

Chapter 1: Cultures of Speculation—Histories of Speculation

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What is speculation? And since when have human societies developed *cultures of speculation*?

Cultures of speculation—the story goes—are inextricably linked to modernity, or, as Ulrich Beck suggests, the age of “simple modernity” (Beck 1994). For a couple of decades now, this “simple modernity” has been moving towards “reflexive modernity” or “risk society” (Beck [1986] 1992). If we follow this linear, teleological narrative, the early modern period conceived of as pre-modernity or the pre-industrialization period would have been the age that preceded modernity. Cultures of speculation, then, might have slowly started to develop with the Renaissance, the (European) expansion of empires, and the increasing exploitation of human beings, land, oceans, of resources of any kind with the rise of capitalism (Moore 2016; Levy 2012)—so, between the fourteenth and twentieth centuries (cf. uncertain commons 2013).

However, what is speculation? And what are cultures of speculation? More often than not, they have been depicted as prioritizing “trade in the future” (Haiven 2017: 4), putting “the future at the service of the present,” and developing a set of practices that “converted the future from an enemy into an opportunity” (Bernstein 1996: 1). Modernity—according to some authors—was about bringing risk under control (Bernstein 1996: 11), about trading perils (pre-modern) for calculable risk (modern).

Some scholars claim that our so-called globalized society today “still largely privilege[s] a business-as-usual approach that reduces futures to matters of anticipation, calculation, management and pre-emption of risks and uncertainties in the present” (Wilkie/Savransky/Rosengarten 2017: 1). Others have gone further and have voiced serious doubts that we have any sense of the future at all, that we have ever been “modern” (Latour [1991] 1993), and that we have ever quit the immutable present—meaning that (we think) that nothing essentially new (can) occur(s) and/or that there is no development, a worldview that the historian Reinhart Koselleck associated with the pre-modern period (Koselleck [1979] 2004: 58; cf. uncertain commons 2013).

If cultures of speculation, as Wilkie, Savransky, and Rosengarten suggest, have mostly been about bringing *present* (especially financial) risks under control, then how old are cultures of speculation? Do they emerge with the Anthropocene (Crutzen/Stroemer 2000), that is, when humans started becoming a geological factor on earth, or with the Capitalocene (Moore 2015, 2016)? Many scholars hold that financialization, “the growing power of the so-called FIRE (finance, insurance and real estate) sector over the rest of capitalist economy” (Haiven 2017: 2), is one of the key elements of “risk society” today. Some call it “a global empire of speculative finance” (Haiven 2017: 2). However, societies and their economies have depended for thousands of years on historical forms of finance, whether in the context of agriculture, slave societies, or the Industrial Revolution. Lending, holding debt, and speculating on the return of credit are rather old in human history (Lapavistas 2013; Ceccarelli 2016). According to some scholars, though, the seventeenth century brought about a major shift in risk assessment and calculation. Mathematicians such as Blaise Pascal and Pierre de Fermat developed a theory of probability. By 1725, mathematicians set out to calculate mortality and life expectancies, and by the mid-eighteenth century, insurance based on probability calculations was in place (Bernstein 1996: 57–96). Pre-probability calculation insurance had already been available from the mid-fourteenth century, mostly to cover maritime risks for commerce and trade in the Mediterranean, Northern, Western, and Near Eastern worlds. At the center of late medieval or early modern risk management with regard to commerce and trade, we find Venice and Florence (Ceccarelli 2016); from the sixteenth century onwards, Atlantic sea ports such as Bordeaux, Nantes, and London; and from the seventeenth century, Amsterdam and Hamburg (Zwierlein 2011: 27–29). With these insurance practices, speculation, that is, risk calculation was mostly about space: perils at sea, such as storms, pirates, shipwreck, or mutiny. Insurance was to cover uncertainty in a given space; it was less invested in a given time frame or with regard to more sophisticated notions of the future (Zwierlein 2011: 54–55). Has this changed? Or is this the immutable present? Historians hold that scale, which involves the temporal, societal, and spatial dimensions of the production and effects of speculation, changed dramatically over the last five hundred years, in particular with globalization taking off from the late-nineteenth century (Osterhammel/Petersson 2003). Cultures of speculation would then be closely related to processes of globalization.

