



Monsters Can be Created but Never Tamed: Blockchains and Walking Dead

Ekaterina Markovich and Polina Ignatova

Abstract

Technological innovations are often perceived as something alien, terrifying, and monstrous. Blockchain technology that creates shared “blocks” of information, which are interconnected and verified by the network comes as no exception. Two main features of blockchain (1) the absence of a gatekeeper organisation controlling the data, and (2) the fact that the information is rather hard to corrupt and hack, makes the technology very attractive and versatile. It is also what makes it appear frightening, especially for the traditionally centralised and hierarchical disciplines like law. As there is no one to control the data and the access to it, blockchains open a whole world of new possibilities with cryptocurrencies being one of the most popular examples.

Approaching blockchain technologies in the context of J. J. Cohen’s monster theory demonstrates that they can be perceived as modern monsters. Our inability to understand the technology and the way it works makes this particular monster both fearful and desired (thesis 6), and law reacts to the fears that circulate in the society. Thus, blockchain technologies are often banned by law in a similar way as in medieval narratives dragons were banished by saints and heroes. Building on Cohen’s thesis 7, which argues that monsters show how we (mis)interpret our surroundings, this article will employ the historical perspective upon the fear of the monstrous to create a better understanding of the legal policies surrounding blockchains. By comparing current legal decisions concerning blockchain technology with the strategies of dealing with monsters, offered by medieval chronicles and collections of wonders (including William of Malmesbury and William of Newburgh), we will analyse the modern way of controlling monsters – or controlling the fear of them.

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Introduction

Technological innovations are often perceived as something alien, terrifying, and monstrous. Blockchain technology, which creates shared “blocks” of information, interconnected and verified by the network, comes as no exception. The two main features of blockchain, namely that there is no gatekeeping organisation which controls the data, and that the information recorded in the form of a blockchain is rather hard to corrupt or hack, makes the technology very attractive and versatile. These features however are also what makes blockchains appear frightening, especially within the traditionally centralised and hierarchical disciplines like law. As there is no one to control the data and the access to it, blockchains open up a world of new possibilities.

The present article analyses the contemporary legal responses to blockchain technologies by approaching them in the context of J. J. Cohen’s monster theory (1996), arguing that blockchains can be interpreted as modern monsters. In order to create a better understanding of the legal policies surrounding blockchains, we employ the historical perspective upon the fear of the monstrous and compare current legal decisions concerning blockchain technology with the strategies of dealing with monsters, offered by the medieval English chroniclers William of Malmesbury and William of Newburgh. Nevertheless, we shall note that as this article explores the monster, there is a particular focus on the fear as well as potential and real harm originating from the use of technology.

Cohen’s “Seven Theses” has been dubbed a “methodological toolkit” used by humanists to deconstruct any phenomenon deciding whether it is monstrous or not. Applying the “Seven Thesis” to any given source never fails to feel like doing a “what type of monster are you?” online test, as it often boils down to looking at how many “monstrous” points a certain phenomenon scores out of seven. In recent years Cohen’s approach has been inevitably criticised. However, we are inclined to agree with Asa Mittman and Marcus Hensel in believing that so far, no scholar has managed to provide a better working alternative (Mittman and Hensel 2020: 4). For example, as Jeffrey Weinstock has demonstrated, a very large amount of monster scholarship tends to focus on organic monsters, or – in the recent years – on “monstrous societies”, which become such through fostering inequality, discrimination, and persecution (Weinstock, 2020: 1–36). Alternatively, in his massive effort to criticise Cohen’s approach, Roger Luckhurst has linked monsters to the seventeenth- and eighteenth-centuries’ concept of the sublime (Luckhurst, 2020). In addition, Luckhurst’s article seems to share a widespread conviction that only contemporary monsters can be employed to understand the contemporary society (Luckhurst, 2020).

As we will demonstrate below, some monsters are not organic; being man-made, they are not sawn together from different body parts, like Frankenstein

or the famous hoax known as “the Feejee Mermaid.” The monstrosity of blockchains, on which we will expand further, is connected to the societal vices, and the use and the abuse of the technology. However, the blockchain is not the type of monster resulting from the privileged majority vilifying a minority. Moreover, not all monsters have to be sublime, overwhelming, or grandiose. Some monsters quietly lurk in the shadows of our day-to-day lives.

The present article is a conversation between a lawyer and a medievalist. Of course, as our society has been changing over the centuries, so were the monsters. Contemporary monsters are not like medieval ones, though they have more in common than one normally expects (Ignatova, 2018). Following Cohen’s and essentially Augustine of Hippo’s (below) reasoning, monsters are tools that help us learn about our surroundings and ourselves. We look at the medieval monsters to understand blockchains’ monstrosity because – in our opinion – medieval monsters are a suitable tool to understand blockchains.

