

## Is Science Western?

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The question I address in the body of this work arises from a usage that has become common in the humanities: the practice of labelling modern science as ‘Western’. A recent Google Scholar search, for example, yielded more than 127,000 instances of the phrase ‘Western science’. This way of speaking is particularly common among writers in postcolonial studies, many of whom speak of the need to ‘decolonize epistemology’ (the theory of knowledge) (Mignolo 2012: 20). Advocates of decolonization commonly speak of ‘knowledges’ in the plural, often referring to differing ‘knowledge systems’ (Barnhardt and Kawagley 2005: 9). They argue that different societies have differing ‘ways of knowing’, ‘Western science’ being merely one among many.

Some such writers go further, claiming that Western science cannot claim to be in any way superior to other ways of knowing. This idea is often buttressed by the claim that these differing forms of knowledge are incommensurable: they cannot be directly compared (Durie 2004: 1138).

The claim that differing knowledge systems are incommensurable is part of a wider tendency to reject claims to universality (Waters 2001: 145). Postcolonial writers regard the idea that science has universal applicability – that it is a form of knowledge for all peoples – as a colonial imposition, whose effect is to marginalize the ways of knowing found in indigenous societies (Seuffert 1997: 98). Rather than being universally applicable, such writers argue, modern science is itself a form of ‘local knowledge’ (Canagarajah 2002: 245), ‘the ethnoscience of the West’ (Watson-Verran and Turnbull 1995: 115). I shall refer to this as the ‘relativizing’ view of science.

The historian cannot help but note a certain irony here. It consists in the fact that the relativizing view has itself emerged from a distinctively European tradition of thought. In its suspicion of claims to universality it follows in the footsteps of the nineteenth-century German Romantics and, before them, Johann Gottfried Herder (1744–1803). Herder argued that each nation has its distinctive way of thinking – its *Nationalgeist* – and vigorously rejected the idea that ‘one single culture ... is the epitome of civilization’ (Sikka 2005: 312).

Herder’s criticisms of European imperialism are as forceful as those of any of today’s postcolonial writers (Beiser 1992: 203). But while Herder insists on a plurality of culturally-distinctive ways of knowing, it is less clear that he thought they were incommensurable. Despite what Isaiah Berlin suggests (2013: 264), Herder seems to have believed that there are universal human needs (and corresponding goods) that can establish culture-transcending standards of judgements (Sikka 2005: 331).

Romanticism contributed to the rise of a second movement in whose footsteps the relativizers are following: that of historicism. The word ‘historicism’ is used in a bewildering variety of ways (Leerssen 2004: 119). But in one of its uses it refers to the recognition that all human values, institutions, and practices are contingent, having emerged from particular social and political contexts. Long before the rise of post-colonial thinking, writers in the historicist tradition were arguing that the ‘scientific world-picture is itself only one among many and, like all the others, it has been produced by a certain society under definite conditions’ (Landgrebe 1940: 44).

The challenge of historicist thinking went much deeper than a challenge to the universality of science. It called into question all ‘moral, political, and religious beliefs and practices’, suggesting that had no ‘purpose, meaning and validity’ beyond the culture in which they arose (Beiser 2011: 11).

Those who oppose the relativizing view of science – I shall call them ‘universalists’ – do not deny the insights of historicist thinking. They

do not deny, for instance, that scientific theories reflect the social and political contexts from which they emerge. If we ask, for example, why Darwin's theory of natural selection emerged in Great Britain (rather than elsewhere), the answer may need to appeal to the competitive ethos of nineteenth-century British economic activity (Greene 1981: 7). But universalists argue that a recognition of the historical character of modern science does not rule out the idea that its results are applicable everywhere (Ryn 2003: 63, 119).

A scientific theory may be applicable in every cultural setting, even if it originally emerged from a particular society, and was shaped by its concerns. Although Darwin's theory did owe much to the social world in which it emerged, it still had – universalists would argue – greater explanatory power than any of its rivals.

Which side of this debate has the better arguments? Even if science happens to have developed in 'the West', is it *merely* Western, a local rather than a universal form of knowledge? Does it have distinctively Western characteristics, or are its methods, procedures, and assumptions more widely shared? Those are the questions I shall be addressing.

## **1.1 The Term 'Science'**

Let me begin with some distinctions, for the two terms being used in this debate – 'science' and 'Western' – have a range of possible meanings. I shall start with the various possible uses of the word 'science' (and cognate terms in other European languages). Following Theophilus Okere (2005), I shall begin with the broadest use of the term, examining progressively narrower senses, until I arrive at the family of practices I am referring to as 'modern science'.

