without (real) anticipation we cannot grasp the horizon of matter"* (Bloch 1972, p. 13).

This is both a compelling and a risky line of thought. If the potential lies within the material world, then there is no separate realm of the Good to which we could resort if, or rather when, this world turns into a dystopos rather than a utopos. Bloch responds to this problem with a focus on the active element of human existence. He argues that precisely because there is no guarantee for a positive outcome of history, there is a call for action within this world. He understands action as a "means of transformative intervention […] that strives to give and find hope through an anticipation of alternative possibilities or poten-

https://doi.org/10.14361/9783839473580-011 - am 14.02.2026, 16:54:21. https://www.inlibra.com/de/agb - Open Access -

tialities" (Anderson 2006, p. 703). Hope and the anticipation of positive possibilities, i.e. utopias, must become the base for our engagement. Progress would then be "taking seriously what shines through"* (Bloch 1972, p. 415) already in history.

This is why a matter-of-fact view on the world must be complemented by what Bloch calls "speculative materialism" which acts as a "guard against restricting matter to the realm of mechanistic necessities"* (ibid., p. 456) because "we are standing at the front of the world's history, knowing that the path has just begun and we must follow it and complete the journey"* (ibid., p. 467). But this path is – and here Bloch uses the words of the reformist Thomas Müntzer – "not one of sure progress and of providence in the economy of salvation, but a hard and endangered ride, a suffering, wandering, being lost, searching"* (ibid., p. 468). What remains then for us? Bloch finishes his book with an epitaph of hope:

> The large workshop of human and worldly matter is not closed yet. […] Instead of a transcendental being-done-ness the world carries in it an objective and real possibility and in that an inextinguishable potential to become a utopia, an anti-nihilism with a purpose* (ibid., p. 478).

Ernst Bloch's *The Principle of Hope* was widely discussed among philosophers as well as theologians of his time. One prominent interlocutor for Bloch's philosophy is the Jewish philosopher Emanuel Levinas. In a symposium for the 400th anniversary of the University of Leiden in 1975, Levinas was asked to hold a disputatio which featured questions from his professorial colleagues on various aspects of his work. One question by Henk van Luijk was on the concept of future in philosophy. He specifically mentioned Bloch in this regard. In his answer, Levinas holds Bloch's philosophy in high regard while also contending that Bloch's concern is not his own.

> Of course there is hope in Bloch's work and with it utopian anticipation. But Bloch looks for a tangible future. His hope is immanent and the utopia is provisional. My concern is not Bloch's concern. I try to think transcendence that is not according to the mode of immanence and that does not return to immanence* (Levinas 1999, p. 127).

The main question for Levinas is how a philosophy that binds itself so radically to the immanent world can cope with the fact of death. According to Levinas,

https://doi.org/10.14361/9783839473580-011 - am 14.02.2026, 16:54:21. https://www.inlibra.com/de/agb - Open Access -

Bloch's way out of the problem of death as the ultimate end of the individual is his focus on acting in this world.

> Because in a completely humanised world our being completely becomes a part of our work. According to Bloch, the fear of death would be nothing but a saddening thought in face of an incomplete work. That would be being sorry to leave a world which we have not been able to transform completely* (ibid., p. 127).

Acting, "tua res agitur", is what constitutes the individual, moreover, the individual becomes invisible behind his actions, "which means the fact that I am completely myself leads towards the world being more myself than I am: 'Tua res agitur.' […] Through the intensity of this 'tua' appears an *I* against which death is powerless"* (ibid., p. 129).

An important expansion of Bloch's position can be found in the works of Ignacio Ellacuría whose *Philosophie der geschichtlichen Realität*, philosophy of historical reality, follows the footsteps of his mentor Xavier Zubiri. Like Bloch, Ellacuría argues both against an idealist position and that of a *dumb* materialism. And like Bloch, who is indebted to a Marxist philosophy of history, he considers history as something that has materialistic roots. First of all, Ellacuría notes with Hegel that the history of the world is based on materialistic processes. Thus, historical processes are not solely the product of men of great character but we can say: "Show me the map of a country, its climate, its rivers and lakes, […] its physical geography […] and I can tell you a priori who the man in this country will be and which role he will play in history"* (Ellacuría and Fornet-Ponse (translator) 2010, p. 46).

