
Religion and Science in Context

A Guide to the Debates

Willem B. Drees

Contents

<i>Preface</i>	vi
1. 'Religion and science' in multiple contexts	1
2. Worldly interests: apologetics, authority and comfort	11
3. Science, sense and superstition: criteria	39
4. Hunting a Snark? Religion in 'religion and science'	63
5. Mystery in an intelligible world	85
6. Values in a world of facts	112
7. Meaning in a material world	135
Engaging in 'religion and science': an epilogue	147
<i>Bibliography</i>	154
<i>Index</i>	165

'Religion and science' in multiple contexts

Calvin and Hobbes, a boy and his tiger, are walking through a forest. 'Do you believe in evolution?' Calvin asks. 'No,' the tiger replies. 'So you don't believe humans descended from apes?' the boy continues. To which the tiger responds: 'I don't see the difference,' and beats a hasty retreat from the angry boy. The boy asks about the explanation of human origins; the tiger responds with an offence to human dignity. As in this comic strip by Bill Watterson, so too in debates about evolution in the real world: multiple issues are intertwined.

In a lecture at a college in Iowa I presented the grand narrative of modern science, from the Big Bang until Now, and argued for the possibility of a religious appreciation of these insights (Drees 2002a). In the Q&A period a woman asked: 'So, you believe there has been a Second Fall?' At first, I didn't understand the question. She took death to be the consequence of the sin of Adam and Eve, while I had spoken of natural death as arising with the evolution of multi-cellular life, long before there were humans – which for her implied that there had been a Fall before the Fall of the first humans. Whereas the framework of my lecture had been science, her framework was a particular religious one. Miscommunication arises easily in 'religion and science'. Debates are often non-debates, as issues and criteria are framed differently by the various participants.

A good example of the extensive literature on 'religion and science' is *The Oxford Handbook of Religion and Science* (Clayton and Simpson 2006), a thousand pages with fifty-five good chapters on religion and science. Even this extensive survey, including essays by many of the best authors, has some biases. It is mostly Anglo-Saxon with respect to the authors, and also with respect to the treatment of topics. The chapter on sociology and religion ends with remarks about the American constitution. The evolution/creation controversy is discussed in the American context as if issues are the same elsewhere. The authors focus on content, scientific and theological, at the expense of context. Theology, ethics and science have universal ambitions; their truth claims and norms seek to be valid for people of all walks of life and all cultures. While their ambitions are lofty, religion and science are human; contexts and assumptions shape the questions asked, the criteria used, the content proposed.

‘Religion and science’ speaks of that which we value, that which we hold to be true, and that which we hold to be possible. What is going on in the complex area of debates and non-debates on ‘religion and science’? What is to be taken seriously, and what might be dismissed as nonsense? What would be possible venues? What are aims and ambitions of discussions on ‘religion and science’? This book is about the ways in which we approach two major dimensions of human existence, the scientific quest for reliable knowledge that surpasses cultural constraints and subjective preferences, and the religious quests for meaning and orientation in our lives, as a major dimension of culture and subjective existence. By considering sources of disagreement and confusion, this guide aspires to assist in developing a better understanding of science, of religion and of the contexts in which these major human endeavours interact.

1966 can be considered the year the modern constructive ‘religion and science’ discussion started in the United States. The journal *Zygon: Journal of Religion and Science* was founded by Ralph Burhoe, for many years the executive officer of the American Academy of Arts and Sciences, while the physicist and theologian Ian Barbour published his book *Issues in Science and Religion*. Around the same time, on the other side of the Atlantic, a committee of the Dutch Reformed Church concluded that there wasn’t much to be discussed, except issues of ethics and ethos, as religion and science each had its own role in human life (Dippel and De Jong 1965). Why did the American ‘religion and science’ discussion take off at that time, while these Protestants on the European continent weren’t interested? Discussions in the United States and on the European continent concern the same science, and they both take place in the context of Western Christianity, broadly understood. Though standing within the same religious traditions, those American and Dutch authors did not have the same view of what religious belief is.

What has been achieved in the decades since 1966? There are books, conferences and lectures on ‘religion and science’. Oxford University has established an endowed chair in this area, and so have Princeton Theological Seminary, the Graduate Theological Union in Berkeley and Davidson College (USA). Despite much activity, however, consensus on issues of importance seems far away, the impact on theology and on religious communities is limited and the academic credibility of ‘religion and science’ remains marginal.