The authors of *Speculate This!* suggest distinguishing between two distinct modes of speculation: firmative and affirmative (uncertain commons 2013). Firmative speculation is meant to “pin down, delimit, constrain, and enclose” the future, which thus becomes (more) predictable. Affirmative speculation is to refuse “the foreclosure of potentialities,” it is about uncertainties, it is “to hold on to the spectrum of possibilities” (uncertain commons 2013: Prospects). We cannot clearly separate firmative and affirmative speculation. They form a tension field, they

are in a dynamic and dialectic relationship with each other. Speculation about futures, then, would not only be about the probable, calculable, or plausible, but also about the possible and the impossible, “about futures that the present could never anticipate” (Wilkie/Savransky/Rosengarten 2017: 8).

Sophisticated methods to calculate risk developed during the Italian Renaissance. Cultures of speculation emerged with “business partnerships,” “insurance contracts, or specialized markets for currency exchange and the trading of government bonds” (Ceccarelli 2016: 117–118). However, as early as the medieval period, speculation was also about testing, about the visible and the invisible, the knowable and the non-knowable, the certain and the uncertain. Different genres were used for speculation: philosophical and theological writings, travel literature, satire, utopian romances (starting with Thomas More’s *Utopia* of 1516), and the visual arts.

In this chapter, I would like to zoom into the so-called pre-modern period, which, in a linear narrative, would have preceded modernity and Beck’s “reflexive modernity.” We are going to look into concepts of time and modes of speculation, into how different contexts and genres invited different forms of speculation. In this way, I would like to open up some “horizons of speculation” of the early modern period by using the latter as a *speculum* for today’s cultures of speculation. I seek to test how much speculation in the early modern period might have been about speculating “about futures that are more than a mere extension of the present” (Wilkie/Savransky/Rosengarten 2017: 2), but also about speculating on the past (Landwehr 2016: 231–246), on eternity and untime.

‘Discoveries,’ Conquest, and Colonization

Despite centuries of human travel to foreign destinations, from the perspective of the so-called Atlantic World, uncertainties about the world allegedly increased with the rise and expansion of the Portuguese, Spanish, French, English, and Dutch empires, as well as the Ottoman, Safavid and Moghul empires from the 1400s onwards (Canny/Morgan 2011; Darwin 2017). Migrations (including the forced migrations of African slaves), the rise of plantation systems, the development of new and old economies, the Atlantic revolutions, nation-building and independence movements, and the accelerated exchange of knowledge and goods, brought about a higher degree of risk, financial risk in particular. Europeans back home, especially those who financed voyages of exploration and colonial ventures, would have perceived an increasing risk of failing enterprises, lost money, collapsed investments, and unfulfilled expectations. In this regard, the cultures of speculation were largely about bringing financial risk under control (Bernstein 1996; Zwierlein 2016).

Europeans struggled in their westward expansion with unknown sea currents, winds, storms, hurricanes, pirates and interlopers, as well as a variety of new climates, landscapes, resources, and cultures (Canny/Morgan 2011). Europeans, as Michel Foucault might have put it, moved “from the restrictive figures of similitude” to describing and classifying “difference and discontinuity” ([1966] 1970: 51).