First, we will explain the nature of the blockchain technology, and why it invites both optimistic and pessimistic responses. Then we will demonstrate that blockchains adhere to Cohen’s understanding of a monster and therefore constitute real-life monstrosities, which humanity has to somehow deal with. In the following section we will take a leap to the twelfth century and the imaginary monsters, appearing in *The Deeds of English Kings* by William of Malmesbury and *The History of English Affairs* by William of Newburgh. These will be completely different monsters, in contrast to blockchains, they affect local communities rather than global world, appear in the tangible shapes of strange creatures, yet are likely the products of the narrators’ imaginations. What will interest us however, is the responses of the narratives’ protagonists to these creatures and how they correspond with the contemporary legal policies regarding blockchains. This comparison will be the final section before concluding remarks.

What blockchain is and why it is celebrated

Blockchain technology is a relatively new development that allows its users to establish a decentralised network which can be used for almost infinite purposes. The most famous examples are cryptocurrencies such as Bitcoin first introduced already in 2008, decentralised autonomous organisations (DAOs), and smart contracts.

The technology itself is quite simple. It creates shared “blocks” of information, which are stored simultaneously on several hard drives that are interconnected as parts of a blockchain network. In order to be included the data has to be validated through the consensus algorithm (Nakamoto, 2008) with the full record of *who has done what when* (De Filippi, Leiter, 2021: 415). Since the same block is stored in

multiple places at once, it cannot be edited or erased, even if one of the computers in the system is damaged. Moreover, the technology is programmed in a way that no other parties can amend or delete the information unless there is an agreement between all the participants of the chain (Urquhart, Yarovaya, 2020:2), making it particularly attractive to be used for the smart contracts where obligations are placed outside of control of either party. Blockchains can also be employed as a means to protect privacy of the users by creating a secure and flexible communication between various devices (Association for Computing Machinery-Digital Library, 2018).

The technology is often celebrated for its potential for decentralisation, distribution, privacy, and a lack of intermediaries and coordinators for transactions and general governance (Korhonen, Rantala, 2021), same as for transparency and trust between the users. The information stored within the blockchain network is secure and safe from hackers' attacks, cannot be changed by an authority of any kind, cannot be copied, and is stored as it was in the moment of creation of the block. One of the main features of blockchain technology is autonomous execution, meaning that the whole structure is able to operate without the need for a centralised authority (Association for Computing Machinery-Digital Library, 2018), or in case of cryptocurrencies, a governmental monetary authority, thus making it extremely attractive to a wide range of users and investors (Urquhart, Yarovaya, 2020:2). Thus, decentralised autonomous organisations are being seen as something rather attractive for those who do not wish to operate under an authority of a CEO, stakeholders or government. All of that has resulted in an increasing use of this technology during the past decade. A single bitcoin is worth thousands of US dollars, other cryptocurrencies falling not so far behind it with multiple people joining the networks to "mine" (using their personal computers to verify and multiply the blocks of the chain) them, the creators of blockchains earn billions, and there are thousands of DAOs operating at this very moment. Blockchains are used by individuals, collectives, private companies of various sizes, governments and NGOs. They truly are everywhere.

Why blockchain is feared

With all these positive and attractive traits, one can wonder why we consider this technology a monster of modern law and society that is on par with medieval monsters. In order to start answering this question, we shall address another important concept of blockchain technology, a cryptoasset. A cryptoasset is a result of using blockchain technology. It is a form of a cyber property that is not tangible, nor is it intellectual property. A single wallet of information is a cryptoasset, a bitcoin is a cryptoasset. It may not always be the end goal of creating

the particular blockchain, yet some characteristics of a cryptoasset will most likely still be present, as Thomas Hulme reminds us (Hulme, 2020:133). Cryptoassets alongside the blockchain technology are often seen as simultaneously something barely legal or altogether illegal. The examples include earning fast money without paying any taxes, or using cryptoassets to finance illegal transactions, or creating an organisation that would function (and potentially earn money) without the supervision of and obligations towards authorities. These possibilities make cryptoassets attractive, yet also invoke several fears. The potential for the abuse of a recent technology induces the fear of the unknown that we will address later in this article.

The objectively illegal applications of blockchains such as the use of cryptoassets as means to purchase illegal substances or objects, are not part of our examination for the purposes of this paper. However, we still find it necessary to acknowledge this part since it is exactly what raises concerns regarding the blockchain technology, causing it to be perceived as a potentially destructive and dangerous invention. The reputation of this technology as something illegal, uncontrollable, and dangerous contributes to the fears around it.

