

Modeling and Change

The Productive Force of Practices of Comparing¹

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Introduction

The feeling of living in a time of accelerating change has intensified in recent months and years—for the German context, one can think of the reactions to the Russian attack on Ukraine and the different attempts to frame this event as the “turn of the times” (Chancellor Scholz), or a 180° turn (Foreign Minister Baerbock). In a completely different sphere and even more recently, we have started wondering how Chat-GPT and other forms of AI will change our world. And finally, climate change is an even larger problem, if not yet concretely felt by everyone. All these phenomena seem to concern society on a macro level, transcending individual perspectives and actions.

The humanities and social sciences, however, have long focused on the micro level, on concrete practices and phenomena, ‘flat ontologies’—not least in opposition to the traditional, mostly national ‘master narratives’ and theories of modernization. But in recent years, a new interest in factors and mechanisms of historical and social change has emerged. It is these questions with which the Collaborative Research Center 1288 “Practices of Change. Ordering and Changing the World” is concerned. We attribute to practices of comparing a productive force; that is: the power and capacity to influence the world. Thus, we understand practices of comparing as an important motor of social and historical change. The SFB 1288 investigates practices of comparing and their connections to other social and cultural practices at various levels, ranging from concrete actions in which somebody compares one thing to another, to the effects of comparing at the level of broader interpretations of the world. This volume focuses on the connection between practices of comparing and change at an intermediate (meso) level; here the term *intermediate* (meso)

1 This contribution draws from research conducted in the context of the Collaborative Research Centre “Practices of Comparing. Ordering and Changing the World” (SFB 1288). We are grateful to Angus Nicholls and Silke Schwandt for their critical reading and for the stimulating discussion.

means a level between individual acts of comparison on the one hand, and large-scale comparisons on the other—all three levels of comparisons necessarily intertwine and need to be analyzed in their respective complex interplay. This addresses, for instance, practices of comparing that are shared by communities of practice and which structure the way they operate. Examples of this would be the way that seminars work at universities, or the way the rules of procedure structure court sessions. In this intermediate context, models and modeling play a critical role: they accompany our everyday life and significantly contribute to making the transformations of the world meaningful, predictable, and manageable. For this reason, this volume places a special focus on the importance of models and modeling for processes of change: what is the role of models and modeling in relation to practices of comparing and processes of change?

In this introduction, after reflecting on phenomena of historical change, possible relations between practices of comparing and processes of change will be outlined. In addition, different understandings of models and modeling will be examined. Finally, theses on the relation between practices of comparing, models, and processes of change drawn from the contributions to this volume are briefly discussed.

Change and Practices of Comparing

Historical Change in History and other Humanities and Social-Science Disciplines

Since the Enlightenment, several great historical-philosophical designs have been posited, all of which have a goal and a direction, be it the optimization of man, the progression of the world spirit towards itself and the Prussian state (Hegel), communism (Marx), or global Western modernity in the sense of the various modernization theories such as Luhmann's Systems Theory. In the last decades of the 20th century, various schools of thought and approaches have turned against such linear and all-encompassing models of change. In particular, postcolonial studies criticized these grand teleologies for being tailored to Western modernity, thus making Europe or the Western era the model for the rest of the world. This critique is particularly forceful in Dipesh Chakrabarty's formulation that the rest of the world has been relegated to the "waiting room of history."² But this criticism of grand theories is itself indebted to the assumption that general laws of social and historical change exist.

2 Dipesh Chakrabarty, *Provincializing Europe. Postcolonial Thought and Historical Difference*, Princeton 2000.

In contrast to this, sociology has developed the approach of practice theory, which speaks of flat ontologies and tends to leave out macro-level theory.³ This also relates to the postmodern critique of Western master narratives, which in the past decades has equally been advocated by literary and cultural studies.

At the same time, grand narratives have also been criticized in historical scholarship. *Microhistoria* or *Alltagsgeschichte*—that is, the history of everyday life—have emerged as a reaction against the “great men” who, in the view of historicism and traditional political history, dominated the world. Similarly, there has been a turning away from the big structures that moved history as the social sciences and social history had explained it.⁴ Many scholars of historical studies and cultural studies have moved away from this grander macro level and placed the focus of investigation on concrete and local contexts. The focus is now on people and their individual actions, integrated into structures, but not as mere puppets of these structures. Big questions about social or historical change are rarely asked; theory building has been concentrated on the middle range.⁵ Hans Medick and David Sabeau put it very clearly in their book on emotions and material interests: “No longer is the macro-analysis of overarching structures and processes the focus; more important is the study of contexts of action and experience in which individuals, groups, classes, and strata lived, worked, and survived, resisted, and dominated.”⁶ Change is now examined sectorally, issue-by-issue, or simply on a smaller scale: the transformation of

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- 3 Theodore Schatzki, Practice Theory as Flat Ontology, in: Gert Spaargaren/Don Weenink/Machiel Lamers (eds.), *Practice Theory and Research*, London 2016, 28–42; Latour understands in a similar way the social as “flat” and the global as situationally embedded, Bruno Latour, *Reassembling the Social. An Introduction to Actor-Network-Theory*, Oxford et al. 2007, 16. Nicolini offered some ideas how flat ontologies and macro phenomena might be connected: Davide Nicolini, Is Small the only Beautiful? Making Sense of ‘Large Phenomena’ from a Practice-Based Perspective, in: Allison Hui/Theodore Schatzki/Elizabeth Shove (eds.), *The Nexus of Practices. Connections, Constellations, Practitioners*, London 2016, 98–113. About the micro-macro problem in sociology cf. also Bettina Heintz, Emergenz und Reduktion, in: *KZfSS Kölner Zeitschrift für Soziologie und Sozialpsychologie* 56 (1/2004), 1–31.
 - 4 For the German discourse, the publication of Hans Medick’s essay “The missionary in the rowboat”—*Der Missionar im Ruderboot* (1984) in the flagship of social history, the journal *Geschichte und Gesellschaft*, showed that everyday history and the ethnologically inspired approach had arrived in the dominant discourse of historical scholarship.
 - 5 This fits in with how important French theorists such as Bourdieu, Foucault, and de Certeau were applied in historical studies. Research questions referred to appropriations, structures of repetition, struggles for position, etc., and precisely the resistant and recalcitrant possibilities of action, cf. Marian Füssel/Tim Neu, Doing Discourse. Diskursiver Wandel Aus Praxeologischer Perspektive, in: Achim Landwehr (ed.), *Diskursiver Wandel*, Wiesbaden 2010, 213–235.
 - 6 Hans Medick/David Sabeau, Einleitung, in: Hans Medick/David Sabeau (eds.), *Emotionen und materielle Interessen. Sozialanthropologische und Historische Beiträge zur Familienforschung*, Göttingen 1984, 11–24, see 12. Interestingly, this sentence is missing in the English translation of the volume, but there it is emphasized immediately in the second sentence that many histo-

mother-child relationships, the common good, religious change, the emergence of modern female doctors, the structural transformation of courtly society, etc.⁷