I suspect that the lack of progress has to do with a lack of careful consideration of (a) contexts, (b) purposes, (c) criteria and (d) views of what religion might be. These issues will be addressed in the first four chapters of this book. Thereafter, we will consider three major domains of ‘religion and science’: (e) mystery in a world made intelligible by the sciences, (f) morality in a world of facts and (g) meaning and identity in a world of matter.

In its structure, this guide isn’t organized by scientific discipline, nor is it organized by religion, nor by particular topics such as creation, providence, prayer, sin, evil or the concept of God. A more grandiose project would have to cover all such dimensions and many more. Here we will concentrate on

underlying assumptions about purposes and criteria, thereby preparing a canvas upon which substantial views on these issues might be drawn.

Many people are interested in science: engineers who consider applications, patients who hope for cures, business people who look for opportunities, governments that consider what to fund, legislatures that debate ethical restrictions and lay people who are just curious. In this cultural environment surrounding science one aspect may be the formative and normative religious traditions of human societies and the beliefs, values, attitudes, hopes and dreams of individuals.

Religious interest comes in multiple versions as well. There are not only people who believe differently but also agnostics, who argue that we should be modest in our claims as we don't really know. And there are atheists, who think we should not be too modest, as we know that it is not. In as far as they engage science I here consider all such persons as involved in 'religion and science'.

We need not think of scientists and of religious people as if these are distinct groups. A single person may well engage in science and have moral and metaphysical convictions. Thus, I will focus on science and religion as activities, rather than on scientists and believers as persons.

Reflections on 'religion and science' take place in a cultural, social context. Courts have been involved in controversies over the teaching of evolution in American schools. Sponsors donate money for the advocacy of their preferred positions or for their beloved research projects. One never walks alone; contexts and company shape what is going on (Hefner 2008). At least two contexts can be discerned: secularization and the persistence of superstition. As I will argue that location and perspective are important to understand what is going on, I need to be honest on the perspective that informs my writing here. We will come to that later in this chapter.

Secularization as concern

Many participants in contemporary reflections on 'religion and science' are concerned about *secularization*, about religious institutions losing significance and adherence to religious beliefs declining. They value science and have an affinity with religion, and thus seek to understand how both might be significant, meaningful, or even true, rather than being perceived as being in conflict.

In 1633 Galileo Galilei was forced to abjure the idea that the Earth revolves around its own axis and around the Sun. Seen in historical perspective, this decision by the leadership of the Roman Catholic Church was damaging to the church, as the condemnation of Galileo undermined its credibility for centuries. If religion and science are perceived to be in conflict, one has to choose the side of science, on intellectual and moral grounds. The successes of science are intellectual and practical, in developing a deeper and more unified

understanding of the world, in making predictions that survive tests, in allowing us to make valuable applications such as modern computers and medicine. Thus, in brief, one might argue that science leads to secularization.

To see the natural sciences as the main cause of secularization in the Western world is naïve; welfare and other social measures have contributed at least as much to the decline of religious institutions. Technology and medicine have moved the boundary between that which is given, whether by God or by fate, and that which is within our reach to do something about. What might have been hubris in previous times has now become a human option, and hence a human responsibility.

Whether it is science or whether it is modernization and secularization in general, religion and science appear to be at odds with each other. Seen thus, ‘religion and science’ in the Western world can be viewed as a response to secularization, that is a response to the claim that science provides a better understanding of the world and a response to the expectation that the problem-solving attitude of science-based technology and medicine is to be preferred over prayer or other religious responses. If tension between religious affinities and reliance on science provides the incentive for ‘religion and science’, contributors may look for alternatives to the view that science replaces religion. ‘Religion and science’ in this context is driven by the perception of conflict.

To counter the idea that science refutes or replaces religion, one might argue that conflict and replacement do not necessarily follow from accepting science. This could be argued in various ways, each with its own assumptions about the nature of religion and the nature of science.