Probably the second most widely known reputational fail of blockchains, especially when it comes to cybercurrencies, is that they are used for less grave yet still illegal purposes, namely scamming. There have been numerous cases of new cybercurrencies emerging following the success of Bitcoin. Some continued to function, most failed, with RippleLabs case being one of the examples where a company sold more than 10 billion cyberassets called XRP without properly registering them by the US rules (see Korhonen, Rantala, 2021 for a more detailed analysis). There are many more similar cases that only contribute to the vague reputation of technology. As Hulme puts it when talking about various cybercurrencies, “some of these were genuine and yielded a product or service after years of development, some were undertaken by naive individuals, and the rest were utterly fraudulent” (Hulme, 2020:145).

Therefore, from the legal perspective blockchains are quite a nuisance. It is rather difficult for laws to keep up with constantly emerging uses of blockchain technologies, as lawmaking is a thorough and extremely slow process, especially on an international level. By the time the legal texts are written, negotiated, edited and published, thousands of new ways to use the technology, many more currencies, and DAOs will appear, have their moment to shine, and perish. As Robert Herain puts it, the mainstream regulators are simply unable to keep up with the new initiatives that are geared towards community (Herain, 2018:36). The law desperately tries to attach the familiar concepts to the new world, at times unaware that the meanings of certain phenomena have already changed and conclusions that are being reached no longer reflect reality. Thus, the lawmakers often tend to stick to measures that

can be used to any of the emerging bitcoin usages - restriction, punishment and overall ban. A typical approach is something that Outi Korhonen, Delphine Dogot and Andrea Leiter refer to as “existing legal policies should be brought to cover the new phenomena and where they fail, a ban is the best policy” (Korhonen et al, 2019).

Environmental concerns are yet another fear-inducing consequence of the rapid growth of blockchains. Once again, the fear is based on facts: there are indeed rather prominent environmental damages, real and potential, originating from the wide use of blockchain technology, such as, for example, an increase in global temperature. Thus, in 2019 Bitcoin mining alone consumed more energy than the whole of Austria (Corbet, Yarovaya, 2020: 149). This has the potential to warm the planet up to two degrees Celsius over the next twenty-two years predicted by the most optimistic, or even eleven years as stated in the pessimistic prognosis (Corbet, Yarovaya, 2020: 151). This is merely one of the examples, and with the amount of ever emerging mineable cryptocurrencies, the fear is more than reasonable. There are other environmental concerns such as the overuse of coal power by large blockchain operations, disproportionate focus on developing regions due to the cheap electricity available there, which puts a strain on the local resources without producing any benefits for local communities (Corbet, Yarovaya, 2020: 173).

“Not all blockchains pollute”, as Jon Truby et al remind us (2021), “some require significantly lower levels of energy consumption, which would have a negligible impact on global emissions” (Truby et al, 2021). Yet even with more sustainable options available, the most popular blockchains are simultaneously the most energy consuming and the most dangerous to the environment. Hence, all blockchains carry some monstrous reputation.

Monsters and Monster theory

Given these aspects of blockchain technology, we argue that it can be interpreted as a technological monster within the contemporary legal narrative. Monster theory has been introduced by Cohen as “a method of reading cultures from the monsters they engender”. Cohen has suggested seven ways in which a monster can be understood, which also help to determine whether a certain phenomenon can be interpreted as monstrous within a certain narrative. The ideas behind each thesis can be summarised as the following: (1) the monster should be read as a metaphor for ideas and events; (2) we understand the monster in the context of the culture which created it; (3) the monster subverts established systems of categorisation; (4) monsters embody “otherness”; (5) the monster terrifies us and prevents from exploring the unknown; (6) monsters represent forbidden practices which we may secretly desire; (7) monsters show us how we understand and (mis)represent our surroundings.

Indeed, the blockchain can be seen as a monster according to Cohen's criteria. Thus, Cohen argues that the monster is born in a specific moment (Cohen, 2019: 4). It has been proposed the technology's rise to popularity "was set in motion by the invention of the bitcoin blockchain that grew out of anger at the financial crisis" (Korhonen, Rantala, 2021). Moreover, blockchains have been invented and have grown to what they are today in the age of rapid development of cyberspace, the time when the majority of the world's population is constantly connected by using our smartphones, in the age when individuals hold a potential to affect a major scientific and technological breakthroughs by raising funds for a particular issue. Blockchains are being widely used in these processes. For example, there are quite a few DAOs that are focused on environmental issues. There are DAOs created to help social causes, for example, promoting cryptoassets created by women of colour. There are multiple cases of using blockchains to fund outer space projects, such as Space Decentral, or even the European Space Agency (De Filippi, Leiter, 2021: 417) which is applying blockchain technology by "leveraging smart contracts to guarantee accurate payments, procurement, supplier agreements, and automated transactions" (De Filippi, Leiter, 2021: 417). There could be no more perfect moment for this particular monster to be born and developed.

Blockchains are also programmed in a way that gives the technology truly uncanny independence as it is designed to be able to deny any accidental or intentional human interference. The creator may earn a large amount of money, yet it is the consensus algorithm that has the control over the blocks. As Korhonen and Rantala explain, "blockchain represents a materialist solution to governance, thus effacing subjective decisions by human actors" (Korhonen, Rantala, 2021).