Some of the earliest documents of the era of ‘discoveries,’ such as founding charters and royal privileges, illustrate the double-edged increase in risk and uncertainty. The 1492 *Privileges and Prerogatives Granted by Their Catholic Majesties to Christopher Columbus*, for example, makes clear that, in sailing west to unknown shores, Columbus was risking his and his shipmates’ lives. But in case he should survive, Isabella of Castile and Ferdinand of Aragon granted Columbus the rights of an admiral, viceroy, and governor, which included the right to exploit any seas, lands, and peoples he might ‘discover’ or conquer. In the project of colonization, the taking over of all financial risks by a future proprietor or a merchants’ company required major funds; the crown, in passing on those risks to merchant venturers, assured them of all the necessary rights to exploit the resources, human and non-human, of the colony to be founded. Taking risk, then, was about taking opportunities, about chancing *fortuna*; furthermore, calculating risk was not the least about the exploitation of unknown resources. One of the first English Letter Patents that King Henry VIII issued in 1496 for the Venetian Giovanni Caboto states: “upon their owne proper costs and charges, to seeke out, discover, and find whatsoever isles, countreys, regions or provinces of the heathen and infidels” (“Letters Patent to John Cabot” [1496] 1909: 46). In return, Caboto was allowed to “subdue, occupy and possesse all such townes, cities, castles and isles of them found, which they can subdue, occupy and possesse” and “be holden and bounder of all the fruits, profits, gaines, and commodities growing of such navigation” (46). Similar Letter Patents can be found for King Henry IV of France when, in 1603, he granted the Charter of Acadia to Pierre Du Gua de Monts, or again in England, in the first Virginia Charter of 1606 or the charters for Maryland (1632), the Carolinas (1663), and Pennsylvania (1681) (*Avalon Project*). These charters, however, simply further developed older, medieval patterns, established to grant major fiefs to dukes, counts and other vassals of the crown—especially when a given kingdom had acquired new lands during (and after) warfare. Members of the aristocracy and/or army officers received patents to exert royal control in newly acquired countries, to establish the prince’s jurisdiction, armies, commerce, and trade. This required strict loyalty to the king. Furthermore, a certain percentage of the revenues coming out of a given fief or colony had to be left to the king, while the proprietor, lord lieutenant, or viceroy received monopolies for certain resources and goods. Peril, uncertainty, and risk entailed the right to conquest and exploitation. What was then new about European expansion—especially the one to the west?

I would argue that the expansion of European (and non-European) empires in the early modern period opened up 1) a larger plurality of time/space relationships, 2) a higher degree of uncertainties, 3) the scale of financial (and other) risks *and* opportunities, and 4) more varieties of firmative and affirmative speculation.

Time Regimes, Concepts of Time

Cultures of speculation are largely characterized by what notions of futurity they bring into play. Theorists of time (including historians) have often warned against purely linear concepts of time that organize time “along a modern arrow of progress” and have suggested to take varieties of concepts of time more seriously—including different futurities (Wilkie/Savransky/Rosengarten 2017: 4–5). However, speculation is not restricted to the future or similar timescapes. We can also speculate about the past, the immutable present, eternity, or untime. Furthermore, timescapes are context-related. To look into cultures of speculation—so-called modern or pre-modern ones—we thus need to inquire into contexts and time concepts.

With the Renaissance and the rise of the new sciences, concepts of time, timescapes, changed—or, to put it differently, the plurality of concepts of time increased (Brendecke/Fuchs/Koller 2007: 13). Many Renaissance theologians and philosophers started thinking and speculating on time. For instance, Petrarca (1304–1374) perceived humans as historical beings owning a past (*memoria*), a present (*ingenium*), and a future (*providentia*) (Kießler 2007: 34), even though the Latin suggests a rather different meaning of these three periods of time than our contemporary translation has it. However, not all humans had history, not all humans had a future.

During the so-called Age of Discovery, it became ‘clear’ for Christians/Europeans that they lived in present and civilized times, while non-Christian/non-European cultures—according to their degree of ‘barbarism’ and ‘lack of civilization’—lived in the past (Fabian 2002: 75). This past, however, was different from European Antiquity (e.g. Thevet 1558: 54). According to many European authors, non-Europeans and Europeans did not share the same moment in history, nor did they share the same past. For André Thevet (1516–1590), a French Franciscan friar, explorer, and cosmographer who travelled to the Eastern Mediterranean and Brazil, Europeans lived in “modern times”; “savages,” however, were closer “to man’s origins, so to paradise” (Thevet 1558: 54, 87, 95). From Thevet’s perspective, the “savages” lived in an immutable present (cf. Fabian’s “allochrony” and “ethnographic present,” 2002: 76) and had no history—at least, not prior to the arrival of Europeans (Thevet 1558: 84, 101–103, 106; cf. Labat 1722: 222, 317, 332). Only with conquest, colonization, and Christian missions, indigenous peoples of the Amer-

icas entered human history and thus progress; they turned into 'objects' that now had a past, present, and future (Fabian 2002: 78). By the Renaissance, we see time and civilization coming together. Civilization and the future, progress, develop into one timescape: "evolutionary time" (Fabian 2002: 17, 29). This timescape was closely related to the context of 'discoveries,' conquest, colonization, and the increasing exploitation of New World resources, human and non-human; it was a colonial concept that the colonized could not escape (cf. Hunt 2008: 94–96).