But this is by no means a deterministic project. In contrast to Hegel, who sees the becoming of history as a series of inevitable logical steps, Ellacuría and Zubiri focus on the principle of becoming; reality is a dynamic process. They argue that "[i]n the praxis of history man […] has to deal responsibly with reality; a becoming reality"* (ibid., p. 522). The reality of history has an open future.

The foundation for this claim lies in dynamism of matter: matter is not something dead and unmoving, or something that had to be set in motion by a primal mover. Rather, dynamism is an integral part of matter. This is an important feature of matter which adds to our concept of architecture and built space: it carries a time signature. Matter changes and space expands. This also

https://doi.org/10.14361/9783839473580-011 - am 14.02.2026, 16:54:21. https://www.inlibra.com/de/agb - Open Access -

adds to our understanding of transcendence, since a principle of matter is that it always transcends itself by means of its dynamic character. Both dumb materialism and idealism, that sees matter merely as formed by ideas, would not allow for this inherent dynamism (cf. Ellacuría and Fornet-Ponse (translator) 2010, p. 522).

Another valuable addition to Bloch's materialism that links it with the thought of Bruno Latour and other modern philosophers and sociologists is that Ellacuría sees matter as connected and part of a dynamic cosmos. One cannot but detect a sense of wonder in Ellacuría's writing about the fullness and ever-changing character of the material world. This dynamism through history leads Ellacuría to a theological speculation, namely that, even though God is not part of the material world, he is a God of history, he binds himself to history and a people and thus becomes involved in a dynamic process.

There are many more positions in 20th and 21st century materialist philosophies that relate to Bloch's *The Principle of Hope* and specifically on his idea of potentiality within materiality, his deep trust in the material world, and his focus on human action. For the purpose of this book's focus on laboratory architecture and the proposal for a more sensitive approach towards the material world, I want to bring in three specific applications of such a perspective on materiality: One is a historical perspective on materiality, one stems from the sociology of science and the role of material and things therein, and a third one extends the idea of material artefacts to software.

Material History: The Case of the World Fair of 1867

An attentiveness for materiality is also influential for the way history is understood and in particular how historical artefacts are regarded. The starting point from a macro perspective could be an attentiveness for space which the historian Karl Schlögel proposes in his book *Im Raume lesen wir die Zeit*, in space we read time, where he gives prominence to the spaces within which history happens alongside with the stories of the great men and women of history. With Walter Benjamin and his figure of the *flaneur* who walks through Paris, Schlögel argues that one of the new techniques a historian has to learn is to walk attentively through a city and be guided by the spatial experience (Schlögel 2003). Today that technique might not only be applicable to the Paris of Benjamin but

https://doi.org/10.14361/9783839473580-011 - am 14.02.2026, 16:54:21. https://www.inlibra.com/de/agb - Open Access -

also to the Holmdel campus, where the spatial experience of grandiose architecture provides us with a sense of the world view that led to the construction of the laboratory building and which had a profound resonance with the society of its time.

But the experience of space can also lead us to an attentiveness for a much smaller world, namely that of circuit boards and program codes. In that sense the modern flaneur shares many traits with an amateur in his basement laboratory. One could, for instance, look into the material history of Apollo 11's guidance computer to understand more about both scientific and political history, which were closely intertwined in the 1960s and 70s (cf. Donovan 2019), and from that also draw conclusions for the political effect of the scientific development of computer hardware today.

Figure 14: Draper Laboratory, Apollo 11 Guidance Computer (1966)

An image of the guidance computer is available at *Wikimedia Commons* under the title: "Agc view". It shows the DSKEY input module that the astronauts would use to enter their commands on the right and the main processing unit on the left.

An innovative contribution from the historical sciences to the concept that material and human are closely intertwined is Frederike Felcht's study of the Paris World Fair of 1867. She shows that already in the 19th century an immense shift happened in the aftermath of the industrial revolution, with its mechanisation of manufacturing, mass production, and mass transport, that changed the way humans would relate to the non-human actors around them. Felcht begins with an epistemological observation, namely that in modernity man and nature became separated.

> In that things were understood as passive factors, a separation happened between modern and (seemingly) pre-modern. The concept that things had an inherent power was considered pre-modern and irrational. […] But a modern society in particular, where things are multiplying explosively, cannot get away from the power of things* (Felcht 2010, p. 45).