However, it also became apparent that this restriction to the micro level yielded results that could be representative of further structures, but which hardly allowed statements about larger processes of change to be made. As Martin Dinges put it, "In other words, one cannot avoid the system level even in historical anthropology if one considers the question of cultural change important."⁸ The historian and political scientist William Sewell Jr. similarly noted that with the transition from social to cultural history, historical scholarship had lost its ability to examine larger transformations.⁹

Significantly, the focus was now less on historical and social change or fundamental social processes and more on cultural change. This reflects not least an altered understanding of change and power. What had changed above all was the understanding of who had power to act; neither was it only the great men, the orders from above that were met with obedience, nor the almost omnipotent structures. Instead, there was an understanding of reciprocity and change; change was the result of negotiation processes. From a micro perspective, processes of change center on individual processes of appropriation. By analyzing these processes, scholars first worked out how contemporaries produced cultural meaning in the first place and also how they negotiated changes in cultural meaning among themselves.¹⁰ This understanding of reciprocity as a motor of social processes was also applied to "harder"

rians "are no longer sure in what way the stories which they relate to are part of a larger story of political strength, the struggle for power, and the analysis of the forces of domination."

- 7 Cf. in the German historical studies: Martin Dinges, *Formenwandel der Gewalt in der Neuzeit. Zur Kritik der Zivilisationstheorie von Norbert Elias*, in: Peter Sieferle (ed.), *Gewalt im interkulturellen Vergleich*, Frankfurt am Main 1998, 171–194; Hans Medick, *Spinnstuben auf dem Dorf. Jugendliche Sexualkultur und Feierabendbrauch in der ländlichen Gesellschaft*, in: Gerhard Huck (ed.), *Sozialgeschichte Der Freizeit. Untersuchungen zum Wandel der Alltagskultur in Deutschland*, Wuppertal 1982, 19–49; Claudia Huerkamp, *Der Aufstieg der Ärzte im 19. Jahrhundert. Vom Gelehrten Stand zum professionellen Experten. Das Beispiel Preußens*, Göttingen 1985; Winfried Schulze, *Vom Gemeinnutz zum Eigennutz. Über den Normenwandel in der ständischen Gesellschaft der Frühen Neuzeit*, in: *Historische Zeitschrift* 243 (1/1986), 591–626.
- 8 Martin Dinges, "Historische Anthropologie" und "Gesellschaftsgeschichte." Mit dem Lebensstilkonzept zu einer "Alltagskulturgeschichte" der Frühen Neuzeit?, in: *Zeitschrift für Historische Forschung* 24 (2/1997), 179–214, 192; also important to the micro-macro question is Hans Medick, who interestingly called for more comparisons at the micro level: Hans Medick, *Mikro-Historie*, in: Winfried Schulze (ed.), *Sozialgeschichte, Alltagsgeschichte, Mikrogeschichte. Eine Diskussion*, Göttingen 1994, 40–53.
- 9 William H. Sewell Jr., *Logics of History. Social Theory and Social Transformation*, Chicago/London 2005, 18.
- 10 Cf. Martin Dinges, *Ehrenhändler als "Kommunikative Gattungen."* Kultureller Wandel und Volkskulturbegriff, in: *Archiv für Kulturgeschichte* 75 (1993), 359–393, see 386.

historical facts, such as the process of state building, a subject of immense importance in German historiography. Old notions of a process based on command and obedience were countered by concepts of “state building from below”¹¹ or the use of justice from below (*Justiznutzung*).¹² The subjects were thus given a not insignificant share in the process of state-building.¹³

This reorientation often led to a turn to “practice theory” in German historical scholarship as well as in the field of literary and cultural studies: practice theory not only referred to the micro level, as mentioned above, it also allowed for the actor to be reconceptualized as a decentered subject. Moreover, it also made it possible to think of structure and action as being in a mutually dependent dialectical relationship.¹⁴

After the important research done by cultural-historical and cultural-scientific approaches, and by micro- and everyday-historical studies, for some time now there have been increasing demands to turn again to the big questions and precisely also to the question of social and historical change. Barbara Stollberg-Rilinger called for a renewed concern with long-term historical change “without regard to biased culturalist regimes of sayability.”¹⁵ Lynn Hunt also pointed out the gaps created by

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- 11 André Holenstein et al., *Empowering Interactions. Political Cultures and the Emergence of the State in Europe 1300–1900*, Farnham 2009; Barbara Stollberg-Rilinger, State and Political History in a Culturalist Perspective, in: Antje Flüchter/Susan Richter (eds.), *Structures on the Move. Technologies of Governance in Transcultural Encounter*, Berlin/Heidelberg 2012, 43–58; for a transcultural context Antje Flüchter/Susan Richter (eds.), *Structures on the Move. Technologies of Governance in Transcultural Encounter* (Transcultural Research – Heidelberg Studies on Asia and Europe in a Global Context), Berlin/Heidelberg 2012.
 - 12 Martin Dinges, The uses of Justice as a form of social control in early modern Europe, in: Herman Roodenburg/Pieter Spierenburg (eds.), *Social Control in Europe. 1500–1800*, Columbus 2004, 78–98; Ulrike Gleixner, “Das Mensch” und “der Kerl.” *Die Konstruktion von Geschlecht in Unzuchtsverfahren der Frühen Neuzeit (1700–1760)*, Frankfurt am Main 1994.
 - 13 Dagmar Freist formulated (originally in German) that “political rule in the early modern period is to be understood less as an institutional structure or as an event, but rather as a continuous process in which the conditions of the exercise of authority are constantly renegotiated between ruler and subjects, between center and periphery, or between court and province.” Dagmar Freist, Einleitung: Staatsbildung, Lokale Herrschaftsprozesse und kultureller Wandel in der Frühen Neuzeit, in: Ronald A. Asch/Dagmar Freist (eds.), *Staatsbildung als kulturelle Praxis. Strukturwandel und Legitimation von Herrschaft in der Frühen Neuzeit*, Cologne/Weimar/Vienna 2005, 1–47, see 13.
 - 14 Marian Füssel, Die Rückkehr des ‘Subjekts’ in der Kulturgeschichte. Beobachtungen aus praxeologischer Perspektive, in: Stefan Deines/Stephan Jaeger/Ansgar Nünning (eds.), *Historisierte Subjekte – Subjektivierte Historie. zur Verfügbarkeit und Unverfügbarkeit von Geschichte*, Berlin/New York 2003, 141–159, see 151, 152.
 - 15 Barbara Stollberg-Rilinger, Die Frühe Neuzeit – Eine Epoche der Formalisierung?, in: Andreas Höfele/Jan-Dirk Müller/Wulf Oesterreicher (eds.), *Die Frühe Neuzeit. Revisionen einer Epoche*, Berlin/Boston/Göttingen 2013, 3–27, see 4. It is also interesting to note that established theorists are increasingly being questioned about their explanatory potential for processes of change, cf. about Foucault: Marian Füssel/Tim Neu, Doing Discourse. Diskursiver Wandel