### **1.1.1 Science as Knowledge**

The broadest use of the word 'science' employs the term as a synonym for 'knowledge'. In English, this usage is now archaic, although it can still be heard in performances of Shakespeare's *Measure for Measure*.

In Act 1, Scene 2, Vincentio remarks to Escalus: ‘your own science exceeds, in that, the lists of all advice my strength can give you’ (I.i.5). In this context, ‘science’ means simply ‘knowledge’ or ‘learning’. The same use is found in other European languages. One can, for instance, speak in Italian of *la scienza del bene e del male* for ‘the knowledge of good and evil’, and in French of *la science infuse* for ‘innate knowledge’ (a phrase used ironically for a ‘know-it-all’). All human beings (and arguably many kinds of non-human animals) have ‘science’ in this sense, that is to say, knowledge in general.

There is, however, a qualification that needs to be made here, for the word ‘knowledge’ itself has two uses: one descriptive and the other normative. In the descriptive use – common among social scientists – ‘knowledge’ refers to the ‘collective beliefs’ of a particular community, no distinction being made between true and false beliefs (Pelto and Pelto 1997: 149). In its normative use, on the other hand, ‘knowledge’ refers to beliefs that emerge from practices that are ‘truth-tracking’ (Nozick 1981: 172).

Philosophers customarily use the term in its normative sense: they do not regard false beliefs as instances of knowledge. Take, for example, the idea that the earth is stationary while the sun moves, a belief held by practically every astronomer before the work of Nicolaus Copernicus (1473–1543). During that period, it could be described as having been knowledge in the descriptive sense. But since it is a false belief, it would not count as ‘knowledge’ in the normative sense.

I shall not, however, dwell on this distinction here. If we understand ‘science’ in the broadest sense of the word, as knowledge or learning, then we may safely assume that all peoples have had science, even in the normative sense of the term. They must have had at least some well-founded true beliefs. Without, for example, well-founded beliefs regarding their physical environment, it seems unlikely that any people could have survived for any length of time. In my book, I look more closely at what kinds of beliefs these are.

### 1.1.2 Science as *Scientia*

So much for science in the broadest sense of the term, as ‘knowledge’. There is, however, a second use of the word, in which ‘science’ refers to a more particular kind of knowledge. This sense of the world corresponds to that of the medieval Latin *scientia*, which was itself used to translate the Greek *epistēmē*. Both *scientia* and *epistēmē* referred not just to any body of knowledge, but to a systematic body of beliefs, grounded in reasoning that (ideally) yields certainty, and which show why things are as they are (Pasnau 2010: 23).

Medieval thinkers realized that certainty could not always be obtained (Pasnau 2013: 994): in practice the natural philosopher could be content with a lesser degree of confidence (Pasnau 2010: 37). But a body of knowledge was thought of as a *scientia* only if it took the form of a systematized set of general principles which had an explanatory role.

The terms ‘systematized’ and ‘systematic’ themselves have a variety of meanings (Hoyningen-Huene 2013: 26–27). But as a first approximation we can say that a body of knowledge is systematic if it ‘embodies some kind of order’: it is not ‘purely random or accidental, it is not chaotic, not arbitrary’ (Hoyningen-Huene 2013: 26). A systematic body of knowledge will normally be founded on a set of general principles. It may speak, for example, of the varieties of soil that yield good crops, rather than merely asserting that ‘this soil here yields good crops’.

Science as *scientia* will also include ‘second-order’ reflection, directed not to its target domain (such as animals or plants or heavenly bodies), but to the claims made about it (Elkana 1986: 40). It will, in other words, not merely make claims; it will reflect on what is required for its claims to be true.

Second-order reflection is presumably practised in all societies, with regard to at least some beliefs (Elkana 1986: 41). What is characteristic of a science is that such reflection is undertaken in a self-conscious

fashion, by means of procedures for testing knowledge claims and generating new knowledge. Those procedures will include principles (such as those of formal logic) against which knowledge claims can be assessed (sect. 3.4.1).

This use of the word ‘science’, referring to any systematic body of knowledge, can still be found in modern English. A recent historical work, for example describes the medieval ‘liberal arts’ – those of the *trivium* (grammar, logic, and rhetoric) and *quadrivium* (arithmetic, geometry, music, and astronomy) – as ‘the liberal sciences’ (Peltonen 2002: 97).

