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Conclusions: Insights from the Humanities that Changed the World

In this book I have uncovered a line in the history of the humanities—the quest for methodological principles and empirical patterns that has lasted from Antiquity to today. By summing up in this chapter only those insights from the humanities that ‘changed the world’, I do not do justice to the rich and broad history of the humanities. Nevertheless, it is precisely these world-changing insights that were ignored for too long and often unjustly credited to the natural sciences. In this conclusion I will therefore begin by shining the spotlight on the impact of the humanities. After that I will discuss the relationship between the humanities and the sciences and outline a few future prospects.

If there is one picture that emerges from this conclusion, it is that the quest for principles and patterns in language, music, art, theatre, and literature exists all over the world. The history of the humanities indicates that precise methods are not limited to the natural sciences,¹ and that ‘world-changing discoveries’ are made in all disciplines.

The invention of source criticism was at the birth of the Reformation and brought about the Enlightenment. The invention of source criticism led to one of the greatest changes in the Western world view, and is still hugely influential to this day, particularly in historical truth-finding. In fact, we are talking here about two discoveries that were amalgamated during the nineteenth century into one overarching method—*source criticism* and *source reconstruction*. *Source criticism* was created in a rudimentary form in Greece (see 2.2), and via the formal *isnad* method (3.2) it resulted in a precise scholarly method among early modern humanistic scholars (4.1). In the hands of Valla, Scaliger, and others, it became a powerful weapon with which centuries-old sources could be exposed on the basis of purely grammatical, historical, and logical analyses. Now one individual could make mincemeat out of a source that had been deemed unimpeachable. The most famous example is Valla’s refutation of the *Donatio Constantini*, dating from 1440, and the subsequent *de jure* lapsing of the legitimacy of the papal state (see 4.1). **Initially Valla’s result had little or no effect, but during the Reformation it was used by Martin Luther and others as potent evidence against the secular power of the Catholic Church.** Through Poliziano, Valla sowed the seed of formal

¹ A similar thesis was defended by Frits Staal, but only for logic and linguistics—see Frits Staal, *Universals: Studies in Indian Logic and Linguistics*, University of Chicago Press, 1988.

text reconstruction, which could be used to reconstruct the original source version from surviving copies by means of a genealogical derivation (4.1). In the late sixteenth century Joseph Scaliger established on the basis of the reconstruction of Egyptian lists of kings (by Manetho) that world history had to be older than biblical history (4.2). Although Scaliger tried to save the Bible by introducing a notion of 'mythological' time, during the course of the seventeenth and eighteenth centuries his result led to fierce criticism of the Bible that ushered in the Enlightenment. Ranke and Lachmann perfected source criticism and source reconstruction in the nineteenth century, which even today forms the basis of much historical research (5.2). In addition, international institutions as well as national governments often use source criticism and philological reconstructions to help establish the reliability of documents. It is not just in the legal system that source criticism is part of the toolkit of auxiliary sciences. It is also part of everyday practice in, among other things, the historical truth-finding with regard to genocide.

The humanistic discovery of the interaction between theory and empiricism formed the basis for the Scientific Revolution. In fifteenth-century philology, art theory, and musicology there was intriguing interaction between theory and empiricism, where empiricism had the last word, no matter how solid the theory might have seemed. As we saw above, *this interplay began in philology with Valla and Poliziano, and via Scaliger and Casaubon it resulted in an early modern discipline with its own methodology (4.1).* An example of the impact of this discipline is the fact that *many sixteenth- and seventeenth-century 'natural scientists' were also philologists, from Galileo and Kepler to Newton. Philology was the first early modern discipline to show how hypotheses and even theories could be brought down on the basis of new observations (for instance, newly discovered texts).* We find this interaction in art theory too. Although Alberti created a splendid mathematical structure for linear perspective, it emerged that *empirical* perspective did not comply with it. Leonardo left no stone unturned in order to unravel the underlying theory of this empirical perspective, but apart from a few rules of thumb he did not produce theoretical underpinning (4.5). Leonardo's experiments, in which he investigated the effect of the light source, colour, and position of an object very systematically, were a source of inspiration for the New Scientists. Meticulous string experiments and their mathematical underpinning by humanistic musicologists were similarly important. Through their studies of the laws of consonance, they conveyed the interaction between hypothesis development and experiment virtually directly to the new generation of scholars, which was literally the case between father and son Galilei (4.4). The quest for the underlying patterns in philology, art theory, and music theory revealed a continuity with the later search for the underlying laws of falling bodies, planetary movements, and their mathematical foundations, where some of the results from the first hunt formed the starting point for the second (see 4.4 and the conclusion to chapter 4).