the success story of cultural history, emphasizing precisely the absence of larger paradigms. Major processes (e.g. globalization) have been neglected, she said, as have questions of causality.¹⁶ In other words, change and processes of change have once again become the focus of historical scholarship; Achim Landwehr recently even called the question of historical change the crucial question of historical scholarship.¹⁷ Similarly, in recent times, in literary and cultural studies an increased interest in global dynamics has emerged, which currently is pursued above all in the context of Anthropocene studies.¹⁸

A clear sign of changing research interests in Germany are new research associations in the humanities and social sciences that deal with the question of change. An example was already provided by the SFB 644, Transformations of Antiquity (2005–2016), which focused on educational systems and the cultural self-construction of society, albeit with a restricted focus on European antiquity and its later reception.¹⁹ Angelika Eppele, first spokesperson of our research association, Collaborative Research Center 1288 “Practices of Change. Ordering and Changing the World”, extended the range of enquiry. The SFB 1288 is based on the thesis that practices of comparing not only order and stabilize the world, but can also dynamize the established orders and bring about historical and social change. While actors process their (new) experiences comparatively and integrate them into the familiar order, the addition of new criteria of comparison (*tertia*) can also irritate and change the familiar categories and units of comparison (*comparata*), along with their discourses and interpretations of the world.

aus praxeologischer Perspektive, in: Achim Landwehr (ed.), *Diskursiver Wandel*, Wiesbaden 2010, 213–235.

- 16 Lynn Hunt, Kulturgeschichte ohne Paradigmen?, in: *Historische Anthropologie* 16 (3/2008), 323–340.
- 17 Achim Landwehr, Rev. of: Wolfgang Knöbl, *Die Soziologie vor der Geschichte. Zur Kritik der Sozialtheorie*, Berlin/Nördlingen 2022, in: FAZ, 23.8.2022, [<https://www.faz.net/aktuell/feuilleton/buecher/wolfgang-knoebels-die-soziologie-vor-der-geschichte-18263806.html>], last accessed: 08.06.2023].
- 18 Cf. e.g., Pieter Vermeulen, *Literature and the Anthropocene*, London/New York 2020; Amitav Ghosh, *The Great Derangement. Climate Change and the Unthinkable*, Chicago/London 2016; Christophe Bonneuil/Jean-Baptiste Fressoz, *The Shock of the Anthropocene: The Earth, History and Us*, London/New York 2016.
- 19 Cf. Lutz Bergemann et al., Transformation. Ein Konzept zur Erforschung kulturellen Wandels, in: Lutz Bergemann et al. (eds.), *Transformation*, Munich 2011, 39–56. Other disciplines have been much less reticent about change, e.g., from empirical social research, SFB 580, led by Reinhold Sachmann: Demographic Change and the Public Sector Labor Market (2006–2008); from human geography: Political Change in Unbounded Spaces: National and Transnational Campaigns in Comparison, led by Edgar Grande and Hanspeter Kriesi (2002–2009).

Comparing and Change

Practices of comparing are a fundamental cultural practice. In the form of comparative methods, practices of comparing achieved a special scientific and, moreover, mediated social relevance in the 19th century.²⁰ Comparative methods were and are attributed a special objectivity. This has been criticized for a long time from different sides, especially by postcolonial approaches, but also from the perspectives of cultural studies and cultural history.²¹ The critique of comparative methods and practices of comparing is closely linked to the critique of linear models of history formulated above, for practices of comparing are the very practices that constructed and legitimized these linear models of change. Through practices of comparing, the West became the universal *comparatum* against which other world regions were measured.²² Practices of comparing ordered people into more or less static groups, even racializing classifications.²³

20 Cf. the contributions by Angus Nicholls, Walter Erhart and Kirsten Kramer in the present volume.

21 Rajagopalan Radhakrishnan, Why Compare?, in: Rita Felski/Susan Friedmann (eds.), *Comparison. Theories, Approaches, Uses*, Baltimore 2013, 15–33; Ming Xie, What does the Comparative do for Theory? in: *PMLA* 128 (3/2013), 675–682; Gayatri Chakravorty Spivak, *Death of a Discipline*, New York 2003; in view of historical science, cf. Matthias Middell, Kulturtransfer und historische Komparatistik – Thesen zu ihrem Verhältnis, in: *Comparativ* 10 (1/2000), 7–41; Michel Espagne, Jenseits der Komparatistik. Zur Methode der Erforschung von Kulturtransfer, in: Ulrich Mölk (ed.), *Europäische Kulturzeitschriften um 1900 als Medien transnationaler und transdisziplinärer Wahrnehmung*, Göttingen 2006; also cf.: Angelika Epple/Walter Erhart, Practices of Comparing. A new Research Agenda between typological and historical Approaches, in: Angelika Epple/Walter Erhart/Johannes Grave (eds.), *Practices of Comparing. Towards a new Understanding of a fundamental Human Practice*, Bielefeld 2020, 11–38.

22 Chakrabarty, *Provincializing Europe*.

23 Angelika Epple, Inventing White Beauty and Fighting Black Slavery. How Blumenbach, Humboldt, and Arango Y Parreño Contributed to Cuban Race Comparisons in the Long Nineteenth Century, in: Angelika Epple/Walter Erhart/Johannes Grave (eds.), *Practices of Comparing. Towards a New Understanding of a Fundamental Human Practice*, Bielefeld 2020, 295–328; Kirsten Kramer, Between Nature and Culture. Comparing, Natural History, and Anthropology in Modern French Travel Narratives around 1800 (François-René De Chateaubriand), in: Eleonora Rohland et al. (eds.), *Contact, Conquest and Colonization. How Practices of Comparing Shaped Empires and Colonialism around the World*, New York 2020, 199–224; Antje Flüchter, Den Körper vergleichen – Die Menschen ordnen? Die Bedeutung körperbezogener Vergleichspraktiken zwischen Ethnographie, Physiognomie und Rassentheorie, in: Cornelia Aust/Antje Flüchter/Claudia Jarzebowski (eds.), *Verglichene Körper – Normieren, Urteilen, Entrechtchen in der Vormoderne*, Stuttgart 2022, 229–259.; Christian Pinnen, Colonizing Complexions. How Laws of Bondage Shaped Race in America's Colonial Borderlands, in: Eleonora Rohland et al. (eds.), *Contact, Conquest and Colonization. How Practices of Comparing Shaped Empires and Colonialism around the World*, New York 2020, 245–267.