The same idea can be found in German in the use of the term *Wissenschaft*. In the words of a standard dictionary, a *Wissenschaft* is ‘[an] ordered, logically structured, and coherent field of knowledge’. The academic study of religion, for example, is described in German as *Religionswissenschaft*, while what we call ‘linguistics’ is *Sprachwissenschaft*. Do all societies have ‘science’ (or ‘sciences’) in this sense: systematic bodies of knowledge? That is a question to which I shall briefly return (sect. 1.3).

### 1.1.3 Modern Science

We come, finally, to the narrowest sense of the word ‘science’. I devote an entire chapter of this book to describing the practices to which this use of the term refers. But my initial definition will be a historical one. ‘Science’ in the narrowest sense of the word refers to the family of knowledge-related practices – what I shall call ‘epistemic practices’ – that began to take on their present form in seventeenth-century Europe.

This definition is modelled on a common understanding of the biological term ‘species’, in which the criterion for regarding organisms as members of a single species is that they have a common ancestry (Baum and Donoghue 1995: 560). In a similar way, epistemic practices fall into the category of modern science when they, too, have a common ancestry: when they constitute research traditions dating

back to developments that occurred in seventeenth-century Europe. Those developments were particularly focused on a study of the physical world by way of measurement, mathematical modelling, and experiment.

Modern science would be regarded by medieval thinkers as just one form of *scientia*, one variety of systematized knowledge. The nearest medieval equivalent was *scientia naturalis* – systematized knowledge of the natural world (Maurer 1985: xv) – which medieval thinkers distinguished from other forms of *scientia*. Thomas Aquinas (ca. 1225–74), for instance, also regarded theology as a science (*ST I* 1.2), but one that drew its principles from divine revelation rather than from observation and reflection.

Today’s everyday English usage of the word ‘science’ resembles the medieval use of *scientia naturalis* in so far as it excludes other forms of systematic inquiry. As W. G. Ward wrote in 1867, ‘we shall, for convenience’ sake, use the word “science” in the sense which Englishmen so commonly give to it; as expressing physical and experimental science, to the exclusion of theological and metaphysical’ (Ward 1867: 255n).

## 1.2 The Term ‘Western’

The next term that requires disambiguation is ‘Western’. What meanings does this term have and which of these are intended by those who speak of ‘Western science’?

For better or for worse, the idea of ‘the West’ comes burdened with more than 2000 years of myth, metaphor, and allegory. Within this history, the West has designated a location, a direction, and an idea (Baritz 1961: 619). As the location to which the sun daily descended, the West was naturally associated with death, an idea already found among the Egyptians (Baritz 1961: 620–21). But death could also signify a rebirth to a new life and the West could therefore be a place of promise, a paradise on earth. Such were the Elysian Fields, ‘at the

ends of the earth', to which – in a tradition established by Homer (*Odyssey* 4.561–568) – heroes could be transported while still alive (Lovejoy and Boas 1965: 291).

The biblical tradition of the Garden of Eden 'in the East' (Gen. 2:8) confounded this classical idea, although the two directions could be reconciled by a moment's reflection on the spherical shape of the earth (Baritz 1961: 624). But the West was also the direction of the progress of empire, as in Virgil's account of Aeneas's journey from Troy to Italy to Rome, a journey extended by Geoffrey of Monmouth (ca.1095–1155) to England (Baritz 1961: 621, 624).

Early modern Europeans came to think of the West as the seat of 'God's word and religion', which having come from the East would, with the European voyages of exploration, move eastwards again, to enlighten the New World (Baritz 1961: 635). The idea that Christian enlightenment would move from west to east was picked up by the theologian Jonathan Edwards (1703–1758), but now from a new location, in which the American colonies were 'the West' (Baritz 1961: 637).

It is difficult to know whether these historical and mythological usages continue to influence today's debates. If they do, it may help account for their vigour. But whatever the influence of such mythic themes, it is to today's debates that I must now turn. How are the terms 'the West' and 'Western' used today?

### **1.2.1 Geographical Use**

A first use of the term 'Western' is *geographical*. In this usage, 'Western' refers (in the words of the *Oxford English Dictionary*) to 'any part of the world to the west of one's own region; applied specifically to the Americas and the Caribbean, or to Europe, as opposed to the Middle East and Orient'. As the same dictionary notes, this geographical usage is now merely historical, except when coupled with what I shall call the *cultural* use of the term. It is, in any case, fatally imprecise. As we have just seen, any place is west of any other on a spherical globe.