One strategy might be to argue that at heart religion does something not touched upon by the sciences as it addresses values, meaning and ultimate explanations. Religion, thus seen, is complementary to science. Galileo, in defence of his astronomical work, quoted in his ‘Letter to Grand Duchess Christina’ (1615) Cardinal Baronio who had said that the intention of the Holy Spirit is not to teach us how the heavens go, but how to go to heaven (Finocchiaro 1989: 96). Issues of morality and salvation are distinct from scientific knowledge.

To argue for the peaceful coexistence of religion and science one might also seek to argue that science is mistaken or incomplete, and in need of religious corrections, replacements or supplements, whether an actively intervening God (‘intelligent design’) or a more ‘spiritual’ view of reality. Such a strategy deviates from mainstream science, and thus is less effective in countering the idea of conflict, though the replacement is not a replacement of religion by science but of mainstream science by something else, whether considered ‘alternative science’ or dismissed as ‘pseudoscience’.

Another strategy might be to argue that below the surface (or beyond the horizon of current science, or in its history and practice) science depends upon religious notions. If there are laws in nature, should we not also allow for a sovereign Lawgiver, a God who would not have to work against God’s own

laws of nature, but has set these to bring about God's intentions? Last but not least, an integration of religion and science might be intended, bringing the sciences into a meaningful vision of the way reality is, whether in terms of a theistic metaphysics or in a form of 'religious naturalism'.

Ian Barbour, a major American author on 'religion and science', has proposed to describe the field with the help of four categories: conflict, independence, dialogue and integration (Barbour 1997: 77–105). The preceding paragraphs indicate that one way of reading this scheme is as presenting one problem (conflict), with three possible responses to mitigate the forced choice suggested by the conflict position.

Whether one opts for a friendly separation and division of labour, a modified science, or a more far-reaching integration, the conditions of this development seem to have been set by secularization. Science seems to make religion mistaken or irrelevant. Thus, the interest is primarily in an approach which appeases a potential or real conflict.

For those who see this as the main agenda in 'religion and science', the partners are others with a positive interest in religion and with respect for science, as these are involved in opposing the same opponents. Hence, there is a broad ecumenicity in 'religion and science'. The peer group tends to exclude as allies those who are perceived to be staunch opponents of religion such as Richard Dawkins, Peter Atkins, Edward O. Wilson and Daniel Dennett. And the peer group tends to exclude opponents to science and proponents of odd 'science', whether in the form of 'scientific creationism' or quantum mysticism, as relating to such alternatives would not provide genuine legitimacy for religion in an age of science.

I find this concentration on countering secularization unsatisfactory. The agenda is not positive but negative, even though the negative purpose might be served by a positive case for the independence of religious convictions or by a constructive integration of religion and science in an encompassing vision of reality. Whatever the strategy, the underlying tone, read thus, is defensive: we are judged to be on a slippery slope, on which one has to make a stand against the secularizing impact of science. I think there is at least one other possible agenda for 'religion and science', one that is not driven by concern about secularization but by concern about the persistence of superstition.

The persistence of superstition

One could also engage in 'religion and science' for another reason. The driving concern would not be the future of religion but the persistence of superstition and nonsense, even though we, humans, should know better. Such a context is well expressed in the title of one of the last books by Carl Sagan, astronomer and science popularizer: *The Demon-Haunted World: Science as a Candle in the Dark*. If such darkness is the context and concern, the agenda and partnerships would be different.

Challenging nonsense such as astrology, alien-abduction stories and ineffective but expensive therapies is a most laudable goal, not only intellectually but also socially and morally. Nonsense often goes hand in hand with financial abuse and with raising immoral expectations, as when someone sells nonsensical cures to patients who are fatally ill, or suggests to a bereaved mother the possibility of communication with the dead. If a disease can be healed by 'positive thinking', then the patient who doesn't become well receives the additional burden of failing spiritually. Fighting socially consequential nonsense drives organizations of sceptics, as far as I understand their intentions. 'Religion and science' could have developed more along those lines, but that has not been its prime concern so far.

Challenging superstition would require us in 'religion and science' to address the nonsense in our own field, and thus might upset the ecumenicity that serves us nicely in arguing against secular threats. For those involved in 'religion and science' our primary purpose would then be to challenge nonsense and to pursue truth, rather than to find a place for religion in a world seen through the sciences. This intellectual responsibility would regard critically not only secular challenges, but also the challenges and solutions that we may raise ourselves. Intellectually and morally I consider this a most important aspect of 'religion and science'.