In the Collaborative Research Centre 1288 we have rendered this criticism productive by developing a methodological perspective from it: we do not compare, but analyze practices of comparing, how they are carried out in different social fields and at different times, and what effects they have, not least in relation to historical and social change.²⁴ The critique of comparative methods attacked especially their stabilizing and essentializing effects. However, these effects also show the productive potential of practices of comparing, which often prove to be “explorative” procedures that unfold unknown relations between the compared objects (*comparata*) and can fundamentally change the explanation of the world and the ordering of humanity.

We assume a complex structure of practices of comparing that determines the performance and outcome of comparing: two or more units of comparison (*comparata*) are related by a comparability assumption and examined for similarities and differences according to criteria of comparison (*tertia*). The *tertia*, however, do not arise naturally from the *comparata*, but are chosen by the actors of comparison in a specific context and from a specific semantic repertoire. The choice of the *tertia* contours the *comparata* and thus also pre-structures the results of comparing. Therefore, comparing is never neutral. Moreover, we are not interested in the individual act of comparison, but in the routinized act of comparing, in the practices of comparing,²⁵

24 We cover the period from antiquity to the present and include very different fields: e.g., ethnographic texts from different world regions (projects Erhart/Kramer, Eppe/Rohland, Petzke/Rapier, Flüchter), but also the comparison of the American and German car market (+Welskopp), the real-estate market (Kramper) and the university ranking (Werron), cf. [https://www.uni-bielefeld.de/sfb/sfb1288/].

25 Cf. on the approaches of the Bielefeld comparative research: Angelika Eppe/Walter Erhart/Johannes Grave (eds.), *Practices of Comparing. Towards a New Understanding of a Fundamental Human Practice*, Bielefeld 2020, especially the introduction by Angelika Eppe and Walter Erhart; Eleonora Rohland/Kirsten Kramer, Introduction. On “Doing Comparison”—Practices of Comparing, in: Eleonora Rohland et al. (eds.), *Contact, Conquest and Colonization. How Practices of Comparing Shaped Empires and Colonialism around the World*, New York 2020, 1–16; Ulrike Davy/Antje Flüchter, Concepts of Equality. Why, Who, What for?, in: Ulrike Davy/Antje Flüchter (eds.), *Imagining Unequals, Imagining Equals. Concepts of Equality in History and Law*, Bielefeld 2022, 11–30; Martin Carrier/Rebecca Mertens/Carsten Reinhardt, Introduction. Narratives and Comparisons. Adversaries or Allies in Understanding Science, in: Martin Carrier/Rebecca Mertens/Carsten Reinhardt (eds.), *Narratives and Comparisons. Adversaries or Allies in Understanding Science?*, Bielefeld 2021, 7–27; as well as our conceptual working papers: Angelika Eppe/Antje Flüchter/Thomas Müller, *Modi und Formationen. Ein Bericht von unterwegs. SFB1288 Workingpaper No. 6*, Bielefeld 2020 [https://pub.uni-bielefeld.de/download/2943010/2943628/WorkingPaper6_SFB1288.pdf]; Thomas Müller/Leopold Ringel/Tobias Werron, *In der Mitte liegt die Kraft: Eine Praxistheoretische Perspektive auf die „Mesoebene“*. SFB 1288 Workingpaper No. 8, Bielefeld 2020 [https://pub.uni-bielefeld.de/download/2945010/2945064/WorkingPaper8_SFB1288.pdf]; Ulrike Davy et al., *Grundbegriffe für eine Theorie des Vergleichens. Ein Zwischenbericht. Working Paper des SFB 1288 No. 3*, Bielefeld 2019 [https://pub.uni-bielefeld.de/download/2939

and, in the present contributions especially, in their connections with other cultural and social practices at the intermediate level.

At the intermediate level, two constellations of practices of comparing in particular are important to us: practice formations and communities of practice. The productive force of practices of comparing can be enhanced at the intermediate level by their linkages to larger formations of practice. These are temporarily stabilized, but also retain the dynamic character of practices.²⁶ The questions of how practice formations are formed, which practices couple with one another, and how they change are closely related to processes of transformation. It seems important—and this can be related to the considerations on historical change formulated above—that there is also an interrelation here: individual practices and practice formations enable and condition each other and are recursively interconnected. However, the question also arises as to what types of actors are important in making connections between practices and formations of practice. We conceptualize these networks of actors as communities of practice. They draw on a common repertoire of practices and practice formations as well as collective processes of knowledge production.²⁷

Practices of comparing can be related to change in many ways. Here, a first attempt will be made to systematize the different approaches. Three perspectives of investigation seem to be particularly important.

With the first investigative perspective, we focus on the change of comparisons themselves. Practices of comparing can change in various ways and also in relation to different levels (micro, meso or macro). In general, any practice is dynamic rather than static, i.e., practices of comparing are never repeated in a completely identical way, each new execution may imply a modification. The change of practices of comparing can be seen very clearly on the meso level in the stabilization and change

563/2939604/WorkingPaper3_SFB1288.pdf]. In older comparative research, comparison was understood primarily as a semantic, communicative operation, cf. Bettina Heintz, "Wir Leben im Zeitalter der Vergleichung". Perspektiven einer Soziologie des Vergleichs, in: *Zeitschrift für Soziologie* 45 (5/2016), 305–323; often going back to: Niklas Luhmann, Kultur als historischer Begriff, in: Niklas Luhmann (ed.), *Gesellschaftsstruktur und Semantik. Studien zur Wissenssoziologie der modernen Gesellschaft, Band 4*, Frankfurt am Main 1999, 31–54.

26 In doing so, we refer to Frank Hillebrandt's heuristic definition. He understands practice formation as (originally in German) "assemblies of different discursive, symbolic, material and habitual elements generated by practices, which in their specific association unfold a super-situative effect and afflict practices," Frank Hillebrandt, *Soziologische Praxistheorien. Eine Einführung*, Wiesbaden 2014, 103; cf. on this also the further remarks by Müller/Ringel/Werron, *In der Mitte liegt die Kraft*, 6–7.