The invention of grammar favoured imperialism and laid the basis for computer science. The scope of grammars has been multifaceted. First and foremost the pedagogic grammars of Dionysius Thrax, Donatus, and Sibawayh enabled the spread of, respectively, Greek in the Hellenistic world, Latin in the post-Roman

world, and Arabic in Islamic civilization. Without these practical grammars no language would have developed into a lingua franca and a Hellenistic, Roman, or Arab empire would not have been created, or in any event not in the same way. In addition to the imperialist function of grammars, their underlying *formalism* changed the world as well, albeit in a completely different way. Panini's formal system of rules was used nearly 2,500 years later as the underlying formalism for higher programming languages (see 2.1). The person who actually established this connection between linguistics and computer science was Noam Chomsky, who referred to Panini as his spiritual father (see 5.3). It was Chomsky's precise notation for defining grammars that was applied to programming languages by computer scientists like John Backus.² Chomsky's syntactic definition of a language served as the pattern for the structure of the whole compiler for ALGOL—the first higher programming language. Thus, the development of modern programming languages was initiated through formal linguistic work that laid the foundations of information technology with its many impressive applications. This unexpected application of the study of language is rarely if ever mentioned in the historiography of linguistics, while it is widely acknowledged in (the history of) computer science.³ The disregard of applications of humanistic insights seems to be symptomatic for the humanities.⁴ This has also happened with the unexpected application of philological reconstruction methods to the fields of genetics and DNA analysis.⁵

Other insights: Indo-European revealed the relationship between peoples, ancient texts fuelled nationalism, accessibility of the digital world shown to be a myth. The examples above are the tip of the iceberg. We can remind ourselves how the nineteenth-century discovery of the Indo-European language family (5.3) defined our view of the relationships between peoples, for better and worse. Among other things, this discovery led to the hypothesis of the existence of a 'pure' Aryan race, a theory which would be hijacked by the National Socialists.⁶ This shows that the impact of the humanities, like that of the sciences, is not necessarily positive. The claim that the humanities are important for democracy and developing critical citizens,⁷ thus deserves a more nuanced discussion. For nineteenth-century scholars like Max Müller and Christian Lassen it was crystal clear that the linguistic evidence

² Erol Gelenbe and Jean-Pierre Kahane (eds), *Fundamental Concepts in Computer Science*, Imperial College Press, 2009, p. 99.

³ See e.g. Edwin Reilly, *Milestones in Computer Science and Information Technology*, Greenwood Publishing Group, 2003, pp. 43ff. See also Martin Davis, Ron Sigal, and Elaine Weyuker, *Computability, Complexity, and Languages: Fundamentals of Theoretical Computer Science*, Academic Press, Harcourt, Brace, 1994, p. 327.

⁴ In a recent collection of 24 essays on the relevance of the humanities commissioned by UK's Arts and Humanities Research Council, there is no contribution that takes on the case for the practical applications of the humanities—see Jonathan Bate (ed.), *The Public Value of the Humanities*, Bloomsbury Academic, 2010.

⁵ For details, see Rens Bod, 'Discoveries in the humanities that changed the world', *Annuario 53, 2011–2012*, Unione Internazionale degli Istituti di Archeologia, Storia e Storia dell'Arte in Roma, 2011, pp. 189–200.

⁶ Stefan Arvidsson, *Aryan Idols: Indo-European Mythology as Ideology and Science*, University of Chicago Press, 2006, pp. 241ff.

⁷ Nussbaum, *Not for Profit: Why Democracy Needs the Humanities*.

for an ur-language meant that there also had to be a pure Aryan race and that some other races were endlessly mixed and impure.⁸ Many of the most critical philologists and linguists accepted this view. A similar negative impact followed the unearthing and reconstruction of old literary texts, paintings, and archaeological artefacts in the nineteenth and early twentieth century: these had a vast influence on national self-image and identity construction, which contributed more than a little to the growth of nationalism and racism during the twentieth century (as happened in particular with the rediscovery of the *Nibelungenlied* which was used as the cornerstone of later German war propaganda—see 5.2).