All of the above is in sync with Cohen's "the monster's body quite literally incorporates fear, desire, anxiety, and fantasy (ataractic or incendiary), giving them life and an uncanny independence" (Cohen, 2019: 4). There are even suggestions to apply blockchain-based governance into real life governing situations. A great illustration of this would be Amir Taaki's idea to implement a blockchain-based governance "to build an autonomous region in Rojava, Northern Syria" (Korhonen, Rantala, 2021). According to Taaki, the goal is to create a system that would focus on "decentralization, gender equality, environmental sustainability as well as religious, political, and cultural tolerance and diversity" (Hollerith, 2020). The goal is not monstrous in itself. As Taaki puts it:

"We want to create a different kind of society, which is free, where people have liberty and the natural wealth of people's creative energies is developed and nurtured. The emerging field of cryptography offers us a power that we can use to create new financial instruments and networks that can be used as a tool to stop state power and control, and create space where

marginalized communities can operate outside of state control” (Hollerith, 2020).

Yet, the implication that it is possible to build a functioning government with the use of technologies without the involvement of the state, is definitely leaning towards monstrosity, at least from the perspective of a classical state.

According to Cohen, the monster always escapes, and for blockchain the escape route is paved by the regulators themselves that are trying to shoehorn decentralised technology into familiar boxes (Herian, 2019: 36-37). While the escape is not always easy due to the regulations imposed by the majority of countries, it is an escape nevertheless. A fine balance has to be maintained between state, public, and business interests, human rights, and the desire for technological development, yet the fluidity of blockchains saves it from being forced into traditional legislative frames.

As Cohen states, “the anxiety that condenses like green vapor into the form of the vampire can be dispersed temporarily, but the revenant by definition returns” (2019: 5). This seems to be occurring in the legislative system surrounding the blockchains. Thus, Ian Brown and Christopher Marsden inquire if there are legislative solutions which could be “effective ex ante to ensure the development of technologies that do not act against the public interest, without stifling innovation and introducing bureaucratic interventionist regulation to an area that has blossomed without it” (Brown and Marsden, 2013: 33). The answer as it is now is negative, hence most of the laws are rather restrictive.

States do not particularly enjoy the idea of open, or public blockchains, meaning the networks which everyone can join, with representatives of Germany and France being rather critical of Facebook’s public blockchain Libra, as “FB’s expansion into what are seen as traditional public money markets and domains must be stopped to preserve the integrity of public moneys, public markets, and to preserve the public’s faith in these moneys, markets, and institutions” (CleanApp, 2021). As Cohen states that “the political-cultural monster, the embodiment of radical difference, paradoxically threatens to erase difference in the world of its creators, to demonstrate the potential for the system to differ from its own difference, in other words not to be different at all, to cease to exist as a system” (2019: 11-12), blockchain becomes the monster through the wide variety of applications that affect cultural, political, economic life of the traditional state. Thus, Wessel Reijers and Mark Coeckelberg argue that blockchains are more than just a code, “they configure the narratives through which we understand our social reality” (Reijers, Coeckelberg, 2016: 125).

The threat of the monster’s body is in its ability to shift (Cohen, 2019: 5), and blockchains can be both intangible and have a vast effect on the tangible situation,

for example, some cyberassets can be used to prove ownership of a particular property, thus if one sells the cyberasset recorded with the blockchain technology, it will result in the real-life action. Like a true monster, a Linnean nightmare that refuses easy categorisation (Cohen, 2019: 5), blockchain technology is shifting between corporeal and incorporeal blending the online and offline, reshaping our understanding of the concepts of economy, art, society, and managing to affect our planet by merely functioning.

Furthermore, there are numerous human deaths related to blockchain technologies. Thus, as predicted by Truby et al, “carbon emissions as a result of NFT transactions in October 2021 alone are expected to kill 18 people” (2021). The numbers are only expected to grow with the use of proof-of-work blockchains which are according to Truby, the most popular type with Bitcoin and Ethereum leading the market. Thus, “this is only a fraction of the 8326 unnecessary future deaths caused by Ethereum’s annual emissions and the 18,818 unnecessary future deaths Bitcoin’s blockchain will cause resulting from its 2021 emissions” (Truby et al, 2021).