27 We borrowed the concept of communities of practice from Etienne Wenger and Emanuel Adler, using it somewhat more freely especially in the projects on pre-modern contexts, cf. Etienne Wenger, *Communities of Practice. A Brief Introduction*, 2011 [<https://scholarsbank.uoreg.on.edu/xmlui/handle/1794/11736>]; on the appropriation of the concepts in our SFB cf. Müller/Ringel/Werron, *In der Mitte liegt die Kraft*, 17–19.

of comparative formations. We understand comparative formations as practice formations whose core consists of stabilized practices of comparing, especially a stabilized set of *tertia*. This set of plausible *tertia* forms the labels characterizing a *comparatum*. The concept of comparative formations can be fruitfully applied to different fields of research, for example, to analyze the ways in which people are ordered and how these ordering processes change. For the Caribbean contact zone, by the end of the early modern period, the triad *race, climate, gender* had become established for the ordering of people;²⁸ whereas in other contact situations, the comparative formation *food, clothing, health* has proven analytically more helpful.²⁹ The establishment of such sets is an important change in the respective conceptions of the order of mankind. But they can also be dynamized again and again, which means that individual *tertia* can lose their meaning and eventually be exchanged. Thus, in the European-Christian setting for the ordering of human beings, religious affiliation was replaced by race in the course of the early modern period. The choice of a different *tertium* first takes place at the micro level, in the actual performance of the practice of comparing. As the new *tertium* becomes dominant in the comparative formation, it may change the comparative formation itself or even cause a shift in comparative routines and eventually in broader interpretive horizons.³⁰

Building on the change in comparative practice formations there is another question that forms our second perspective on the connection between practices of comparing and change: is there a functional relationship between practices of comparing and change? Do the practices of comparing merely mirror the processes of change or do they instigate them, perhaps even initiate them? Is there, for example, racism first, or do racial theory or the use of racializing criteria come first?

Third, there are practices of comparing that explicitly describe, evaluate, and in some cases even produce narratives of change. All investigations of change or development, whether in the context of Enlightenment historiography or modernization theory, implicitly compare the before with the after; without temporal practices of comparing, narratives of change are not possible. This perspective of inquiry is an important approach to the perception of change and the evaluation of change by contemporaries. Here again, it is the aforementioned comparative formations, the

28 Cf. Eleonora Rohland, *Entangled Histories and the Environment? Socio-Environmental Transformations in the Caribbean 1500–1800*, Trier 2021, 58, 59.

29 Cornelia Aust/Malte Wittmaack/Antje Flüchter, *SFB-Workingpaper: Vergleichene Körper – geordnete Menschen. Nahrung, Kleidung, Krankheit – Leibpraktiken in vergleichender Perspektive*, Bielefeld 2024 [forthcoming].

30 The change and reconsolidation of a comparative formation or its set of *tertia* suggests changes in the macro level as the overarching level of interpretation or, in terms of praxis theory, the general understanding, cf. Daniel Welch/Alan Warde, How should we understand 'general understandings?', in: Allison Hui/Theodore Schatzki/Elizabeth Shove (eds.), *The Nexus of Practices*, London 2016, 195–208.

choice of the *tertia*, and the labels chosen for the *comparata*, from which evaluations and also larger interpretative frames can be extrapolated. At the same time, studying a chosen set of practices of comparing provides a heuristic basis for a broader understanding of the respective cultural logics and standards of evaluation underlying narratives of change, as these are themselves subject to continual historical transformations.

The complex connections between practices of comparing and processes of change provide important clues for a critical account of model formation and the modeling of change and development that will be highlighted in the following section.

Models and Modeling

In the recent past, models and processes of modeling have increasingly attracted research attention. Models play a central role in politics as well as in the sciences and arts and are inextricably linked to the experience of social, cultural, or political change in various fields, regardless of whether they aim at mapping, simulating, planning, controlling, or regulating real-world situations, events, or developments.

Especially with respect to the experience and perception of change, models can be understood in their most general form as media that enable the perceptive and cognitive comprehension of reality and thus form the constitutive basis of every human encounter with the world.³¹ They provide indispensable frames of reference for our understanding and knowledge of the world. In their basic function, models offer representations or expressions of empirical data, objects, or phenomena that belong to the real world; they take on different forms such as visual diagrams, graphs, or schematic representations like geographical maps, but they can also appear as images, narratives, or in further textual and linguistic forms.³² Following

31 On the definition of the basic function of models based on classical epistemology, cf. Herbert Stachowiak, *Allgemeine Modelltheorie*, Vienna/New York 1973, 56: "[...] all cognition is *cognition in models* or *through models*, and any human encounter with the world requires the medium 'model': [...]" (author's translation).

32 For an account of the functioning of diagrammatic or schematic representations (such as the geographical map) and textual forms (such as the sonnet), cf. Mary S. Morgan, *The World in the Model. How Economists Work and Think*, Cambridge 2012, 380–386; on the role of visualization models within the discipline of history, cf. Silke Schwandt, *Geschichte visualisieren. Digitale Praktiken in der Geschichtswissenschaft als Praktiken der Wissenschaftsreflexion*, in: Karoline D. Döring et al. (eds.), *Digital History: Konzepte, Methoden und Kritiken Digitaler Geschichtswissenschaft*, Berlin/Boston 2022, 191–212; cf. also Bruno Latour, *Visualization and Cognition. Thinking with Eyes and Hands*, in: *Knowledge and Society* 6 (1986), 1–40; on the definition of artistic and literary artifacts as "secondary model-forming systems," (*sekundäre modellbildenden*

current research approaches,³³ in these different forms of manifestation, models provide “small-world accounts” that are characterized by their “typicality” and “representative” status with respect to objects, situations, or events belonging to the real world.³⁴ Crucially, these accounts of the world do not merely offer mimetic or illustrative images of a given world or reality. Rather, they are built on rule-guided simplifications of real phenomena and form-based structural scale reductions. Each of these in their own way involve processes of selection, condensation and abstraction of the represented empirical data and objects; these processes reduce the diversity and complexity of the phenomenal world, thus ensuring its comprehensibility and meaningfulness.³⁵

Hence, models always appear to be situated in the interplay of representation, expression, and interpretation of the real world; they attain their special heuristic or epistemic value in that they not only present external orders of phenomena or objects belonging to empirical reality, but also create their own ordering patterns and arrangements. These ordering arrangements come to open up new ways of seeing the world that would not be obtained if the respective model formations were not in place. Models and modeling thus have an eminently “explorative” force, which is apparent not only in the sciences, but also in the fields of politics or the arts, where they act as mediators between theory and the real world.³⁶ The selection of modeling parameters always proves to be related to preceding theoretical approaches, categories or concepts, while at the same time offering new stimuli for reasoning and theorizing about the world. It is precisely due to the constant interaction with theories, conceptualizations, and categorizations related to the real world that models and modeling practices acquire a “performative” dimension. Through their use of simplification, abstraction, and compression of large amounts of data into “manageable” units, models generate new information or research questions and reveal aspects of the complex empirical reality that previously had not been visible.