Only Europeans, as the present and modern people, were allegedly able to speculate on their own and other cultures' state of civilization. It was also up to Europeans to bring humanity closer to a Golden Age, a worldly one. The new sciences and new technologies, developed by Europeans, as many proponents of the Enlightenment claimed, could guide mankind back into a new Eden—on earth.

All of this sounds, indeed, like a pre-modern cultures of speculation narrative with the timescape *past—present—future* paving the way to modernity and its teleology about historical progress (Hunt 2008: 107). However, while the so-called European pre-modern period had "models of linear and measurable time" (Nagel/Wood 2005: 408), and while timescapes were developed that Newton and natural scientists would later call "absolute time," this was only one of a plurality of ways of organizing time and of being in time. Absolute time, then, was an invention, based on a metaphysical system important to the developing new sciences. It was also a highly contested timescape, criticized by empiricists such as David Hume and rationalists such as Gottfried Wilhelm Leibniz (Wilcox 1987: 17–18).

God's time regime (Gallois 2007: 243), however, embedded and integrated evolutionary time, models of linear and measurable time (Le Goff's famous "merchant's time" [1977] 1980), as much as absolute time—the biblical beginning of history and the end of mankind. Even if 'modern' timescapes such as evolutionary time and absolute time challenged this predominant timescape, God's time regime remained the most powerful far into the nineteenth century. Time was divided into this world and the hereafter: life, death, and eternity. Quite contrary to 'modern' visions of the future of mankind, which all seem to share great uncertainty about what the future might look like, Europeans of the early modern period could be sure about the end of history. The Bible seemed to be clear about the destiny of mankind. Humans would live through four ages (Babylon, Persia, the Greek, and the Roman), followed by the fifth age which would include the arrival of the Antichrist, the battle between good and evil, the very likely victory of Jesus Christ, the Last Judgement, and the end of days. While Christians could not be sure of the exact beginning of the fifth age, they knew, thanks to the revelations of St. John, what would await them (Gallois 2007: 244). Uncertainty reigned with regard to who would be among God's elect and who among the eternally condemned. Far into the nineteenth century (and for Christian believers up to the present day),

speculating about the future of mankind seemed unnecessary, as God had provided for a teleological and orderly history of man (Gallois 2007: 33–35).

While mankind shared clear beginnings and a likely end of time, early modern Europeans, as many discourses from the fifteenth to the eighteenth centuries betray, could also be sure that they were in the hand of God, and if among the elect, guided by him—despite the many uncertainties about New World ventures. Zooming back into the late fifteenth century, we can see Isabella of Castile and Ferdinand of Aragon aware of the risks Columbus did run in sailing westwards; they hoped for the “assistance of God.” Columbus, in his 1493 letter to Luis de Santángel, echoed the belief that he had been guided by God, who had granted him his successful voyage at sea (Mancall 2006: 209). Parallels can be drawn to Protestant Europe: in his New England Charter of 1620, King James I of England hoped that by establishing this colony he would “advance in Largement of Christian Religion, to the Glory of God Almighty,” and he was sure that the colonizers would enjoy “God’s assistance” and “God’s divine blessing.” Furthermore, James stated that the English, in colonizing that territory, “second and followe God’s sacred Will, rendering reverend Thanks to his Divine Majestie for his gracious favour in laying open and revealing the same unto us” (“Charter of New England” [1620] 1909: 1830).

Surviving danger, calamities, peril depended on God’s will, his pity, compassion, and grace—and on the growing abilities of man to calculate risk, to measure God’s world, and to reign over his resources. In the long run, God’s time regime was challenged, through humanism—which already by 1450 had produced “two canons” (Grafton 1992: 29)—the development of new sciences, and the radical Enlightenment. Paradigms changed with encounters with new worlds and, as Francis Bacon put it in his 1620 *Instauratio magna*, through new sciences being a result of the age of humanism and the ‘discoveries’ in the Atlantic World. New sciences, Bacon claimed, “could affect the course of nature in useful ways, knowledge about how to ward off disease, improve crops, extend the span of life, and enhance the general welfare” (Grafton 1992: 197).