To elaborate on this further, one should take a look at non-fungible tokens (NFTs). NFT is a yet another form of cyberassets, widely used by artists, gamers and online creators. The “non-fungible” is the most important term in what makes NFTs attractive and interesting (Aastresh, 2021). “It means that an NFT cannot be interchanged or subdivided. This is unlike dollar bills, for example, where any individual bill is exchangeable for combinations of others” (Aastresh, 2021). The token itself is a proof of ownership recorded in the blockchain, each NFT is unique and can be easily identified. The trade operations with NFTs are simple: after one purchases a certain amount of cryptocurrency, one can enter the NFTs trading platform and bid on NFT, the highest bidder wins (Aastresh, 2021). Aastresh brings some of the examples of the prices of NFTs: “\$5 million in NFTs from YouTuber Logan Paul (trading cards), \$6 million from Canadian musician Grimes (artwork and short videos set to original music), the first-ever Tweet by CEO of Twitter and Square Jack Dorsey (current highest bid of \$2.5 million) and \$69 million for a compilation of 5000 days of digital art by Beeple” (2021).

Cohen states that “by revealing that difference is arbitrary and potentially free-floating, mutable rather than essential, the monster threatens to destroy... the very cultural apparatus through which individuality is constituted and allowed” (2019: 12). Thus, one should mention Aastresh’s idea of the creator economy that is slowly taking the place of “an attention-based economy built on advertisements, clicks and algorithms” (2021) shifting focus from the Big Tech to an individual. “The creator economy emphasises the potential of creators of art, such as a piece of music, that today can easily be human or not, individual or collective, utilizing new or recycled materials” (Korhonen, Rantala, 2021). It has a potential to change

how we see and value art and digital creations, thus affecting everyone who produces, uses or in any way benefits from that. According to Cohen, the monster stands at and policies the borders of possible (2019:12). As positive as the uses of blockchains may sound, one should not forget that all of that comes at the price of the environment and human lives, thus granting blockchain technology the ability to destroy individuals and culture at the same time, albeit differently. This is a truly monstrous ability. As Cohen reminds us, “from its position at the limits of knowing, the monster stands as a warning against exploration of its uncertain demesnes” (Cohen, 2019: 12).

Like Cohen’s monster “is continually linked to forbidden practices, in order to normalize and to enforce” (2019:16), blockchain technologies are often promoted and regarded as something more, “as the technological representation of much deeper ideas, rooted in a clash of opinions regarding the way we manage our society” (Galati, 2018). It is something beyond just fear, it is also a desire. After all, it brings the promise of something as attractive as it is forbidden – freedom. Freedom for the groups to govern themselves horizontally, without the involvement of the traditional authority be it a political figure, a financial institution, or a multinational corporation. Thus, for example, Genesis DAO adopted an idea of on-chain voting, which became “the primary means for expressing an opinion, while more granular and additional important information about disagreements and differences was sidelined” (Brekke et al, 2021).

Here one can refer to a concept of “dissensus”, introduced by Jaya Klara Brekke, Kate Beecroft, and Francesca Pick, which “points to the limits of formalized governance (whether algorithmic or parliamentary) as the established means to negotiate disputes and conflict, because governance methods and mechanisms might themselves become a site of dissensus, forcing significant negotiation and transformation of the given project, or a ‘fork’” (2021). Dissensus, according to Brekke, Beecroft and Pick, “points to the precise limits of efforts that approach governance as a problem to be solved in any final manner through mechanisms, incentives, and algorithms” (2021).

Genesis DAO is a good example of self-government by a group of highly motivated individuals who were able to take financial decisions by on-chain voting without the need to establish trusted relationships as the technology acted as means of trust (Brekke et al, 2021). There was, however, a divide between a recommendation to discuss proposals offline before submitting them for vote, and those advocating for keeping the majority of the communication within the chain. The anonymous voting did not let enough opportunities for a discussion, which in turn together with the absence of motivation to work through disagreement led to disengagement of a lot of members (Brekke et al, 2021).

Medieval Monsters and Two Williams

If one wishes to learn how to fight or tame a modern monster, various texts produced throughout the Middle Ages can become a point of inspiration. For instance, medieval chronicles offer in abundance accounts on signs, prodigies, marvels, and miracles, which Carl Watkins has gathered under an umbrella term “supernatural”. According to Watkins, in the Middle Ages chroniclers understood the supernatural as extraordinary manifestations of divine power, producing things contrary to the customary course of nature, occurrences which “stood out against the grain of common experience and acquired some special significance as a consequence” (2007, p. 19). These include, for example, corpses which walked after death, green children, two greyhounds found alive inside a hollow stone, and a toad wearing a golden chain around its neck, also discovered inside a stone. Medievalists may argue about which of the above categories each occurrence belongs to (Watkins, for example, viewed them as “ambiguities”). At the same time, all these unusual creatures can be categorised as “monsters” – an “elastic term” according to Watkins. Indeed, as the fifth-century Christian philosopher Augustine of Hippo explained, the word “monsters” (Latin: *monstra*) originates from the Latin verb *monstrare* (to show), because they demonstrate (Latin: *demonstrare*) something to humans, teaching them a moral lesson (Augustine of Hippo, *The City of God* 21:8). Augustine’s interpretation, later repeated by another early Christian thinker, Isidore of Seville (*Etymologies* IX.iii.4), meant that not all of the monsters had to be terrifying or dangerous, as modern popular culture tends to represent them. More importantly, monsters’ existence poses a puzzle for humans to solve, allowing the latter to improve their understanding of various societal phenomena in the process.