In addition, models not only offer representations of an already existing reality, but can also provide central tools for the operationalization of data and direct interventions of actors in the real world. In recent research, therefore, a distinction

de Systeme) cf. the theoretical reflections in Jurij M. Lotman, *Die Struktur literarischer Texte*, Munich et al. 1989, 19–54.

33 Cf. Stachowiak’s general definition of elementary features of models, Stachowiak, *Allgemeine Modelltheorie*, 131–134; and, above all, the instructive theoretical reflections on the structure and impact of economic models presented in Morgan, *The World in the Model*, 378–412.

34 Morgan, *The World in the Model*, 380.

35 On comprehensibility as an effect of data selection and compression, cf. Morgan, *The World in the Model*, 392; see also Silke Schwandt’s chapter in the present volume.

36 On the role of models as mediators in the sciences, cf. Mary S. Morgan/Margaret Morrison (eds.), *Models as Mediators. Perspectives on Natural and Social Science*, Cambridge 1999.

has been drawn between models of things and models for things,³⁷ the former denoting formalized descriptions of a given reality, the latter referring to tools whose use serves concrete practical purposes. In their formal rules, these models define mandatory instructions for individual or collective social action,³⁸ which allow for direct manipulations or transformations of things in the real world, thereby marking the transition from theoretical-epistemic artifacts to social, cultural, scientific, or artistic modes of action and practices.

This practice-based perspective also informs the terminological and conceptual differentiation made between “models” and “modeling”: the term *model*, understood in the sense outlined above, refers to artifacts that constitute “working objects,”³⁹ ordering systems, and objects of research that work as tools for interpreting specific segments of the real world and for structuring and ordering this world. “Modeling,” on the other hand, refers to historically varying practices that underlie each act of theorizing, model formation, and data processing.⁴⁰ The focus here is rather on the fundamental decisions, assumptions, implications as well as “general understandings,”⁴¹ which through their dynamic interplay bring about the creation of concrete models and determine in which way these come to shape our knowledge about the real world and our actions in this world.

At the same time, it is precisely in a praxeological perspective that significant connections between models, modeling, and comparative practices come into view. On the one hand, models themselves can be described as more or less complex comparative arrangements based on prior ways of relating phenomena or objects in the real world. The creation of an abstract ordering model usually presupposes the formulation of analogies and differences between the specific objects or segments of a real world that are abstracted from in the process of model formation. Each abstraction is accompanied by the selection, highlighting, and suppression of certain *tertia* that define the “grounds of comparison” under which objects are grouped together or distinguished, as was illustrated by the different ways of classifying the

37 On this distinction and its conceptual implications, cf. Evelyn Fox Keller, *Models of and Models for. Theory and Practice in Contemporary Biology*, in: *Philosophy of Science* 67 (2000), 72–86; cf. in a similar vein Willard McCarty’s dualistic definition of models as “either a *representation of something for purposes of study*, or a *design for realizing something new*”; Willard McCarty, *Humanities Computing*, Houndmills 2014, 24; cf. also Silke Schwandt (ed.), *Digital Methods in the Humanities. Challenges, Ideas, Perspectives*, Bielefeld 2021, 11.

38 On the function of models to provide recipes for acting directly in the world, see the contributions by Maximilian Benz and Antje Flüchter in the present volume.

39 Lorraine Daston/Peter Galison, *The Image of Objectivity*, in: *Representations* 40 (1992), 81–128.

40 Cf. Morgan, *The World in the Model*, 393–399; cf. also Silke Schwandt’s chapter in the present volume.

41 Welch/Warden, *How should we understand ‘general understandings’?*, 183–196.

covid virus according to changing *tertia* (such as the R number, growth rate or capacities of intensive care units). Here, it is especially the productive heuristic dimension that connects modeling and comparative practices. Both types of practices are able to accomplish specific ordering and orienting tasks in that they do not rely on known properties of the phenomena and objects being compared or modeled, but prove to be “exploratory” operations in the sense outlined above, capable of uncovering unknown relations between elements related to each other. Comparative and modeling practices, then, replace prior epistemological views with other types of experience and knowledge, which open various spaces for new interpretations and modes of social action. On the other hand, models themselves also form objects (*comparata*) of comparisons. As a rule, every practice of modeling is related to groups of specific actors or communities of practice with shared repertoires of knowledge and action. The selection or creation of a model thus always depends on the respective (political, scientific, religious, artistic) interests of the actors. The choice of specific parameters and functions (representation, simulation, prediction, etc.), presupposes comparison with other models regarding their respective expressivity with respect to the modeled world. Consequently, comparative practices at different levels assume a key role with regard to the formation of historical models and modeling procedures.

With regard to the central question addressed in this volume it should also be underlined that there is a complex relationship between models or modeling practices and processes of historical change. On the one hand, models can represent and explain historical change by postulating specific relations between past, present, and future in relation to actors and events or developments, as well as particular causalities that make the transformations of the world meaningful.⁴² In this case, modeling such as that underlying the stage models of nineteenth-century evolutionary theory or narratives of world political change in the twentieth and twenty-first centuries⁴³ provides a central frame of reference for experiencing and interpreting historical change in the real world. On the other hand, changes in the world can be traced in the changing role of models and modeling practices: in some fields—such as modern economics—empirical reality is no longer perceived merely through the lens of models, but, in the present, has itself been transformed into sets of modeling processes. Here, historical change occurs in the functional shifts of forms of theorizing

42 On the necessity of developing ordering concepts for the thinking of history, cf. Jürgen Osterhammel, *Weltgeschichte. Ein Propädeutikum*, in: *Geschichte in Wissenschaft und Unterricht* 56 (9/2005), 452–479, see 453.