It is important to state that the coexistence of overlapping or clashing temporalities (Nagel/Wood 2005: 404)—a plurality of temporalities as parallel, contextualized experiences coming together in *one moment*—was rather typical of the early modern period (Febvre [1942] 1982: 393–400). Despite the challenges of the developing new sciences and their *a priori* of measurable, linear, and—to some extent—absolute time, God’s time regime was the one that embedded and integrated all other ones (from the emic, that is, the historical actors’ perspectives). This is particularly true for the visual arts: what Alexander Nagel and Christopher S. Wood have dubbed “Renaissance anachronism” is rather typical far into the eighteenth and nineteenth centuries. Artefacts and monuments, especially if used in sacred/ritual events, were “embedded in history” even as their “spiritual meaning

[...] lifted the event out of the flow of history": "Visual artefacts collapsed past and present. They proposed an unmediated, present-tense, somatic encounter with the people and the things of the past" (Nagel/Wood 2005: 408).

While biblical narratives of the beginning and the end of the world—as much as the new sciences—strengthened linear and teleological temporalities, humans in the early modern period lived with plural concepts of time, allowing them specific forms of speculation. Like Einstein's later notions on the relativity of time, so-called pre-modern concepts or pluralities of time turn "modern western time"—"which describes itself as being rational, observational, chronological, universal, unambiguous, fixed, natural, constant"—into an "historical anomaly in human culture" (Gallois 2007: 221, 246–247). But how did the plurality of timescapes affect speculation in the early modern period?

Travel Narratives and Utopian Literatures

Travel narratives and utopian romances, which have often been defined as separate literary genres, exemplify the early modern period's cultures of speculation. More often than not, travel narratives cannot be clearly separated from fantastic, satirical, or utopian texts, and most of them come with firmative and affirmative elements. Travel narratives are as old as human history. Among the most famous are Marco Polo's of the late thirteenth century and John de Mandeville's of the later fourteenth century.

Printing made travel narratives (including so-called fantastic travels) widely available, especially in the sixteenth century and later. Next to printing, oral accounts and manuscripts continued to spread news about the wonders of the world (Mancall 2006: 4–7; Greenblatt 1991). In travel narratives, uncertainties play an eminent role, especially in stories where Europeans voyage to unknown shores. Many narratives from the Age of Discovery are based on logbooks and journals that explorers kept during their voyages, such as Columbus's logbook from 1492. The same holds for Amerigo Vespucci's *Mundus novus* of 1504, Jacques Cartier's travel account, published in Paris in 1545, and Captain John Smith's of the early 1600s—to name but a few. From these early European expansion travel narratives, we learn about things to be feared on these voyages. While most seamen, already in the 1400s, no longer believed in the terrifying edge of the abyss that should have awaited them if they had sailed too far west or east, sailing the Atlantic was nonetheless a terrifying thing. As Amerigo Vespucci writes in his 1504 *Mundus novus*:

But what we suffered on that vast expanse of sea, what perils of shipwreck, what discomforts of the body we endured, with what anxiety of mind toiled, this I leave to the judgement of those who out of rich experience have well learned what it is

to seek the uncertain and to attempt discoveries even though ignorant. (Mancall 2006: 218)

Furthermore, as Columbus's logbook shows, his seamen were afraid of never finding any winds that would bring them back to Spain. They were afraid of their knowledge of the stars being untrustworthy. They were afraid of their maps being wrong about the actual islands in the Atlantic (Mancall 2006: 209–214).