As a geographical term, its only (more or less) precise use is as an indexical, a term (like ‘yesterday’) whose referent varies from one context to another.

Using the word as an indexical, one can specify its geographical meaning by reference to the European continent, as in the phrase ‘Western Europe’. But the boundaries of the region designated in this way are also unclear. The phrase ‘Western Europe’ became widely used only at the time of the Cold War, when ‘an “iron curtain” divided the continent into West and East’ (Berger 2017: 16). Once that curtain was lifted, the boundaries of Western Europe were up for negotiation. This was nowhere clearer than in the expansion of the European Union (EU). While membership in the EU had originally been restricted to countries to the West of the ‘iron curtain’, the changed situation after 1989 opened up this barrier, to allow former ‘Eastern European’ countries (such as Poland) to gain membership.

### **1.2.2 Cultural Use**

In practice, however, the geographical use of the term ‘Western’ has rarely been separate from its *cultural* use. In the cultural use of the term ‘the West ... is not to be found by recourse to a compass’ (Berman 1983: 2). It refers to a set of ideas, practices, and institutions whose origins are believed to lie in Western Europe. It is this meaning of the term ‘Western’ that seems to underlie the use of the phrase ‘Western civilization’. In practice, the cultural use of the term ‘Western’ is most commonly joined with a third, the ‘genus and species’ use, to which I shall return in a moment. In the meantime, it will be useful to look more closely at what the cultural use entails.

The idea of the West as a cultural unity – a ‘repertoire’ of ideas and practices – is relatively new (Bonnett 2004: 25). It emerged both in ‘the West’ itself – in Europe and North America – and in ‘non-Western’ societies, particularly those of Asia. While the sense of the idea differed according to the context of its use, the cultural use of the term

‘Western’ has been rarely (if ever) merely descriptive. It was, and continues to be, heavily laden with judgements of value, originally positive but more recently negative.

In Europe and North America, the idea of ‘Western’ culture emerged (in part) as a response to the decline of the category of ‘whiteness’. Nineteenth century writers commonly spoke of a ‘white civilization’ (Bonnett 2004: 14) to identify what they regarded as a distinctive set of ideas, practices, and institutions. But this racial category was undermined by both class conflict, which divided European societies, and warfare, which set European peoples in conflict with one another.

Rather than forming a single civilization, ‘white’ people seemed divided by political ideology and struggles for power. The more abstract idea of ‘the West’ offered a way of transcending these differences. Although critics recognized that ‘Westerners’ often failed to live up to their own ideals, it was the very possession of these ideals that set them apart from other peoples (Bonnett 2004: 28).

While the cultural use of the term ‘Western’ has always denoted a set of social practices, the practices to which it refers have been many and varied. Nineteenth-century Russia, for example, experienced arguments between ‘Westernizers’ (*západniki*), who urged the adoption of European ways, and ‘Slavophiles, who warned against the rationalism and materialism of ‘the West’ (Galaktionov and Nikandrov 1967: 25, 28). Consistently with this usage, the Bolshevik revolutionaries initially categorized socialism as ‘Western’ (Bonnett 2004: 47). But in the aftermath of the Russian revolution and two world wars, there was a narrowing in the range of institutions regarded as ‘Western’.

In countries outside of the Soviet Union, ‘the West’ was now thought to be characterized by a capitalist economy and liberal democracy: its ideals were those of ‘non-authoritarian government and an open society’ (Bonnett 2004: 42). In this context, the United States came to be regarded as the paradigmatically ‘Western’ country, the leader of an ‘Atlantic alliance’ (Bavaj 2011: 17), opposing communism, fascism,

and Nazism (Bonnett 2004: 42–43). We hear echoes of this view of the West in a recent *New York Times* opinion piece:

What we call ‘the West’ is a centuries-long conversation – Socrates searching for truth, Rembrandt embodying compassion, Locke developing enlightenment liberalism, Francis Bacon pioneering the scientific method. This is our heritage. For all of our history America understood itself as the culmination of the great Western project. (Brooks 2025)

Within the Soviet Union, on the other hand, ‘the West’ came to be thought of as the home of bourgeois and anti-revolutionary forces, a society characterised by ‘decadence’, ‘imperialism’, ‘reaction’, ‘aggression’ and ‘greed’ (Bonnett 2004: 54).