One can rightfully note that there are not so many parallels between the medieval monsters and the monstrous blockchains. The former were understood to have been created by God, while the latter are the work of humans. Although scholars attempt to find rational explanations for the quirky medieval stories, to date we assume that these were not real-life occurrences. Blockchains, on the other hand, may be intangible yet pretty much real and present in multiple aspects of our lives. Still, the monster is born from and represents a dilemma for humanity to address, and this is true both for blockchains and for medieval monsters. What is therefore the focus of our interest, and the point of comparison in the present article, is human responses to monstrosities in the Middle Ages and today, that is medieval chroniclers’ attempts to explain and rationalise the monstrous, and contemporary legal efforts to regulate the blockchains or fit them into the frames of an existing legislation. As we will demonstrate further, the medieval and modern approaches to monstrosities can be surprisingly similar to each other, both fighting monsters – or fighting the fear of them.

Below we will consider a few examples from two medieval chronicles, which parallel contemporary legal responses to blockchain technology. The first one is *The Deeds of the English Kings*, completed by the Benedictine monk William of Malmesbury around 1126 (William of Malmesbury 1998-99, i: pp. xxii–xxiii and ii: pp. xviii–xxii; Thompson 2003: 6). The second is *The History of English Affairs*, produced by the Augustinian canon William of Newburgh around 1198, as most historians agree (William of Newburgh 1988: 4–5; Gillingham 2001: 68–70). Both chronicles contain accounts on historical events along with chapters on fantastical supernatural occurrences. Both *The Deeds* and *The History* are of course not the only medieval sources containing elaborate accounts on the monstrous. We have chosen William of Newburgh's work as one of the case studies, due to his detailed descriptions of the apotropaics – that is, actions taken by the protagonists to protect themselves from monsters. We also wish to draw the readers' attention to a story narrated by William of Malmesbury, as it presents a medieval view upon a fantastical utopian regulated environment, which some of the blockchain advocates are wishing to build. In the next section, we will compare medieval apotropaics with contemporary legal ones.

Destroying the monster, or living with it

William of Newburgh's *History* contains four accounts about the walking dead. In the first, a man left his grave the night after his burial, wandered back to his house and lay down in bed, terrifying his widow. He found rest only after a letter of absolution was placed inside the tomb on the cadaver's chest following the advice provided by the bishop Hugh of Lincoln (William of Newburgh 1884 - 89, ii: 474–76). The three following stories are gorier. In the second account, a dead man was wandering around a village followed by packs of dogs, until the locals cut him limb from limb and burned the mutilated corpse to ashes (William of Newburgh 1884 - 89, ii: 476–77). In the third story, an undead chaplain stalked the bedchambers of the lady he used to serve while alive. He was struck with an axe by a brave friar, and later was also burned. The living noted with surprise that the corpse's wound let out way too much gore, implying that the dead man could have fed on other people's blood – for a modern reader this is a truly monstrous metaphor for crowdfunding (William of Newburgh 1884 - 89, ii: 477–79). Finally, in William's fourth walking-dead narrative, the living stopped a blood-sucking pestilential revenant from terrorising their neighbourhood by tearing out his heart and burning the rest (William of Newburgh 1884 - 89, ii: 479–82). While there are medieval symbolic explanations for why the undead were dealt with in these particular ways, the general result is that the monsters' existence mobilised horizontal action on behalf of the living (Ignatova 2018: 76 – 79). In the first

narrative, the dead man's wife was protected by her friends, who spent the next night in her house, driving the revenant away by making loud noises. Unable to re-enter his house, the dead man attempted to visit his brothers and other villagers. While the locals were successfully preventing the walking corpse from entering their homes, they lacked knowledge to get rid of the revenant, and had to resort to the vertical authority: first to the local archdeacon named Stephen, who then transferred the issue to Hugh of Lincoln himself. In the rest of the narratives the protagonists seemed to possess relevant knowledge – even though their methods were less elegant than the one employed by Hugh. While in the second account the revenant's fate was decided at the council, the third and the fourth stories feature protagonists going rogue in their decision to destroy the walking corpses.

Furthermore, the responses as described by William can be viewed as two distinct courses of action. First, one could turn a monstrous walking corpse into an ordinary dead man, as it was done in the first narrative by Hugh of Lincoln. Alternatively, one could destroy the monster, as it occurred in the three remaining accounts. The two patterns – either making a monster mundane, or seeing it destroyed, appear in William's other accounts on the supernatural events. This is rather stark in the famous story about two children with green skin, reported to have been discovered emerging from the cavities in the ground by the village called Wolfpittes (modern: Woolpit) near Bury St Edmund's in Suffolk (William of Newburgh 1884–89, i: 82–84). The children – a boy and a girl – initially refused to eat anything but beans, but as time went by, they got accustomed to local food, learned the English language, and gradually lost their green colour. The boy died soon after the children were baptised. Meanwhile, the girl grew up and got married, thus fully integrating within human society.