Speculation about these unknown worlds and their uncertainties meant struggling to make the unknown better known, controllable. When describing new worlds from European eyes, travel narratives of the early modern period relied on older models in telling their stories, often models that had been in place since Antiquity. Furthermore, the 'new' could only be described through the already known, and the unknown was made known through comparisons, analogies, and classifications based on already existent knowledge (Pagden 1982: 1–4). Between the fifteenth and seventeenth centuries, Europeans drew upon a set of biblical (Old and New Testament) and mythological, that is, pagan images and paradigms. While (what we now call) the un- or supranatural was an element of everyday life even back in Europe, the further Europeans moved into unknown parts of the world, the more likely it became to meet monsters, pygmies, amazons, mermaids, giants, and other species as described, for example, by Pliny the Elder in his *Naturalis historia* (AD 77–79). Monstrous species inhabited the rim of the world. In one of his letters to Luis de Santángel (1493), Columbus seemed to be surprised to find no antique monsters in the West Indies (Mancall 2006: 212). Sailing westwards, then, must have been a rather 'calculable risk,' as many explorers thought they knew what and whom they would encounter. Had not Plato described Atlantis? Had not Seneca prophesized the 'discovery' of new worlds in his *Medea*? Cartographers and chroniclers in the sixteenth and early seventeenth centuries seem to have been well able to make the New World look old, for example, claiming that American Indians were descendants of some of the lost tribes of Israel. The 'discoveries' were, then, just "another classical revival" (Grafton 1992: 58, 149).

In the long run, though, describing new worlds through ancient texts proved to be a conundrum, a paradox. Drawing analogies, describing new worlds through ancient texts, images and concepts failed abysmally. Not only did the so-called New World upset much of what Europeans thought they knew about God and his world. The New World also required new concepts, and God's world had to be re-conceptualized. Or, as Edmundo O'Gorman (1972) and Walter D. Mignolo (2005) have argued: helpless to grasp the New World with what they knew, Europeans 'invented' new worlds, first, according to their imaginary—concepts and paradigms—then through developing new, speculative categories based on Native American, African, and Asian knowledge (Mignolo 1992, 1995; Lachenicht 2019). The Age of Discovery changed the European canon of knowledge. It fostered encroachments

on ancient texts, the Bible in particular. Certainties about God's world, this world, and the world hereafter came to be challenged. Affirmative speculation about the new, about the world to be, became common practice.

The Age of Discovery not only produced more travel narratives but also what has been dubbed a new genre: utopian literatures (Bruce 1999: ix–xi), which often open up as travel narratives. There has been much debate whether early modern utopias are about ideal or future societies, and how they relate to *real* space and time. While many early modern utopias are set up in yet to be 'discovered' space (Koselleck 1982: 2–3)—often Atlantic or Indian Ocean worlds—they have no temporal dimension, they are not about future societies (Bruce 1999: xiii). I would argue that utopias are—as (and together with) satires—the most speculative literary genre in the early modern period—while building on older biblical, ancient Greek and medieval models. Utopian literatures are speculative as 1) they always come as a mirror, a “distorted reflection” (Bruce 1999: xxiv) of the societies that produced them, and 2) they speculate at the same time about untime, about imagined worlds that *are not* and are not meant to be (cf. Marin 1973; Greenblatt 1980: 22). Many early modern utopias are dystopias, satires, and parodies at the same time. Some Renaissance and Baroque texts, such as Miguel de Cervantes's *Don Quixote* (1605/1615) or Rabelais's *Gargantua et Pantagruel* (1532–1564), have been classified as chivalric satires (Winter 1978); some, such as Cyrano de Bergerac's (1619–1655) *Les États et Empires de la Lune* (postum 1657) and *Les États et Empires du Soleil* (postum 1662) or Jonathan Swift's *Gulliver's Travels* (1726), have been described as satirical, fantastic travel narratives. Other narratives, such as Thomas More's *Utopia* (1516), Tommaso Campanella's *La città del sole* (1623), or Francis Bacon's *The New Atlantis* (1627), have been identified as real utopias, self-consciously depicting ideal societies. However, there is much doubt that the eponym of the utopian genre, Thomas More's *Utopia*, was meant to describe an ideal society (Bruce 1999: xvi–xviii). Rather, like Rabelais's work, it is as much a satire of More's own world as it is about alternative possibilities of his time (Bruce 1999: xix–xxvii).