Such was the emergence of the cultural idea of ‘the West’ in Europe and North America. But the present use of the term owes much of its meaning to thinkers in Asian countries (Bonnett 2004: 81). Here, too, the use of ‘Western’ was heavily value-laden. At times, it, too, involved a positive evaluation of the practices to which it referred. We find this, for example, among the modernizing Chinese thinkers of the late nineteenth and early twentieth centuries who regarded their own traditional practices as ‘backward’ (Elman 2003: 104).

But Asian thinkers also developed a less positive view of the practices deemed ‘Western’. In India, for example, Rabindranath Tagore (1861–1941) argued that Western modernity ‘was a misguided form of modernity’ (Bonnett 2004: 80), marked by a lack of true spirituality. In a similar way, the Japanese art historian Okakura Kakuzō (1862–1913), often known as Okakura Tenshin, contrasted the Asian love for ‘the Ultimate and Universal’ with the Westerner’s love of the particular and his neglect of the purpose of life (Bonnett 2004: 83). In China, too, the modernizers were opposed by those who were cautious about ‘Western’ science, arguing that it needed to be complemented by a recovery of China’s own moral and spiritual traditions (Elman 2003: 101).

### 1.2.3 Genus and Species Use

I have spoken of the *geographical* and *cultural* uses of the term ‘Western’. But there also exists what I shall call a *genus and species* use. This overlaps the cultural use, since it assumes that the practices called ‘Western’ have distinctive characteristics. But it also assumes that the practices described as ‘Western’ are also found, in differing forms, among ‘non-Western’ peoples. More precisely, it assumes that there are some general categories (‘genera’) of cultural forms which have both Western and non-Western manifestations (their various ‘species’).

One can argue, for instance, that all complex societies – those whose activities have become distributed among distinct institutional spheres (Eisenstadt 1964: 376) – have systems of law. On this view, Western legal systems would be a species of a genus, a particular version of an institution also found in other societies.

I mentioned a moment ago the phrase ‘Western civilization’. In the days when ‘civilization’ was used in the singular, to refer to a state of being civilized (as opposed to being a barbarian), there would have been no need to attach the qualifier ‘Western’. Civilization was thought to be ‘confined to a few privileged peoples or groups, humanity’s “elite”’ (Braudel 1994: 7), a group to which Europeans were assumed unquestionably to belong. But beginning in the early nineteenth century, the word came to be used in the plural, with talk of differing ‘civilizations’ (Braudel 1994: 6).

In this new usage, the term resembles the anthropologist’s use of ‘culture’ – the idea of different ‘civilizations’ is akin to that of different ‘cultures’ – but with reference to complex societies and a focus on historical persistence. When the term ‘civilization’ is used in this way, the qualifier ‘Western’ is required, to indicate which species of the genus is being referred to: that which began in Europe or the civilizations of Africa, the Muslim world, or Asia.

### 1.3 ‘Western Science’

Drawing together these possible meanings of the terms, what could it mean to call science ‘Western’? A first interpretation takes the term ‘Western’ in its *geographical* sense. Here ‘Western’ could refer to the region in which science is practised, in the same way as one could speak of ‘Chinese agriculture’, to refer to the farming practices found in China. But this can hardly be what is intended by the phrase ‘Western science’. Science is geographically Western insofar as it took on its present form in a particular region. But its practice is no longer restricted to any one part of the world. Indeed, one of the striking features of modern science has been its ability to take root and flourish in societies that differ widely with regard to language, customs, and legal and political institutions.

Authors vary in their explanations of this fact. Joseph Needham, for instance, argued that insofar as it relies on observation and mathematical modelling, modern science is inherently ‘ecumenical’, ‘the common property of all men everywhere’ (Needham 1978: 112). But this positive view has recently fallen out of favour. It has become more common to claim that science travelled in an alliance with ‘capital and political power’ as an instrument of Western hegemony (Brockway 1979: 461). But however one explains the geographical spread of modern science, there is no doubt that this has occurred. The practice of modern science is no longer restricted to one part of the globe.

Another way of interpreting the phrase ‘Western science’ understands ‘Western’ in a geographical sense, but in the purely historical fashion to which I alluded a moment ago. . On this view, even if science is now practised everywhere, it is Western in origin. While this seems a more plausible claim, it suffers from the ambiguities of the geographical usage. Does ‘Western’ here mean ‘Western European’? The astronomer Tycho Brahe (1546–1601) came from Denmark, while Nicolas Copernicus (1473–1543) came from Poland. Are Denmark and Poland ‘Western’ countries? Perhaps they are, if we understand the term broadly.