This book

Putting Science in its Place is the title of a book in which the historian and geographer David Livingstone considers the situated character of scientific research. He studies science as situated in laboratories, the outdoors, the museum and hospitals, but also as shaped by particular local, contextual situations. Livingstone (2003: 94) demonstrates how the Galileo affair took place in a regional arrangement of patronage and authority. He describes the reception of Darwinism in Calvinist settings in Scotland, Ireland and the United States. In Belfast Protestants and Catholics used opposition to claims about science replacing religion to criticize each other. In Princeton, the leadership sought to read evolutionary natural history as divine design. In Charleston, in the southern United States, racial sensitivities led to opposition to a single human origin, while in New Zealand the settlers could use evolution to justify their struggle for life at the expense of the Maoris (112–23). Even a single issue like the reception of Darwinian ideas in Protestant circles was very much context-dependent.

Since reflection on religion and its relations to science is a situated business, it seems fair to give readers information on the context of this book and its author, to note my own biases and disputable assumptions. This book is written by a European, a Dutchman, who has been exposed to American conversations.

Even though Europeans and Americans read the same literature, their situations differ. In many parts of Europe there is more indifference about

religion, while science is more widely accepted. Thus, in Europe to think about 'religion in an age of science' is to think primarily about religion, with science as the background common to authors, readers and real or fictitious opponents.

In the United States science is distrusted by some as elitist. If there seems to be a conflict between religion and science, it need not be the science that is accepted. Some choose against science when it seems threatening to religious beliefs, and thus opt for 'scientific creationism' or 'intelligent design'. Those who address 'religion and science' in such a context have to do two jobs at the same time, to defend science against religious distrust and to think through the ways religion might need to be adapted in the light of the sciences. In such a context, philosophies of science which limit the pretensions of science may be extra welcome. A climate in which science is distrusted might be served also by popularization of science with a pious gloss at the end, whereas this would hardly count as a contribution to 'religion and science' in a European setting as such publications do not address the relationship between religious convictions and scientific knowledge.

Professional context

The professional setting of my writing is a public university, Leiden University, where I have a chair in Philosophy of Religion and Ethics. As this is a public university, religion may be an object of study, but legitimate methods are those of history, philology and literary studies, anthropology, philosophy and other secular disciplines. We have a bachelor's programme on the world religions, alongside bachelor's programmes on Christianity and Islam, the two largest religious traditions in the Netherlands. For some students, these programs may be the first step in training for ministry, but confessional and practical training is organized separately, complementary to the knowledge and skills provided by the university. This twofold order (*duplex ordo*), with a distinction between 'neutral' and confessional subjects, developed in the nineteenth century as the Dutch version of the separation of Church and State. The institute for religious studies of the public university and the professional Master of Divinity programme of the Protestant Theological University share a building. We have friendly relations, but serve different masters. Religious studies, rather than 'theology', is the context in which I write, and it is one in which I feel comfortable, though I also have my own religious interests and preferences.

Before becoming a philosopher of religion, with doctorates in theology and in philosophy, I earned a postgraduate degree in theoretical physics at Utrecht University. In 1977 I wrote a thesis on the detectability of Higgs bosons, particles which remain undetected today, but which might perhaps show up in the experiments at CERN, Geneva, when the new Large Hadron Collider is functioning well. I am no longer a physicist, but I hope that love and respect for science, in its results but even more in its persistent raising of further questions, still come through in the following pages.

I am an insider to ‘religion and science’ discussions. Critical reflections in this book do not only regard others’, but also my own work. I have written a book on responses to modern cosmology, *Beyond the Big Bang: Quantum Cosmologies and God* 1990, one on naturalism, *Religion, Science and Naturalism* (1996), and a poetic and narrative interpretation of our cosmic history, *Creation: From Nothing until Now* (2002a). From 2002 until 2008 I served as president of ESSSAT, the European Society for the Study of Science And Theology, the scholarly organization in this field in Europe. As of 2009 I am editor-in-chief of *Zygon: Journal of Religion and Science*, the premier scholarly journal in this area, up to then served by American editors. Thus, my context is also the ‘religion and science’ field in the Western world. In my own studies I have benefited greatly from two Fulbright scholarships and extended periods of study in Berkeley, Chicago and Princeton. Even though I will be critical of some trends in the field, I feel a strong affinity with the work of many on both sides of the Atlantic. My experience with other regions of the globe is more limited.