The story of the green children is immediately followed by another prodigious account, which clearly mirrors the above narrative. During quarry works a shallow rock was split, letting out two dogs which somehow were concealed inside. Miraculously, the dogs also turned out to be of a hunting breed (William of Newburgh 1884–89, i: 84–87). While one of them died, the other was adopted by Henry, bishop of Winchester. Another quarry boasted a similar find: a stone consisting of two parts, which, when split, revealed a toad wearing a tiny golden chain. On this occasion the local bishop was disturbed by such a discovery, and ordered to close up the stone and bury it under a pile of rubbish forever.

As these case studies demonstrate, just like not all blockchains create a disproportionate and some may argue unjustified consumption of the environmental resources, only some medieval monsters were expected to destroy the environment and kill the living. This applies first and foremost to the restless dead. As William of Newburgh explained, the unearthed decomposing flesh would pollute the air, causing pestilence in the area. In his stories, William presents the

knowledge of the undead's potential harm as accessible to the learned members of the community. The more simple were worried that the revenant would beat them black and blue. This is of course a useful cautionary tale about shifting attention away from the real danger. While populists emphasise blockchains' impenetrability to external influences, we forget that this technology is killing us softly through the environmental change.

The monster's inevitable escape, as Cohen has postulated, therefore occurs due to the fact that humanity sits uncomfortably with the presence of monsters. For each interaction, after humans have caught an exciting glimpse of a monstrosity, the latter must be either destroyed, or banalised, merging together with "the normies". The destruction or banalisation does not mean the monster's disappearance: "Regardless of how many times Sigourney Weaver's beleaguered Ripley utterly destroys the ambiguous Alien that stalks her, its monstrous progeny return, ready to stalk again in another bigger-than-ever sequel" (Cohen 2019: 4–5). The monster's escape therefore means our own inability to comprehend it, destroyed or banalised, the monster is no longer available for us to be studied. A revenant – the prodigious manifestation of life after death – blends with the other dead to the point that William of Newburgh's *History* does not preserve his name – we know him as "a man from Buckinghamshire". A green girl from a mysterious foreign land – according to William, the children reported that they came from a realm called "the land of St Martin" where it is always dusk – becomes an ordinary English woman. A hound miraculously discovered inside a stone, turns into a household dog. The monster thus transforms into a fully controllable and predictable entity.

This applies not only to creatures but also to whole landscapes. For example, William of Malmesbury narrates a story of Gerbert of Aurillac – also known as Pope Sylvester II – who according to the legend practiced dark arts. In William's narrative, Gerbert solved the puzzle of a metal statue with an extended forefinger of the right hand and the words inscribed on the head: "strike here," which was found in the Field of Mars (Rome). By digging where the shadow of the statue's right finger lay at midday, Gerbert entered an underground palace with gold walls, furniture, decorations, and even gold robotic figures. The latter also represented an alarm system, moving towards anyone who attempted to pick up any of the gold objects. Despite this, Gerbert's servant attempted to snatch a knife from the table, which caused one of the robots – a boy with a bow – to shoot an arrow through a carbuncle, a jewel whose shining filled the palace with light. As all the gold figures leaped towards the two living men in the darkness, Gerbert forced the servant to give up the knife to save their own lives (William of Malmesbury 1998–99, i: 284 – 86). While appearing as a setting for a *Doctor Who* episode, the golden palace also represents an environment regulated by algorithm, not so different from Amir Taaki's idea of a blockchain governance as well as Brekke, Beecraft and Pick's idea

of the necessity of offline communication even with the blockchain governance (Brekke et al, 2021). A conversation between the two humans (Gerbert and his servant) without the involvement of technology saved their lives in the same way that offline conversations shape the online governance.

The fear of the unknown entities, or even whole environments created by unknown beings explored through medieval narratives, helps explain similar anxieties, which are addressed by the law-makers, but are also experienced by our society at large when it comes to technological developments. The contemporary creator economy, however, makes us rethink ownership, communities, money and power online (Aastresh, 2021), leading to a new normality where stone dogs are living as house pets, and green girls grow into ordinary women. Adopting a monster into a society changes its core and turns it into a human, adopting a legislation on a monstrous new technology turns it into something reliable. A thorough law would provide certainty, consumer protection, and real consequences for the companies that do not follow the rules. This is a position taken by the European Union towards some of the uses of blockchain technologies. Thus, in 2023 the EU has adopted a rather extensive regulation on cryptoassets which obliges the service providers to be properly registered and follow a set of legal rules. Two years earlier the UK had introduced a “Tax on cyberassets” paper (Trube et al, 2021). Thus, the legislation effectively turned a monster into just another financial means that is covered by the authorities.