But there is more serious objection to this idea, which I shall develop later. It is that modern science was not a *creatio e nihilo*. The pioneers of modern science wove together existing ideas and practices into new institutional forms and the ideas and practices they wove together came from far beyond whatever boundaries one can plausibly assign to ‘the West’.

A second interpretation of the phrase ‘Western science’ understands ‘Western’ in a *cultural* sense. On this view, one can admit that the origins of modern science are not purely Western, while still insisting that it has features that are not shared by epistemic practices in other societies. It is this cultural use of ‘Western’ that appears to be the most common one: those who speak of ‘Western science’ generally do so in order to contrast it with other forms of knowledge.

One author, for example, claims that the Chinese view of causality is very different from that found in ‘Western science’ (Cheng 1976: 4), the former being ‘holistic’ while the latter is ‘atomistic’ and ‘mechanistic’ (Cheng 1976: 18). Other writers argue that because of its particular character, the scope of Western science is limited. While it may be ‘useful for prediction, control, and the design of manipulative technologies’, it ‘is in no way qualified to provide a worldview adequate to guide individual and societal decisions’ (Harman 1996: 31).

Is science Western by origin? Is science Western in character? Those are the two questions to which my book is devoted, the first question being addressed in chapter three and the second in chapter four. The first is a historical question, asking about the origin and development of modern science in relation to European societies. The second is an analytical question, asking about the character of the practices we customarily call ‘scientific’. The answers I give to these two questions will be interwoven, insofar as the history has shaped the character. But I shall treat them separately for the sake of clarity.

What about the third sense of ‘Western’, the *genus and species* use the term? Any argument that science is Western in origin or character assumes that it differs in some respects from epistemic practices found

in non-Western societies. But today's postcolonial writers often make a further claim, arguing that other societies have their own form of science. Insofar as these are thought of as differing forms of science, this *genus and species* usage overlaps the *cultural* use. Insofar as it distinguishes the sciences that are alleged to have developed in differing parts of the world, this usage overlaps the *geographical* use. What is distinctive about the *genus and species* usage is its assumption that there are, elsewhere, epistemic practices comparable to modern science.

Such practices could, of course, be simply variant forms of the science which began to take on its current form in early modern Europe. This appears to have been what Stalinist thinkers meant when they contrasted 'Western science' with 'Soviet science' (Krementsov 1997: 179). They were suggesting that the modern scientific tradition had taken on different forms under capitalism and communism. But the more interesting question is whether there exist epistemic practices comparable to modern science that have developed independently from the science found in 'the West'.

It is crucial, in answering this question, to keep in mind the three senses of the term 'science' (sect. 1.1). A society could have well-founded bodies of knowledge without having science in the second and narrower sense of the word: that of the Latin *scientia* (or the German *Wissenschaft*). It has been argued, for example, that the development of systematic bodies of knowledge is practically inconceivable in societies that lack writing (Goody 1977: 43; Lloyd 1990: 132–33). But even if all societies have something akin to *scientia*, they may not have developed the particular form of *scientia* I am calling 'modern science'.

There have been clear instances of 'sciences' in the sense of the Latin *scientia* (or the German *Wissenschaft*) in at least some non-Western societies. An early example would be the astronomical (and astrological) sciences developed in ancient Mesopotamia (Rochberg 2018: 9), to which elements of modern 'Western' science can be traced. A second example is the correlative cosmology developed in ancient China,

which continues to serve as a foundation for Chinese traditional medicine (Bodde 1991: 11–12). A third example is the collection of disciplines that developed in India known as *śāstras* (Pollock 1985: 402). Insofar as these are systematically arranged bodies of knowledge that can have an explanatory role, they count as instances of what medieval writers called *scientia* (Pingree 1992: 559).

What about science in the third and narrowest sense of the term? Do other societies have epistemic practices comparable to modern science? What I argue in later chapters of the book is that the elements of modern scientific practice are found in many non-Western societies. As it happens, they came together into the particular institutional forms that English speakers call ‘science’ in Western Europe.

Did a comparable coming together happen in any other cultural context? At first sight, it would appear that it did not, that these practices came together only in Western Europe as a result of peculiarly European social and political developments. But if (as I shall argue) the practices of modern science are refined versions of epistemic practices found in all societies, this will help bridge any apparent gap between ‘the West’ and ‘the Rest’.