The World Fair of 1867, in this respect, appears to be the pinnacle of human domination over the passive world of things. It shows the objects of the modern

https://doi.org/10.14361/9783839473580-011 - am 14.02.2026, 16:54:21. https://www.inlibra.com/de/agb - Open Access -

world, both the industrial products and the raw materials, and displays them in an oval under a massive glass dome. The exhibition was deliberately designed to show the unlimited potential of progress and that France was the centre of that endeavour. The design has also strong colonial undertones. First of all, France's colonies were not meant to exhibit industrial products but to portray themselves as deliverers of raw materials for French industries. Secondly, the whole concept of nature as passive was philosophically pitted against seemingly premodern concepts of animated nature prevalent in cultures outside of Europe (cf. Felcht 2010, pp. 45–46).

Figure 15: Ausstellungsgebäude für 1876 in Paris. Situationsplan mit Parkanlage, Allgemeine Bauzeitung *(1867)*

The plan of the exhibition was published in the journal *Allgemeine Bauzeitung* in 1867. It can be found online at *Wikimedia Commons*.

Felcht criticises this artificial separation of the world in human subjects and passive objects by employing Bruno Latour's concept of the human-thing *hybrid*. Hartmut Rosa and his co-authors have called this hybridisation Latour's "provocation" for modern sociology. Latour argues that modernity claims to have separated nature and society but it has in fact only masked the "uninhibited mixing"* of the two (cf. Rosa, Strecker, and Kottmann 2018, p. 244).

> If we want to understand what is happening in our world, it makes more sense to be attentive for the interferences of human and non-human parts of actions, than to dissect them into subject-object relations. Ascribing actions only to human intentionality might be a way to evade any irrational mixing within which power comes from things. But with that we lose sight of the hybrids, who are crucially important for modernity* (Felcht 2010, p. 44).

These hybrids are becoming more and more prominent as industrialisation and globalisation move forward. Two aspects point towards this. First, the fact that the World Fair itself required for its completion a synchronisation between machines and workers in order to build its massive edifices (cf. ibid., p. 49). Secondly, the masses that come to the World Fair and that are attracted by their fascination for the things on display are so dense that they become fused with the mechanised world around them. The title of Felcht's article is telling in this

https://doi.org/10.14361/9783839473580-011 - am 14.02.2026, 16:54:21. https://www.inlibra.com/de/agb - Open Access -

regard as it is based on a quote of a fairy tale by Hans Christian Andersen who describes the dissolving of the barriers between humans and things.

> If it says: "The streetcars and buses are stuffed and plugged and garnished with people", then humans are already merged with the things before they even come to the epicentre of the concentration of things and people [, i.e. the Paris of the World Fair, C.P.]* (ibid., p. 48).

Thus hybrid networks of people and things are a prevalent feature since the age of industrialised mass production and global streams of goods, capital, and people.

A New View on Science: Laboratory Life

The idea of streams of people and things is also important for another field from which we can learn an increased sensibility for objects and materiality. Bruno Latour's contribution to a materially sensitive sociology begins with his work as a sociologist of science and in particular with his study *Laboratory Life*. Therein the French sociologist, together with his Canadian colleague Steve Woolgar, stayed with the team of the *Salk Institute for Biological Studies* for two years as an "in-house philosopher or sociologist" (Latour and Woolgar 1986, p. 14) in order to describe the daily routines in a biotechnological laboratory in the 1970s. Latour and Woolgar discovered that laboratory work follows a set of predefined rules, which entails that every day is structured in essence in the same way: Each morning, the laboratory's technicians start their work, which means that they go to their workbenches, manipulate machinery (and sometimes animals) which overnight have produced long tables of data. The researchers arrive a little later, take that data, and turn it into articles. Secretaries and office workers correct these articles and mail them out. In the evening, "a Philippine cleaner wipes the floor and empties the trash cans" (ibid., p. 17).

This attentiveness to detail is based on an ethnographic approach which Hartmut Rosa et al. describe in the following way:

> In his newly established "science studies" he observes under the maxim to just "follow the practices of the actors" and registers – like an ethnographer who observes a foreign tribe – what is happening to natural scientists in their

https://doi.org/10.14361/9783839473580-011 - am 14.02.2026, 16:54:21. https://www.inlibra.com/de/agb - Open Access -

> daily laboratory work and in the "co-production" of scientific facts* (Rosa, Strecker, and Kottmann 2018, p. 230).