43 On stadial models underlying evolutionary theory, see the contributions by Angus Nicholls and Kirsten Kramer in the present volume; on model-based narratives in world politics and the forms of political change addressed in these narratives, cf. Mathias Albert's and Thomas Müller's chapter in the present volume.

that increasingly replace the experience of the real world, thus becoming themselves part of a complex “world-making.”⁴⁴

More importantly, models themselves often appear to be the central motor of change: they permanently alter our worldview and, by providing instructions for action, act as tools for concrete interventions made by actors and communities of practice in the real world. Models assume a specific function of planning, prediction and regulation, especially in the context of the modern understanding of history, which is based on the idea of an open future and, according to Reinhart Koselleck, relates a specific “horizon of expectation” (*Erwartungshorizont*) to a given “space of experience” (*Erfahrungsraum*),⁴⁵ an understanding of history that, of course, increasingly loses its legitimacy in the light of climate change and the progressive “uncertainty” of the world we live in today.⁴⁶ Furthermore, models and modeling are themselves subject to change and can bring about fundamental transformations in given practice formations or communities of practice, which contribute to changes in both shared epistemologies and modes of action, thereby indicating or implementing long-term processes of change.

In their communal forms of pragmatic use, models and modeling can thus be regarded as decisive factors for discursive, social, or political transformations that constitute historical change as a whole, both on the meso level and on the macro level; especially when linked to historically variable comparative practices, the study of models and modeling thus opens up a privileged access to answering the question of how change is imagined, represented, and realized in different historical periods.

The Contributions to this Volume

There are many ways in which models and operations of modeling, practices of comparing, and processes of change can interrelate and influence each other. The contributions gathered in this volume unfold and analyze different aspects of these interrelations and interdependencies, as will be outlined in the final part of the introduction.

The present volume begins with two conceptual contributions that address the question of what models are and how they can be used within the framework of research on comparisons. Silke Schwandt aims to explore the viability of modeling as

44 Morgan, *The World in the Model*, 406.

45 Cf. Reinhart Koselleck, *Vergangene Zukunft. Zur Semantik geschichtlicher Zeit*, Frankfurt am Main 1989, 349–374.

46 On this revision of the understanding of historical time, caused by the contemporary experience of the Anthropocene, cf. Dipesh Chakrabarty, Anthropocene Time, in: *History and Theory* 57 (1/2018), 5–32.

a research practice in history, focusing on the particular implications underlying this theoretical framework. The chapter is followed by the contribution of PhD students Jacob Bohé, Charlotte Feidicker, Angela Guttierrez, Frederic Kunkel, Laura-Maria Niewöhner, and Malte Wittmaack, who examine the ways in which models and modeling practices can be applied to their particular fields of research.

The contributions by Walter Erhart, Angus Nicholls, and Kirsten Kramer focus on the relationship between modeling and comparison in the context of ethnography, comparative theories of stadial change, and (travel) literature.

The following three chapters address how change can be explained through models and how models mediate between theoretical concepts and individual practices. They are situated in the context of international politics (Mathias Albert/Thomas Müller), of world description in history and advice literature (Antje Flüchter), and of pre-modern piety (Maximilian Benz).

The volume concludes with two outlooks: Daniel Eschkötter analyzes practices of producing satellite images in their relation to the perception of change; Angelika Epple, in turn, highlights the connection between models, comparative practices, and change in the context of theoretical reflections on global history.

Models and Modeling as Research Objects

Models figure as privileged objects of investigation in a wide variety of fields. Particular attention is paid to models that appear **as representations of the world (models of)**. Mathias Albert and Thomas Müller analyze narratives from the field of international politics in the 20th and 21st centuries to examine how storytelling practices interact with forms of theorizing and models of world politics in describing and explaining what can be considered political change. By contrast, Antje Flüchter inquires, in the context of an analysis of pre-modern models of the state and history, in what ways these models reveal a specifically early-modern understanding of historical change. A different perspective is developed in Walter Erhart's essay. He explores the complex interrelation established in the 18th and 19th centuries between models of geography, natural history, or ethnography on the one hand, and descriptions of foreign peoples and cultures, as presented in European travel literature of the period, on the other. Closely related to this question are the observations presented by Angus Nicholls, who links the beginnings of the discipline of Comparative Literature in the 19th century to the stadial models of evolution developed in the sciences during the same period, and by Kirsten Kramer, who sheds light on the critical confrontation with evolutionary models implied in the programmatic definition of exoticism proposed by the French travel writer Victor Segalen at the beginning of the 20th century. Another shift in focus can be observed in Silke Schwandt's chapter, which interprets a painting by Lucas Cranach as a model representation based on key assumptions underlying the Reformation's doctrine of redemption. Images and

visual practices are also addressed in Daniel Eschkötter's chapter, which examines the particularities of the technical media dispositive of "before-and-after satellite images," understood as condensed micro-narratives or models that exhibit a temporal order of images which can be related to political orders of the global world. Malte Wittmaack's contribution focuses on early-modern comparisons of Christians and Muslims; it is based on an understanding of models as ideal types that bring into view central characteristics of the respective peoples, cultures, and religions. From a similar perspective, Angela Gutierrez analyzes the modern genre of *casta* paintings in Cuba as a model that can be interpreted as a concise visual representation of colonial racial classification and hierarchization, thus revealing fundamental features of the societal order.

Furthermore, in various historical, political, and cultural contexts, **models** are conceived **as tools (models for)** that operationalize information and data in view of concrete interventions in the real world. Daniel Eschkötter explores the operational capacities of satellite images in the context of broader investigative or governmental networks of surveillance and tracking, focusing on the visualization of social or political conflicts, crises and crimes in the present. Frederic Kunkel and Jacob Bohé present an analysis of contemporary real-estate markets and property valuation in the United Kingdom, which highlights the central operational role of modern economic models. Mathias Albert's and Thomas Müller's essay deals with the use of operational models in world politics; the authors point out that model-based narratives of periodization and historical regularities can function as a guide for foreign policy or the creation of a stable international order. Maximilian Benz, in contrast, focuses in particular on the practical function of models in late-medieval piety, interpreting the comparative model of *synkrisis* as an instrument for the formation of moral self-practices performed by the individual. In a similar sense, models in early-modern advice literature as examined by Antje Flüchter are understood as ethical instructions for action aimed at individual behavioral change and improvement.

However, in many instances, investigations do not focus on models alone, but also explore the **modeling practices** on which they are based. Laura Niewöhner's observations on the denazification system in postwar Germany highlight the role of American administrators as modelers who create new semantic patterns and categorizations. In Kirsten Kramer's chapter, the theory of exoticism appears as an expression of a modeling practice based on the critical revision of prior literary and scientific models of diversity. Daniel Eschkötter, in contrast, sheds light on modeling practices in the context of remote sensing that inform the production of visualization models underlying satellite images.