## References

- Baritz, Loren. 1961. ‘The Idea of the West.’ *The American Historical Review* 66(3): 618–640.
- Barnhardt, Ray and Angayuqaq Oscar Kawagley. 2005. ‘Indigenous Knowledge Systems and Alaska Native Ways of Knowing.’ *Anthropology and Education Quarterly*, 36(1): 8–23.
- Baum, David A. and Michael J. Donoghue. 1995. ‘Choosing among Alternative “Phylogenetic” Species Concepts.’ *Systematic Botany* 20(4): 560–573.
- Bavaj, Riccardo. 2011. “‘The West’: A Conceptual Exploration.’ *Europäische Geschichte Online*. <<http://www.ieg-ego.eu/bavajr-2011-en>>

- Beiser, Frederick C. 1992. *Revolution and Romanticism: The Genesis of Modern German Political Thought, 1790–1800*. Cambridge, MA: Harvard University Press.
- Beiser, Frederick C. 2011. *The German Historicist Tradition*. New York: Oxford University Press.
- Berlin, Isaiah. 2013. *Three Critics of the Enlightenment: Vico, Hamann, Herder*, edited by Henry Hardy, 2nd edition. Princeton, NJ: Princeton University Press.
- Berman, Harold J. 1983. *Law and Revolution: The Formation of the Western Legal Tradition*. Cambridge, MA: Harvard University Press.
- Berger, Stefan. 2017. ‘Western Europe.’ In *European Regions and Boundaries: A Conceptual History*, edited by Diana Mishkova and Balázs Trencsényi, 15–35. New York: Berghahn.
- Bodde, Derk. 1991. *Chinese Thought, Society, and Science: The Intellectual and Social Background of Science and Technology in Pre-modern China*. Honolulu, HI: University of Hawaii Press.
- Bonnett, Alastair. 2004. *The Idea of the West: Culture, Politics and History*. London: Palgrave Macmillan.
- Braudel, Fernand. 1994. *A History of Civilizations* (1987), translated by Richard Mayne. London: Penguin Books.
- Brockway, Lucile H. 1979. ‘Science and Colonial Expansion: The Role of the British Royal Botanic Gardens.’ *American Ethnologist* 6(3): 449–465.
- Brooks, David. 2025. ‘America is Surrounded by Enemies ... That We Created.’ *The New York Times*, 13 March, Section A, p. 25.
- Canagarajah, Suresh. 2002. ‘Reconstructing Local Knowledge.’ *Journal of Language, Identity, and Education* 1(4): 243–259.
- Cheng, Chung-ying. 1976. ‘Model of Causality in Chinese Philosophy: A Comparative Study.’ *Philosophy East and West* 26(1): 3–20.
- Durie, Mason. 2004. ‘Understanding Health and Illness: Research at the Interface between Science and Indigenous Knowledge.’ *International Journal of Epidemiology* 33(5): 1138–1143.
- Eisenstadt, Shmuel N. 1964. ‘Social change, Differentiation and Evolution.’ *American Sociological Review* 29(3): 375–386.

- Elkana, Yehuda. 1986. 'The Emergence of Second-Order Thinking in Classical Greece.' In *The Origins and Diversity of Axial Age Civilizations*, edited by S. N. Eisenstadt, pp. 40–64. Albany, NY: State University of New York Press.
- Elman, Benjamin A. 2003. "'Universal Science' Versus 'Chinese Science': The Changing Identity of Natural Studies in China, 1850–1930." *Historiography East and West* 1(1): 68–116.
- Galaktionov, A. A. and P. F. Nikandrov. 1967. 'Slavophilism, its National Roots and its Place in the History of Russian Thought.' *Soviet Studies in Philosophy* 6(2): 22–32.
- GoGwilt, Christopher. 2022. 'A Brief Genealogy of the West.' In *Westerness: Critical Reflections on the Spatio-temporal Construction of the West*, edited by Christopher GoGwilt, Holt Meyer and Sergey Sistiaga, 231–257. SpatioTemporality/RaumZeitlichkeit 12. Oldenbourg: De Gruyter.
- Goody, Jack. 1977. *The Domestication of the Savage Mind*. Cambridge: Cambridge University Press.
- Greene, John C. 1981. *Science, Ideology, and World View: Essays in the History of Evolutionary Ideas*. Berkeley, CA: University of California Press.
- Harman, Willis W. 1996. 'The Shortcomings of Western Science.' *Qualitative Inquiry* 2(1): 30–38.
- Hoyningen-Huene, Paul. 2013. *Systematicity: The Nature of Science*. Oxford Studies in Philosophy of Science. Oxford: Oxford University Press.
- Krementsov, Nikolai. 1997. *Soviet Science*. Princeton, NJ: Princeton University Press.
- Landgrebe, Ludwig. 1940. 'The World as a Phenomenological Problem.' *Philosophy and Phenomenological Research* 1(1): 38–58.
- Leerssen, Joep. 2004. 'Literary Historicism: Romanticism, Philologists, and the Presence of the Past.' *MLQ: Modern Language Quarterly* 65(2): 221–243.
- Lloyd, G. E. R. 1990. *Demystifying Mentalities*. Themes in the Social Sciences. Cambridge: Cambridge University Press.
- Lovejoy, Arthur O. and George Boas. 1965. *Primitivism and Related Ideas in Antiquity*. Contributions to the History of Primitivism. New York: Octagon Books.