The aspect of co-production is especially important, making sociology attentive for the "headstrong" apparatuses and machines which are part of the production of scientific knowledge as well. Latour in that sense proposes a holistic concept of action which later became known as an *actor-network theory* and which shifts the focus from a sole interest in the •human actor to a networked theory of action. In that sense:

> "A" stubborn computer or a surprising flu epidemic is […] suddenly more important and active than a civil servant quietly stamping away or the cashier in a supermarket* (ibid., p. 236).

Figure 16: Floor plan from Latour and Woolgar, Laboratory Life *(46)*

In "Laboratory Life" you will find a floor plan of the research site on page 46.

From the perspective of human-material networks one discovery is particularly important, namely that laboratory life is dynamic in character. The laboratory is not just a building where scientific discovery happens, it is in the middle of a flow: of people, of articles, of data, of materials, of electricity, of communication, and other material and non-material entities. But these materials and data do not just flow through the laboratory, they are also transformed along the way. And, as the sociological observer notices, this transformation takes an enormous amount of machinery, i.e. material is invested to transform other material. What makes the researchers wonder is that despite the "bulk of this apparatus, the end product is no more than a curve, a diagram, or table of figures written on a frail sheet of paper" (Latour and Woolgar 1986, p. 50). Thus, we can conclude that in order to understand the laboratory as a place of scientific discovery, the dynamics of the flows of material and information must be addressed.

https://doi.org/10.14361/9783839473580-011 - am 14.02.2026, 16:54:21. https://www.inlibra.com/de/agb - Open Access -

Software as Part of a Dynamic Materiality

Software could be an ideal starting place to look into the dynamic character of Latour and Woolgar's study on laboratory life. Since the development of hardware is closely tied to that of software, at least since the 1970s, it makes sense for a study on the materiality of laboratories to include software as a non-human actor as well. Also for the purpose of raising material sensibility in everyday lives, one must take into account that the things humans surround themselves with are increasingly dependent on software in order to fulfil their function. In addition, even the built environment has become influenced by the development of software as architects are relying on computer-aided techniques from structural engineering in individual buildings to mapping public spaces.

A look into the history of software development underlines this increased importance. As Mandy Northover and her co-authors argue, from 1968 onwards, when the term *software engineering* "was coined at the NATO Science Conference in Garmisch" (Northover et al. 2008, p. 6), software played an integral part in the development of science. As a planned endeavour it became also structured and formalised, which meant that the developmental stages of software became traceable – and thus interesting as a historical document. From 1968 onwards, software developed from "conceptually 'low-level' programming" (ibid., p. 5) as an annex of hardware development to the main branch of computer engineering, with highly complex applications that – due to the invention of unified programming languages and operating systems – could be run on many machines. This was reflected economically when "the costs of software started to grow above the costs of computer hardware" (ibid., p. 6).

Software engineering has since developed from an informal project of a few engineers to a large-scale business operation (cf. ibid., p. 24) which requires a phased approach. Modern software development increasingly uses user-oriented, agile development models instead of top-down approaches in order to take the client on board and make him or her part of the development process: "Instead of requiring comprehensive documentation of the system's code and architecture, emphasis was placed on co-ownership of program code, and the production of so-called 'self-documenting' program code" (ibid., p. 8).

https://doi.org/10.14361/9783839473580-011 - am 14.02.2026, 16:54:21. https://www.inlibra.com/de/agb - Open Access -

In that sense consumer collaboration and responding to change became paramount. This also meant that software was changing constantly. Philosophically, Mandy Northover and her co-authors locate software in the realm of Karl Popper's *World (iii)* which, "[u]nlike Plato's realm of pure forms, [...] is regarded as open to change, in the sense of an evolutionary development towards increasing complexity" (Northover et al. 2008, p. 10). A networked model of the modern world must thus incorporate the dynamic nature of software as well. Felcht's analysis of the World Fair today would probably not only look at buses and trams filled with people, but also at people "glued" to the screens of their phones in deep interaction with social software.

https://doi.org/10.14361/9783839473580-011 - am 14.02.2026, 16:54:21. https://www.inlibra.com/de/agb - Open Access -