To add some recent examples of the impact of the humanities, we should not forget the post-war ‘discoveries’ in film studies, television studies, and media studies, such as the debunking of the myth about the accessibility of the digital world (see 5.7).⁹ Those discoveries also include an analysis of the medium of television indicating that viewers are captured through ‘flows’—i.e. non-stop streams of information, advertising, entertainment, and trailers—whose purpose is to keep the viewer tuned to a particular channel (see 5.7). And what to think about the disturbing discovery that the TV series *Crime Scene Investigation*, which has dragged on for years, consists of only eight narrative building blocks (5.6)? Time will tell whether these insights and discoveries are going to change the world, but they are in any event sensational in all respects.

No radical dichotomy between humanities and science. Nowhere in our history of the humanities did we come across an acute divide between the humanities and science. Both humanists and scientists search for underlying patterns, which they try to express in logical, procedural or mathematical formalizations. There is, moreover, a continuity between humanistic and scientific disciplines as regards the ‘nature’ of the patterns. Whereas patterns in the humanities appear to be less absolute and subject to changes, in the sciences they seem to be absolute—in any event in physics. However, in the humanities themselves there is also a gradual shift from virtually absolute sound shift laws to less absolute harmonic rules to changeable culture-specific patterns (see 5.5 and 5.6). Yet there is also a gradual shift like this to be found in natural science—from the absolute laws of theoretical physics to the more approximate laws in chemistry to the local and variable patterns in biology. The eminent biologist Ernst Mayr contended that universal patterns do not exist in biology.¹⁰ Mayr admitted that the laws of physics and chemistry, of course, apply to biological systems at a molecular level. In a complex system, though, no biological regularity has ever been observed that complies with the rigorous definition of a ‘law’ in theoretical physics. According to Mayr, what biologists mean by a ‘law’ is a pattern that is usually local and not universally valid and is moreover often statistical. These regularities are widely used in

⁸ Georges Vacher de Lapouge, ‘Old and new aspects of the Aryan question’, *American Journal of Sociology*, 5(3), 1899, pp. 329–46.

⁹ Jan Baetens, Joost de Bloois, Anneleen Masschelein, and Ginette Verstraete, *Culturele studies: theorie in de praktijk*, Vantilt, 2009, pp. 131ff.

¹⁰ Ernst Mayr, *This is Biology: The Science of the Living World*, Harvard University Press, 1997, p. 62.

explanations of biological phenomena, without their being reduced to deeper physical or chemical laws.

The philosopher of science Philip Kitcher agreed with this when he stated that there are *autonomous levels* of biological explanation.¹¹ In biology the set of concepts and explanations used at cell level is different from that used at an ecological level, for instance. This does not exclude the reduction—sooner or later—of complex biological processes to physical ones. However, it does not make sense to reduce a biological phenomenon to elementary particle physics in order to understand it. *In line with Kitcher we argue that there are also autonomous levels of analysis and understanding in the humanities.* Obviously the laws of physics also apply to the human brain, and therefore also indirectly to the products of that brain. Yet it is not the case that we need to consult biology or physics for the analysis of a human expression like a literary work or a piece of music. The cognitive and neurosciences have produced important insights into the study of language and music,¹² among other things, but it becomes impossible and even senseless if we try to understand Greek vase painting or Renaissance architecture in terms of the sum total of all brain activities relevant at the time. It proves to be the case that *autonomous* analysis levels—from the art-historical analysis of paintings to the narratological analysis of texts—deliver the most insightful patterns and interpretations.

The concept of ‘exception’: a difference between humanities and science after all? There might, however, be a difference between the humanities and natural science in the notion and treatment of exceptions. The statement that ‘the exception proves the rule’ seems unthinkable in natural science—although we should stress here that in the humanities this pronouncement is only used in the prescriptive tradition of secondary school grammars (see 2.1). All the same, there are most certainly exceptions in the humanities. However, they are not solely to be found in the humanities, but in the natural and social sciences too.

Theoretical physics, with its universal laws, is sometimes referred to as the only exceptionless discipline. This may represent a possible demarcation. Yet this demarcation characterizes not so much the difference between science and the humanities, as between theoretical physics and other scientific fields. While theoretical physics permits no scope for exceptions, applied physics is full of ad hoc corrections, phenomenological constants, normalizations, and so-called provisos. And although the universal laws of nature are considered to be exception-free, in mathematical derivations and explanations of specific phenomena, ad hoc approximations and corrections are used more than once.¹³ Here too it is not possible to assert anything other than that there is a gradual scale from disciplines with the fewest exceptions to those with the most. While theoretical physics reflects an ideal

¹¹ Philip Kitcher, ‘1953 and all that: a tale of two sciences’, *Philosophical Review*, 93, 1984, pp. 335–73.