Despite their originalities and specificities, utopian *and* fantastic narratives both critically (and often satirically) assess their own time and the possibilities arising from the 'discoveries' and the new sciences of the period. They are written from historical presentist perspectives (on presentism, see Lachenicht 2018: 5; Landwehr 2016: 28–39). They are not speculating on possible futures, but on untime and *Unorte* (spaces off) while reflecting the present (cf. Nakládalová 2013: 7). Most of these utopian narratives start in either the author's present or some past time. Voyagers set off to travel somewhere (often into Atlantic or Indian Ocean worlds) and end 'nowhere,' in an *Unort* where, more often than not, somebody narrates the history of the *Unort*. They play with the things yet to be discovered, with the unknown that the Age of Discovery had not discovered, yet. While they inscribe themselves (Lachenicht 2018: 6) into the historical period of the Age of Dis-

covery, of the new sciences (*New Atlantis* in particular) and new technologies, they produce something new: novel imaginary worlds that are, however, not to be. As a fictional projection of the world that exists, they serve this world as a *speculum*—they are about self-recognition. They also make clear how much the world that exists is constructed and constantly performed, and how much it can be subject to change. Playing with the real and the unreal, with the ideal and the dystopian, they invite the reader “to talk about the possibilities of other, and perhaps better, worlds; and in so doing to acknowledge, perhaps, the shortcomings of our own” (Bruce 1999: xxvii).

Categorizing the New World

The process of European expansion between the 1400s and the twentieth century brought about contact, uncertainties, knowledge transfer, and (trans-)formation on a scale previously not known from a European perspective (e.g. MacKenzie 1990; Jardine/Secord/Spary 1995; Rice 2000; Parrish 2006). Historians of science claim that the process of European expansion, colonialism, empire building, and the development of new sciences (and their institutions) are inextricably linked—especially with the ‘discovery’ of the New World, i.e. the Americas (Barrera-Osorio 2006; Delbourgo/Dew 2008; Bleichmar et al. 2009).

European knowledge about the New World as it came to be institutionalized in the European Republic of Letters—its academies, royal societies, correspondence networks, universities, and media, including major collections of objects, maps, natural histories, encyclopedias, travel narratives, and dictionaries—was the result of Europeans speculating on the ‘new’ and how the ‘new’ fitted into God’s creation. European cartographers, explorers, missionaries and scientists used the Bible as well as ancient Greek, Roman, Arabic, Muslim, Jewish, and other sources for the project of knowledge production about the New World. The exchange of knowledge about the New World was vast among Europeans (e.g. Bleichmar 2009; Jardine/Secord/Spary 1996; Boscani/Nicoli 2016). Counting and categorizing the world were based on practices of cultural mobility, transnational exchange, and knowledge formation and codification, which also involved—as more recent research in the history of science makes clear (Delbourgo/Dew 2008; Bleichmar 2009; Parrish 2006; Schiebinger 2004)—indigenous populations, African or Arabic slaves, pirates, maroons, and other groups so far/hitherto underrepresented in the master narratives of European expansion. Their presence left its traces in maps, encyclopedias, dictionaries, and travel narratives; Europeans used indigenous place names of mountains, rivers, and forests for plants, animals and people. Europeans also relied on indigenous knowledge with regard to the exploitation of nature’s resources—be it with regard to pharmaceutical products or medicine,

the growing and export of crops rich in carbohydrates, or the discovery and exploitation of precious metal mines.

Natural histories—that is, descriptions of the climate, landscape, flora, fauna, and people of the Americas—were popular in the early modern period. Between the sixteenth and eighteenth centuries, most natural histories use the *scala naturae*, the “Great Chain of Being,” in which they integrate ‘new’ and uncertain knowledge: starting with climates and landscapes, the narratives then move on to minerals, plants, primitive forms of animals, and end with ethnographic descriptions of human beings. While the *scala naturae* remains largely intact, categories for minerals, plants, animals, and human beings changed dramatically between the sixteenth and late eighteenth century. New systems of categorization, new taxonomies developed. Obviously, Europeans saw the New World through their lenses, with the help of their cultural categories, as Christian Europeans, as colonizers, as heirs of Greek and Roman Antiquity. Yet, the knowledge they acquired about botany, zoology, ecology, architecture, landscapes, and other subjects came by way of contacts and exchange with indigenous people. As scholars have shown, European and indigenous American (and African) epistemic structures and practices did not match (e.g. Kidwell 2004). Translation was in many ways impossible when concepts and epistemes differed fundamentally. When Europeans wrote their descriptions of the landscapes, flora, and fauna of the New World, two or more knowledge systems had intersected. European knowledge about the New World thus comes across as “Third Space” (Bhabha 1994) knowledge; the constructed worlds we find in these natural histories did not exist as either indigenous or European worlds but rather as speculative *new worlds* at the intersection of different knowledge systems (Mignolo 1992).