Modernity

The family I grew up in was science-loving and politically engaged; it was a secular, social-democratic and religiously liberal environment. A recollection, from the time I was about eleven years old: at the dinner table we discussed what the largest island is. England and Scotland? Madagascar? Greenland? Perhaps Greenland is overestimated because maps are distorted near the poles. Why would Australia not count as an island? And if one accepts Australia, why not the Euro-Asian landmass? Shouldn’t we add Africa or does the Suez Canal suffice to consider Africa as separate from Europe-Asia? Things were more complicated than we thought at first. The concept of an ‘island’ needed to be defined so that continents would be excluded. We had to be suspicious of impressions, as maps might be distorted. Once the question had become more precise, an encyclopaedia would be taken off the shelf, to find the relevant facts. Basic aspects of science have been part of my life from early childhood onwards: a respect for facts, but also a critical consideration of questions, concepts, criteria and first impressions.

My heritage is more than science; the main context is modernity. The *modern predicament*, as I see it, combines *universal ambitions* about knowledge, morality and politics with awareness of *historicity*, of the *contingent* character of social, cultural and biological reality, and with *a critical attitude towards traditional sources of moral and epistemic authority*. The natural sciences and the moral claims embedded in universal human rights have been successful in their global appeal. The dream of a universal language such as Esperanto, that would not be the language of a particular culture, failed, and so have socialist internationalism as well as visions of a world religion and a world government. Perhaps rightly so; some ambitions were too minimalist

to live by, while other projects were too Eurocentric to match the modern ambition.

A plurality of particulars might be the contemporary ('postmodern') preference, and there is something to be said in favour of its honesty. There are multiple perspectives, arguments and even criteria across cultures and sub-cultures. However, postmodernism might bring with it a splendid isolation in homely ghettos. The absence of universal criteria or shared foundations, whether qua method or substance, might encourage irrationality and arbitrariness. Postmodernism might generate a pluralism that is inhospitable for an individual who wants to cross boundaries, leave particular ghettos, and be able to criticize a given culture. In my opinion, there is a great value in the universal ambition of modernity, the quest for truth and knowledge that is not partisan, but then, for the sake of truth, we also need to appreciate the local that is so typical of the richness of bio- and cultural diversity.

We cannot take our traditions and myths as objective truth; what Paul Ricoeur (1967) in the concluding section of his book *The Symbolism of Evil* referred to as a primitive or first naïveté. Rather, we are heading for a different style of believing and belonging; one that is coloured by a particular history but that is also open to alternative voices. At different moments we play different games. We enter a cathedral and may be moved by the light through the stained glass, but we may also observe the cathedral from the outside, seeing the windows but not sharing in the experience of the light coloured by the glass (Yinger 1970: 1). I am at moments an observer, like an anthropologist or a scholar in religious studies, studying what is going on in the tribe of 'religion and science', while on other occasions I am a theologian or a philosopher, someone who participates in the discussions, and pleads for a particular vision. Insider and outsider perspectives may be distinguished, but they are intertwined.

Preview

The next chapter will analyse some of the interests that drive 'religion and science'; this analysis is mostly in line with the reflections on secularization above. 'Religion and science' will be considered as apologetics for religion but even more as apologetics for science. And what seems to be a dialogue with an external conversation partner, science, is often a fight within the religious community for the proper understanding of faith. Last but not least, 'religion and science' is a way to address the discomfort that may be the consequence of scientific understanding, when we are told that we are driven by selfish genes or that we are nothing but a pack of neurons.

The third chapter is about the understanding of science as a source of insight and about the criteria we might use to distinguish sense from nonsense. Criteria are needed if 'religion and science' seeks to counter superstition, but they are also relevant if one seeks to be plausible in an age of secularization. I will present my criteria in a form inspired by the 'Ten Commandments'.