¹² See e.g. Aniruddh Patel, *Music, Language and the Brain*, Oxford University Press, 2008.

¹³ For an overview, see Nancy Cartwright, *How the Laws of Physics Lie*, Oxford University Press, 1983.

picture, it is not feasible for most natural sciences (see our discussion of biology above), let alone for other areas of scholarship.¹⁴

The history of the humanities as liberation from the biblical, classical, and nationalist yokes. One could look on the history of the humanities as an ongoing search for principles and patterns and their formalizations—as we have done in this book—but also as an ongoing liberation from imposed ways of thinking. While the Greek humanities of Antiquity were based primarily on Aristotle, in the Middle Ages in Europe there was a pursuit of biblical coherence (in which the Aristotelian system of thought was integrated). In the early modern era, on the other hand, there was the endeavour to attain humanistic classicism that slowly but surely distanced itself from both the Bible and Aristotle, whereas the modern age showed above all a historicization of the humanities, which was then employed for nationalist or colonial goals. To oversimplify, we can assert that after an initial Aristotelian phase, Western humanities found itself under the yokes first of the Bible, then of classicism, and finally that of nationalism. Originally the Bible, the classics, and nationalism were useful frameworks in which new ideas, methods, and patterns were swiftly created. If the boundaries of such ways of thinking were reached, though, which often happened all too soon, they represented a straightjacket that could only be cast off with great difficulty. The super-fast embrace of frames of mind followed by a laborious deliverance from them is a recurring pattern not just in the humanities: we find it in all disciplines and in all regions.¹⁵

Supra-disciplinary humanities and humanists. This book has put a number of unexpected humanities scholars in the limelight. The fact that they did not emerge earlier as influential thinkers is because most humanists have little notion of the history of the humanities as a whole. It was predictable, of course, that Aristotle would have an eminent place, like Leibniz and Chomsky. But who could have suspected that Chrysippus of Soli from the third century BCE would go down in history as one of the most important figures in the humanities? While it is true that Chrysippus is well known as the founder of propositional logic (see 2.6), as the instigator of the *anomalist* tradition, he only enjoys some fame among philologists (see 2.3). Yet, with his *anomalist* approach, Chrysippus launched the entire pattern-rejecting tradition, which has represented an ongoing line in the history of the humanities alongside the *analogist*, pattern-seeking movement (see the conclusion to chapter 5). This line can only be recognized if the humanities are considered in their totality.

Scholars who were long considered to be marginal also receive a significant place in our history for the first time. The seventeenth-century researcher William Holder is a prime example. While Holder's work in the *separate* disciplines of musicology and linguistics was snowed under by the work of others, if his

¹⁴ For further discussion, see Rens Bod, 'Towards a general model of applying science', *International Studies in the Philosophy of Science* 20(1), 2006, pp. 5–25.

¹⁵ William Dampier, *A History of Science and Its Relation to Philosophy and Religion*, Cambridge University Press, 1966. See also H. Floris Cohen, *How Modern Science Came into the World: Four Civilizations, One 17th-century Breakthrough*, 2010.

work is looked at as a whole, he acquires a very different status. His study of musical consonances and microintervals (see 4.4), his in-depth investigation of sign languages (see 4.3), and his discoveries in the field of articular phonetics—which disappeared from view in the nineteenth century, see 4.3—reveal a brilliant supra-disciplinary scholar with a striking unity of research. Holder concentrated primarily on the human production of sound (language and music) as well as on its absence (the deaf). Holder's contribution is therefore greater than the sum of its parts. Holder only remained marginal in the histories of the disciplines because the subjects he worked on did not develop into a discipline ('the study of the human production of sound'). We can snatch scholars like this from obscurity if we no longer address the history of the humanities on a discipline-by-discipline basis but as one *overarching* field. I readily admit that my book also uses a classification based on 'disciplines'—otherwise I would have had no handholds or footholds at all. By addressing these disciplines alongside one another and continually making comparisons, we spot 'possible' disciplines that did not make it. A future book on the history of the humanities would do best to drop these disciplinary designations, which, after all, were only created in nineteenth-century Europe. The modern compartmentalization of the humanities should not stand in the way of its history.