Modeling as Research Practice and Strategy

Modeling not only comes into focus as an object of investigation, but also plays an important role as a key element **in research practices and strategies**. As Silke Schwandt's contribution demonstrates in a theoretical perspective, modeling processes in digital history are used both to document the researchers' own theoretical assumptions and to process data. Concrete examples of modeling practices in the field of digital history are provided by Laura Niewöhner and Charlotte Feidicker, whose contributions deal with the transformation of research questions into computational models or languages and annotation practices applied to denazification documents and medieval manuscripts from the field of English legal history. As Angelika Eppl's essay reveals, modeling proves to be an important research strategy in the area of theory building in non-digital history as well: she not only discusses existing interpretive models of history and the historical process, but also develops her own contingency-based theoretical model of global historical change.

The contributions to this volume thus illustrate that models and modeling are currently gaining increasing relevance not only in the natural sciences, economics, and the digital humanities, but also in the broader field of the "classical" humanities, as they contribute both to the opening of historical fields of knowledge and to the expanding of the methods used by the different disciplines involved.

Models and Practices of Comparing

We are most interested in two ways in which practices of comparing relate to models. **Models are often based on practices of comparing**. The categories or parameters of models are formed via practices of comparing. The evolutionary and comparative models that Kirsten Kramer, Angus Nicholls, and Walter Erhart examine are based on practices of comparing that focus on cultures and their assumed level of civilization. The same applies to the models through which people or their bodies are ordered in Malte Wittmaack's and Angela Gutierrez's examples. Mathias Albert and Thomas Müller examine three narratives used in international politics to describe and explain changes in world politics. These narratives are based in different ways on temporal comparisons that relate previous states to later ones. Maximilian Benz examines the effect and reception of Thomas à Kempis's "De imitatio Christi." Using this text in pious practice, the believers compare themselves with Jesus, the saints, or ideal selves. The underlying models emerge through practices of comparing; but most importantly, ethical subjectivity emerges as a practice of self-comparison.

However, models are not only formed through practices of comparing. The **comparing of models** proves likewise to be central to our research context. Angelika Eppl compares different models of the course of history (Marxism, historicism, modernization theory) before developing her own model of global history and historical

change. In Kirsten Kramer's article on Victor Segalen, the critical revision of evolutionary theories proves to be built on a comparison of different representational models of diversity. Similarly, Angus Nicholls compares the epistemologies underlying evolutionary models and cosmopolitanism in his essay on the foundation of early comparative literature (e.g. Wilhelm Scherer). Silke Schwandt shows the great argumentative power of visual comparison of models in her article: she describes how, in a famous painting, Lucas Cranach compares the new Lutheran model of redemption with the law-oriented model of damnation ascribed to the old, later Catholic Church in a polemic way. Daniel Eschkötter also compares different models of images present in satellite imaging as well as the media adaption of such images. Malte Wittmaack and Angela Gutierrez examine how the ordering of mankind was shaped and changed by comparing different body models in the *longue durée*. According to Wittmaack, the humoral concepts shaped how European travelers in the 16th century perceived the Ottoman population; whereas, according to Gutierrez's analysis of the famous *casta* paintings, the diverse population of Cuba in the 18th century was divided into clearly distinct groups through visualization, a division that was further simplified by the racializing models of the 19th century.

Practices of comparing thus prove to be fundamental to the formation of models; the importance of models as arguments or for establishing plausibility depends in many cases on how they perform in comparison with other models.

Practices of Comparing and Change

The research on these questions conducted in Bielefeld thus far assumes that practices of comparing have a productive force. Practices of comparing and processes of transformation or change can enter into various relations with each other, as has been argued above. In the essays of this volume, several perspectives on possible connections are unfolded in more detail.

Our first perspective focuses on the **changing practices of comparing** themselves. Many of the essays elaborate on such changes in comparing itself: Walter Erhart shows how comparative practices both in world-travel literature and in scientific disciplines underwent significant changes in the 19th century. In Maximilian Benz's article, practices of comparing with God or saints are transformed into acts of self-comparing. The change in the *longue durée* as presented by Malte Wittmaack and Angela Gutiérrez is due to a change in the contouring of the units of comparison (bodies, castes, races) by other criteria (food, skin color, genes).

If a **functional connection between practices of comparing and change** is assumed, the question remains whether changed practices of comparing reflect altered conditions, or whether modifications in the structure of comparisons have promoted or even triggered change. Angus Nicholls highlights the close relationship between particular practices of comparing and change in academic fields such

as anthropology, ethnography, and the beginnings of comparative literature. The texts analyzed by Maximilian Benz and Antje Flüchter invite the readers to compare themselves to the described ideal (either of a healthy body or the Christian doctrine of justification) and demand that one should change and converge with the ideal. Moreover, the concrete improvement of the believer leads, as Maximilian Benz elaborates, to practices of self-comparing and consequently also to a new form of the self. Kirsten Kramer outlines the functional connection between the change in practices of comparing and the emergence of a new understanding of human diversity in French ethnography. Laura Niewöhner describes modeling in the context of the U.S. denazification process in Germany after 1945: the comparison—based on subdivisions ranging from heavily implicated persons, via bystanders (*Mitläufer*), to uninvolved persons—had a structuring effect on West German society. The productive force of comparison is also evident in the orderings of people as depicted by Malte Wittmaack and Angela Gutiérrez. This is particularly the case with the *casta* images, as they classified the very diverse population of Cuba into a few fixed castes depending on the “mix” of ethnic heritages and skin color. Angelika Eppler argues that practices of comparing are a driving force for globalization.

Finally, **comparisons can be used to evaluate change**: teleological views of history, be they present in Marxism or modernization theory, use temporalizing practices of comparing to place states or cultures and societies in more or less developed positions on a hierarchized timeline. Angelika Eppler makes this clear in her sketch of different views of history, but it also applies to the evolutionary models described by Walter Erhart, Angus Nicholls, and Kirsten Kramer in various contexts. This is also very visible in the advisory texts and contemplative literature studied by Antje Flüchter and Maximilian Benz. In their comparisons with ideals, these texts favor the change toward being a better person or living a longer life. Similarly, Mathias Albert and Thomas Müller elaborate that many of the narratives used to explain change in world politics likewise function in such a way. In his case study, Daniel Eschkötter examines how a particular form of representing—the change between “before” and “after”—is accomplished by using different image techniques and models, as well as by linking the procedure to specific goals (like exposing crime). The field of enquiry related to the interplay of models and modeling, practices of comparing, and larger- or smaller-scale historical transformations, is complex. All three elements can condition, support, or even challenge each other. The articles collected in this volume prove the productive force of practices of comparing in their relation to models and modeling.

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