Some scholars hold that while the basic structure of the natural histories remains relatively stable, the motives behind the production of natural histories changed fundamentally: from describing God’s creation (e.g. Armstrong 2000), natural historians in the eighteenth century became more interested in using natural resources to improve the human condition, the economy, and the early modern state’s prowess (e.g. Koerner 1999).

Speculating about the world and how God had made it was, at least up to the nineteenth century, about reconciling the old and the new, faith and reason. *Traeditio et innovatio* was also about reconciling the past, present, and what we today would call the future. It was about God’s *one* world, in its immutable present, its progress, and its eternity. Scientists or the so-called learned people of the later seventeenth and eighteenth centuries made attempts to rationalize biblical stories. Isaac La Peyrère (1596–1676) tried to conjoin faith and reason. However, beliefs developed that everything could be explained through new sciences, even Genesis and other biblical narratives, fostering the demotion and destruction of the authority of the Church and Bible. These beliefs produced new uncertainties

with regard to the history and development of Man and led humans into unknown futures. Nonetheless, for much of the early modern period, the Bible and ancient texts remained authoritative even though the new sciences offered a competitive and challenging second powerful narrative to explain the world.

Conclusions

Today, in the age of Beck's "reflexive modernity," "discontinuities, irregularities, and volatilities seem to be proliferating rather than diminishing" and "global interdependence makes risk management increasingly complex" (Bernstein 1996: 329). 'Modernity' and 'reflexive modernity' seem to have traded the past 'certainties' about this world and the hereafter provided by the Bible and other ancient texts for the uncertainties of the future. Many political, economic, social, and cultural contexts make clear that we have further developed Enlightenment narratives about the possibilities of manufacturing or "engineering" the future (Milburn 2008), about molding less the future but some immutable present.

In comparison with the early modern period, Christian certainties that man will not fall any deeper than into God's hands are (mostly) absent from many contexts today, even if they survive in some domains, as much as ancient and pagan classical narratives persist, for example, in popular discourse about the uncertainties of new technologies, which often invokes Pandora's Box, humankind as Prometheus, or clichés about hubris. According to social psychologist Philip Macnaghten, these old narratives and myths have to be conceptualized

not as antithetical to reason or science, which would be the Enlightenment fallacy, nor as reflective of primeval and universal structures (the Romantic fallacy), but rather as durable, historically-derived, collectively imagined and functional. [...] Myths, as paradigmatic stories, are interrogated as significant cultural resources that have the potential to enable discussion on the deep and challenging issues presented by technology. (Macnaghten 2012)

In comparison with the varieties and simultaneities of early modern timescapes, and also compared with non-European timescapes (Gallois 2007), we seem to face a period of flattened time (Hunt 2007: 107–108)—which might be one of the reasons behind trends towards firmative (and not towards affirmative) speculation. "Time is not a singular, natural and uncontested entity, but is viewed outside the discipline [of history] as both plural and as being constructed in varied manners in different cultures" (Gallois 2007: 242) and in different periods of time. Could the "pluralization of time" (Gallois 2007: 242) or a growing awareness of pluralities of time concepts in all cultures and periods in human history open up new

horizons in speculation, in critically assessing our own times and in producing—through affirmative speculation—new possibilities and opportunities for the future beyond the immutable present? Many of the early modern utopias (whether they were meant to be utopias or not) have inspired modern social concepts, such as the equality of genders, social security and welfare, the omnipotence of science, or democratic cultures. To put it differently, cultures of speculation of the early modern period have shaped modern present times—for better or worse.

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