Aside from scholars like William Holder who were almost forgotten, it also emerges that well-known names in the humanities were often active on a much broader front than that for which they are known. Leon Battista Alberti, for example, emerges as one of the most influential humanistic scholars of all time. While he is best known for his art theoretical innovations (such as linear perspective and the *disegno* theory), he has major achievements to his name in archaeology, philology, musicology, and linguistics (see chapter 4). The same can be said of Lorenzo Valla, whose work was not limited to philology, but extended to logic, linguistics, and rhetoric, too. Similarly we should not forget Joseph Scaliger, whose discerning philological, historical, and linguistic work changed the European world view (although he was well below par as a mathematician—see 4.2). St Augustine was likewise not just a theologian or philosopher—he played a decisive role in the medieval humanities as a rhetorician, historian, and poetist (see chapter 3).

The Islamic humanistic scholars also had unprecedented breadth. Al-Farabi was a linguist, musicologist, logician, and much more besides, like Avicenna (Ibn Sina) and Averroës (Ibn Rushd), who in fact covered the humanities, natural, and social sciences. Al-Biruni, for example, proved to be an Indologist, linguist, historian, astronomer, mathematician, and more too. Take Sima Qian (see 2.2), as well as the Chinese exponents of the Empirical School (see 4.1 and 4.3), who were at home in historiography, philology, linguistics, and poetics. The Indian Bharata Muni (see chapter 2) is famous primarily in the history of theatre studies, but he was also one of the most important musicologists and literary theorists. The insight that Panini (see 2.1) would play such an overpowering role in the rule-based tradition in the humanities is largely new—while not forgetting the example-based tradition that started with Sibawayh (see 3.1).

Nevertheless, in our umbrella history of the humanities there are also people who are not given the position they deserve. The fifteenth-century scholar al-Suyuti was

both a linguist (see 3.1) and a fascinating historian (3.2), but because of our focus on principles and patterns, he only gets a brief mention—like many others. Some brilliant scholars do not appear in this book at all, or are discussed only indirectly, such as Max Weber (see 5.1), who, besides being a sociologist, was also a cultural historian, historian of religion, musicologist, economist, and jurist. However, the sociological aspect of his work was so predominant that he does not fit well into our history of the humanities. Similar reasoning almost led me to decide to treat Auguste Comte the same way, but I could not get around his positivism. We have, of course, come across such overwhelming breadth before—the icons of natural science proved to be humanistic scholars too. Galileo was one of the most important early modern music researchers, Kepler was an eminent philologist, and Newton spent the greater part of his life on theology and historiography (in which he far from excelled, however—see 4.2). The modern age can also boast supra-disciplinary, integrated humanities-science scholars, with Hermann von Helmholtz (5.4) and Noam Chomsky (5.3) as shining examples. Only an overarching history of all fields of learning could do justice to them.

Unexpected influences back and forth. The contacts between India, China, Europe, Africa, and the Arab world have been plentiful and fruitful. Many of these influences are known, but have still not been recognized in all cases. It has emerged, for instance, that Indian linguistics from the fifth century BCE became known first in China and then in Islamic civilization, and later it overran Europe and the United States, after which it was the turn of Western linguistics to influence the other regions. We have also seen that Arab logic, historiography, linguistics, and musicology played a decisive role in the development of European humanities in the later Middle Ages and the Renaissance.

It is less easy to demonstrate other influences. For the time being, for example, there is no concrete evidence that the Arab *isnad* method of *oral* source reconstruction (see 3.2) influenced the European method of *written* source reconstruction (see 4.2). Yet the methods are so similar and the flow of knowledge from Islamic to Christian Europe was of such a magnitude (see chapter 3) that influence cannot be ruled out. We have moreover seen parallel, sometimes almost identical developments in different regions, in regard to which direct effects are equally difficult to establish, such as the fundamental laws of logic in China and Greece (see the conclusion to chapter 2), the rules of art history in China and India (see 2.5), and the laws of harmony in India, China, and Greece (see 2.3).

This book has also exposed an unexpected influence—the line that runs from Africa to Europe. This line was largely already known, but it has seldom been referred to by name. Here we give four examples of the effects that Africa has had on European humanities:

- (1) The lists of kings by the North African historian Manetho (see 2.2) were used by Joseph Scaliger to construct his revolutionary chronology, the net effect of which was to overthrow the Christian vision that the age of the earth could be derived from the Bible (see 4.2). In the long term this resulted in a new, secular view of man and society.