- Maurer, Armand. 1985. 'Introduction'. In *St Thomas Aquinas, The Division and Methods of the Sciences – Questions V and VI of his Commentary on the De Trinitate of Boethius*, edited by Armand Maurer, 4th ed., vii–xli. Toronto: Pontifical Institute of Medieval Studies.
- Mignolo, Walter. 2012. 'Decolonizing Western Epistemology / Building Decolonial Epistemologies.' In *Decolonizing Epistemologies*, edited by Ada María Isasi-Díaz and Eduardo Mendieta, pp. 19–43. New York: Fordham University Press.
- Needham, Joseph. 1978. 'Address to the Opening Session of the XV International Congress of the History of Science, Edinburgh, 11 August 1977.' *The British Journal for the History of Science*, 11(2): 103–113.
- Nozick, Robert. 1981. *Philosophical Explanations*. Cambridge, MA: Harvard University Press.
- Okere, Theophilus. 2005. 'Is There One Science, Western Science?' *Africa Development* 30(3): 20–34.
- Pasnau, Robert. 2010. 'Medieval Social Epistemology: *Scientia* for Mere Mortals.' *Episteme* 7(1): 23–41.
- Pasnau, Robert. 2013. 'Epistemology Idealized.' *Mind* 122(488): 987–1021.
- Pelto, Pertti. J. and Gretel H. Pelto. 1997. 'Studying Knowledge, Culture, and Behavior in Applied Medical Anthropology.' *Medical Anthropology Quarterly* NS 11(2):147–163.
- Peltonen, Markku. 2002. 'Citizenship and Republicanism in Elizabethan England' In *Republicanism: Volume 1, Republicanism and Constitutionalism in Early Modern Europe: A Shared European Heritage*, edited by Martin van Gelderen and Quentin Skinner, vol. 1, 85–106. Cambridge: Cambridge University Press.
- Pingree, David. 1992. 'Hellenophilia versus the History of Science.' *Isis* 83(4): 554–563.
- Pollock, Sheldon. 1989. 'The Idea of Śāstra in Traditional India.' In *Shastric Traditions in Indian Arts*, edited by Anna Libera Dallapiccola, 17–26. Stuttgart: Steiner Verlag.
- Rochberg, Francesca. 2018. 'Science and Ancient Mesopotamia'. In *The Cambridge Companion to Science*, vol. 1, edited by Alexander

- Jones and Liba Taub, pp. 7–28. Cambridge: Cambridge University Press.
- Ryn, Claes G. 2003. *A Common Human Ground: Universality and Particularity in a Multicultural World*. Columbia, MO: University of Missouri Press.
- Seuffert, Nan. 1997. ‘Circumscribing Knowledge in Aotearoa/New Zealand: Just Epistemology.’ *Yearbook of New Zealand Jurisprudence 1*: 97–125.
- Sikka, Sonia. 2005. ‘Enlightened Relativism: The Case of Herder.’ *Philosophy and Social Criticism* 31(3): 309–341.
- Ward, W. G. 1867. ‘Science, Prayer, Free will, and Miracles.’ *The Dublin Review* (April edition): 255–298.
- Waters, Lindsay. 2001. ‘The Age of Incommensurability.’ *boundary 2* 28(2): 133–172.
- Watson-Verran, Helen and David Turnbull. 1995. ‘Science and Other Indigenous Knowledge Systems.’ In *Handbook of Science and Technology Studies*, edited by Sheila Jasanoff, et al. (revised edition), 115–39. London: Sage Publications.