Simultaneously, there are rather bold claims connecting blockchains to the future technological progress milestones “from property registries for asteroid mining, to supply chain management systems, or interplanetary cryptocurrencies for the space economy” (De Filippi, Leiter, 2021: 413), making them truly an undead man knocking on every door in the village. Most of these projects exist only on paper, yet they keep appearing and multiplying thus attracting attention from individuals all over the world who are ready to invest and be part of the space race. Another example is Elon Musk who “announced in May 2021 that a SpaceX mission to the Moon with an estimated cost of 62 million USD would allegedly be entirely funded in Dogecoins” (De Filippi, Leiter, 2021: 417). How would the legal systems manage to control such projects?

In a similar vein as dangerous monsters that are burned or buried inside a pile of quarry rubbish, blockchains, however popular and profitable they may be, are a subject of heavy restrictions and bans that do not leave much room for a discussion. Thus, in many countries there is a partial or total ban of cryptocurrencies. For example, there is a total ban on using and mining cryptocurrencies in China, which interestingly had an effect on the demand of mining (Trube et al, 2021). Even with some number of illegal operations, the ban proved to be effective, at least from the environmental perspective. According to Jon Trube et al, “the Chinese prohibition

resulted in carbon leakage as many miners relocated their revenue-generating mining devices to neighbouring countries, such as Kazakhstan, but also further to the USA and Canada” (2021).

De Filippi and Leiter point out an interesting detail about the legal and practical functioning of futuristic blockchains, namely that they are unable to create a technological invention as they are. They can be used as means to finance the development, or to spread the information, but after all “all of these applications require, on the one hand, a trusted set of ‘oracles’ that can feed the blockchain-based system with external information, and, on the other hand, a third-party enforcement authority that can intervene in case of a dispute. These issues are not specific to outer space; they apply to every application of blockchain technology that needs to interface with a non-blockchain-based structure” (De Filippi, Leiter, 2021: 418). The key here is adaptation and conversation, online and offline, as one can see on the example of Genesis DAO.

Notably there is always something destroyed in the process of discovery or integration of the medieval monsters. Stones, caves, physical bodies, all are the seemingly unimportant details in the narrative sacrificed for the sake of either taming or killing the monster. These are parts of the environment or, as one can put it, a price to pay. A dead man, whose grave is disturbed, and whose body is mutilated and burned, with the ashes scattered in the wind, is removed from the community of the dead which especially in the medieval context was to be remembered by the living and interconnected with their community. His grave, which is supposed to commemorate his life, has been destroyed. Similarly, the invention and operation of the blockchain monster costs human lives and the environment. For some this price is negligible in order to be able to use the gold palace built in cryptocurrencies. For others, the price is non-negotiable and makes all the riches provided by a particular application of the technology worthless. Monsters are usually not mourned after they are killed. Thus, there is a proposal within the EU to prohibit proof-of-work blockchain technologies (such as what Bitcoin operates on) in order to protect the environment (Bateman, 2022). New York State Senate has adopted “a bill specifically halting proof-of-work blockchain verification methods until an environmental impact assessment takes place” (Truby et al, 2021).

Concluding remarks

Cohen states that a monster becomes what we see in it (2019: 20). Among our medieval examples, we have seen how the protagonists could either suffer from facing the monstrosity, or approach it with a curious open mind. Similarly, blockchain technology may be perceived as a great innovative tool to achieve a wide

variety of financial, political, cultural, societal, and even environmental goals. Thus, it is accepted in the traditional legal sphere, and assimilated through regulation. It can also be seen as a threat, immediate or future, for the same structures (economy, culture, society, governmental order), and approached with fear, bans, prohibitions and restrictions. Either way, abstaining from legal action and letting this particular monster simply wander around the village at night, is not an option anymore for better or for worse. The monster of blockchain “asks us how we perceive the world” (Cohen, 2019: 20), because in order to regulate it, we often have to redefine our understanding of the different spheres of life affected by blockchains. The ultimate question is inevitably whether we can safely accommodate the blockchain monster, and at what price.

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Authors

Ekaterina Markovich is a doctoral researcher in the field of international law, technology and philosophy. She holds an LLM from Lund University, Sweden and is about to defend her doctoral dissertation at Faculty of Law University of Turku, Finland. Her research interests include conflicts of law and power in human rights law with a special interest in law and technology, law and memory, law and culture and sociology of law.

Polina Ignatova is a historian of the Middle Ages with a passion for connecting past and present, particularly focusing on environmental and cultural histories. Her research interests include death and life after death, monsters and monstrosity, human relationship with non-human animals, aquatic ecosystems, and Islamic history and art. She is the co-founder and host of the Memory and Nature podcast.