- (2) The Christian revolution (see the conclusion to chapter 3) was unleashed by North African, often Berber, historians such as St Augustine, Sextus Africanus, and Orosius and led to the redefinition and reinterpretation of virtually all activities in the humanities in medieval Europe (see chapter 3).
- (3) The cyclical model with cultural propagation that was developed by the Tunisian Ibn Khaldun influenced the vision of the Western world among European historians such as Spengler and Toynbee (see 5.1).
- (4) The centuries-old African oral history, and especially the nineteenth-century African historiography which emerged from it, seems to have brought about European oral history via Western anthropologists (see 5.1). It was thanks to this influence that 'non-elitist' oral history went on to play a significant role in twentieth-century historiography.

Future research: from Japan to pre-Columbian America. Although I have tried to write this book from a rather global perspective, Western humanities nevertheless receives disproportionate attention. The reasons for this were discussed in chapter 1—a very great many manuscripts from other regions are not yet accessible. Hundreds of thousands of early modern Arabic, African, and other manuscripts are waiting to be unlocked (see 4.2). I have moreover had to limit myself to written sources, whereas in many regions the study of literature, art, and music exists in oral forms too. Yet even within these constraints I have left many areas untouched.

The illustrious Japanese historiography, for instance, has not been addressed. It would have been fascinating to investigate whether the medieval *shogun* histories, with their cyclical pattern,¹⁶ would fit into the metapattern we found in 3.2 that the time structure of a culture's canonical texts corresponds to the time structure of its historiography. In general, Japanese humanistic activities have barely been explored. It is commonly assumed that Japanese science and learning did not begin to blossom until the country opened up to the West in the late nineteenth century. Prior to this, from 1641 to 1853, the only access that Japan had to Western learning was through the Dutch trading post on the island of Deshima. The literal meaning of the Japanese word for 'science' at the time, *rangaku*, was 'Holland studies' ('Holland' is *O-ran-da*). For centuries, all external scientific knowledge in Japan came from books that had been translated into Japanese via Dutch, or that were even read directly in Dutch. These thousands of documents were eagerly snapped up in Japanese cities, where seventy to eighty per cent of the population was literate. However, these works were restricted to natural science and technology—fields in which Japan had a lot to learn from the West. In the domain of the humanities, though, Japan had its own centuries-old tradition. In addition to historiography, poetics also flourished, with one of the highlights being the famous fourteenth-century treatises of Zeami Motokiyo about the *No* drama, which found

¹⁶ Markus Völkel, *Geschichtsschreibung: eine Einführung in globaler Perspektive*, Böhlau Verlag, 2006, pp. 181ff.

their way to the West.¹⁷ What was the status of the other humanistic disciplines in Japan? And, starting in the seventeenth century, was there interaction between the humanities and the *rangaku*, or did these two activities represent separate worlds? In the latter case, Japan would be an exception to our generalization that the humanities and natural science in all regions were studied jointly and mutually reinforced each other.¹⁸

We have not discussed pre-Columbian America in our book either, yet here we find one of the most spectacular forms of historiography—the pictorial histories of the Aztecs.¹⁹ The *Codex Mendoza*, for example, consists of a combination of text and images dating from 1541 which describes the conquests of the Aztec rulers, together with a list of the taxes paid by the conquered provinces and accounts of daily life. If such a thing is possible, the *Aubin Codex* is even more impressive. In beautifully coloured pictures, it portrays the departure of the Aztecs from Aztlán as a result of Spanish domination. It has eighty-one pages and covers one of the most dramatic moments in Aztec history—evidence of the bloodbath and the devastation of the temple in Tenochtitlan in 1520. Although we have not yet investigated these documents for principles and patterns, it is obvious that the personal experience principle plays a significant role.

Now that the Mayan script has also been virtually completely decoded, it has become clear that there is an extensive Mayan historiography, including dynastic chronicles, biographies, descriptions of political controversies, and battles.²⁰ We also find musicological texts in Mayan culture, parts of which are to be found in the historical–mythological book *Popol Vuh* of the Quiché in Guatemala. And there is more.

We have also bypassed the humanities in Korea, Vietnam and the once so flourishing Khmer Empire. And Africa may well offer the most promise for the future. There is no other continent with as many different cultures and languages. The staggering number of hidden manuscripts in and around Timbuktu alone appeals to the imagination. Meanwhile 20,000 of the estimated 700,000 manuscripts have been collected, but have barely been studied as yet.

However, one thing has become clear in this book. The quest for principles and patterns in language, texts, music, art, and literature is of all times and regions. There is no reason whatsoever to exclude any region as a source of inspiration.

¹⁷ See Masakazu Yamazaki (ed.), *On the Art of the No Drama: The Major Treatises of Zeami*, translated by Thomas Rimer, Princeton University Press, 1984.

¹⁸ We know that at least for the development of Japanese linguistics, the study of Dutch grammar was highly influential. Since Japanese scholars of *rangaku* all knew Dutch, Japanese linguistic terminology was determined by Dutch grammar. Here we thus have a clear though rather unique example of how the study of science (*rangaku*) influenced the study of language. See Frits Vos, 'The influence of Dutch grammar on Japanese language research', in Sylvain Auroux, E. F. K. Koerner, Hans-Josef Niederreche, and Kees Versteegh (eds), *History of the Language Sciences: An International Handbook on the Evolution of the Study of Language from the Beginnings to the Present*, volume 1, Mouton de Gruyter, 2000, pp. 102–4.

¹⁹ Elizabeth Hill Boone, *Stories in Red and Black: Pictorial Histories of the Aztec and Mixtec*, University of Texas Press, 2000.

²⁰ Dennis Tedlock, *2000 Years of Mayan Literature*, University of California Press, 2010.

Linguists can refer both to Panini, Dionysius Thrax, and Sibawayh as their spiritual fathers. Art historians should not just look to Vasari but also to Xie He as the 'first' art historian. Literary and theatre theorists do not need to be influenced by Aristotle alone. Bharata Muni and Liu Xie would do equally well and bring in different perspectives. And Herodotus is not the only doyen of historiography—there are Sima Qian and Ibn Khaldun too.

What about the future of the humanities? Although speculations about the future rapidly become gratuitous, it is possible to outline a few trends in the humanities. Despite the prejudices about their supposed uselessness—which we hope to have effectively refuted—the humanities are doing better than ever. Methods and approaches from different fields are being integrated and are leading to new interpretations of the past, languages, works of art, literature, music, films, new media products, and other cultural artefacts. The quest for patterns represents an uninterrupted constant in humanistic research and is being investigated increasingly often with the aid of cognitive and digital approaches. If trends are taking shape, they are thus at least the following:

- (1) *The cognitive approach* to investigating humanistic material has resulted in new psychologically motivated testing methods in language, music, literature, and art. This approach has delivered new patterns in all fields of the humanities and represents one of its most active branches (see 5.3 to 5.7).
- (2) *The digital, computational approach* to humanistic material has led to new comparisons and methods of analysis. Without digitized sources it would have been impossible to compare thousands of texts or paintings with one another in one fell swoop or to find historical patterns in the abundance of sources. The digital humanities are bringing not just new understanding but also new questions that have never been asked before (see 5.2 to 5.7). This movement is drastically changing humanistic practice.
- (3) *The integration of supra-disciplinary methods* from the humanities, sciences, and social studies has produced new disciplines (for example, cultural studies and media studies), and these methods are now also being employed in more traditional humanistic areas (see e.g. 5.4 and 5.5). No matter how great the danger that is lurking in the uncritical combination of different scholarly fields, this trend is proving to be extremely productive and irreversible.

To assert that these trends will continue in the future is, of course, crystal gazing. No matter how inspiring and innovative they seem now, if we look back after twenty years we may discover that entirely different trends have surfaced.

However, what we can safely say is that the palette of the humanities in the past and now—and probably in future too—covers the full spectrum of methods, from the most subjective approach to the most mathematical one, and from the most relativist approach to the most universalist one. This multicoloured palette is both the strength and the weakness of the humanities. Diversity is not always appreciated. There is ever growing pressure to streamline research, to publish in the same leading journals, using the same methods and techniques. The coexistence of

mathematical modelling (for example in cliometrics and linguistics) and subjective narration (for instance in narrativism and poststructuralism) alone makes the humanities the most unlikely of all human doings. I started this book with a quest for pattern-seeking activities in the humanities, but towards the end it emerges that the pattern-rejecting tradition is at least as fascinating. We would be better advised not to just put up with the versatility of the humanities, but to embrace it.