Disagreements concern not only particular beliefs; they also concern the character of religious faith. We need to reflect carefully on religion, and its intellectual side, theology. The fourth chapter proposes to treat theologies as religious (or non-religious) visions that integrate models *of* the world and models *for* the world, that is worldviews and values.

Given the understanding of science and of theology developed in the previous chapters, the three subsequent chapters will present three major domains in the 'religion and science' discussion. *Qua metaphysics*, I argue in Chapter 5 that science aligns well with a form of naturalism, but that this does not do away with or limit questions regarding the scientific enterprise. Any science-inspired naturalism has an open end which allows for a theistic, a religious-naturalistic or an agnostic view. *Qua morality* I stress in Chapter 6 the significance of particular traditions as well-winnowed wisdom, and hence as imperfect human approximations of values that are themselves beyond the actual (just as mathematical truth is the limiting ideal of fallible human knowledge). And in the quest for meaning in a material world, in Chapter 7 I stress the role of creativity, traditions as formative rather than normative, and the role science might play in imagining our place, identity, and responsibility.

In the Epilogue I reconsider the combination of context and content, the emphasis of the earlier chapters and of the later ones, suggesting issues for further research.

From time to time, most extensively in the second chapter, I will refer to titles of books to convey what is going on in this field. Let the reader not be discouraged when these books are not familiar; explicit titles have been picked as illustrations of positions in current debates. Straightforward references are integrated in the text. Full details can be found in the bibliography at the end of the book.

Hunting a Snark?

Religion in ‘religion and science’

‘The seven world religions’ were displayed prominently on the cover of the popular magazine *Le Point* in France on 21 July 2005. The issue had contributions on Hinduism, Buddhism, Judaism and Islam, and on Roman Catholicism, Protestantism and Eastern Orthodox Christianity. What many consider differences *within* Christianity the editors took to be of such importance as to make these into three separate religions. Classifications are interesting.

Not only are there multiple religions; there are also multiple aspects of religion. Is religion about belief in God’s existence, or should a particular attitude of trust be considered primary? Or is it about communal practices, such as rituals and rules on food, marriage and much more? Must there be holy books and priests? Is it a matter of church attendance and group identity or rather ‘the feelings, acts, and experiences of individual men in their solitude, so far as they apprehend themselves to stand in relation to whatever they may consider the divine’, as William James wrote in his *Varieties of Religious Experience* (1902: 31f)? Defining religion is notoriously difficult, if not impossible (De Vries 2008; McCutcheon 2007; Platvoet and Molendijk 1999; Smith 1998; for a history of the category ‘religion’ see Harrison 1990).

Despite the difficulties, it might be useful to have some idea of what ‘religion’ in ‘religion and science’ might mean. Otherwise, one might end up with a situation not unlike the one described by Lewis Carroll in ‘The Hunting of the Snark’ (1939: 767):

‘The rest of my speech’ (he explained to his men)
‘You shall hear when I’ve leisure to speak it.
But the Snark is at hand, let me tell you again!
'Tis our glorious duty to seek it

To seek it with thimbles, to seek it with care;
To pursue it with forks and with hope;
To threaten its life with a railway-share;

To charm it with smiles and soap!
For the Snark’s a peculiar creature, that won’t

Be caught in a commonplace way.
Do all that you know, and try all that you don't:
Not a chance must be wasted to-day!

The hunting party is frantically searching, without success. Perhaps the Snark is difficult to catch; they may not have the right weapons. Perhaps the beast doesn't exist. Or is the problem in our words? The hunters do not agree among themselves as to what they are after. A sobering thought, when considering the continuing quest for God.

This chapter considers the meanings of religion and theology, in an attempt to clarify to some extent the aims and structure of 'religion and science'. The *multiple meanings of religion* are the topic of the first section. Given that there are multiple meanings, it is a matter of religious and social importance to have the authority to define what genuine religion is – and thus it is relevant to ask *who is to define what religion is?* – a question that will be addressed in the second section. One recurrent issue is also whether one needs to be religious to understand religion. Are atheistic critics of religion misguided, because they cannot know what they are talking about? We'll consider the *insider-outsider problem* in the context of religion and science in the third section.

Within 'religion and science', beliefs and theologies are of particular interest. In the fourth section I will offer *a proposal for understanding integrated religious and non-religious views*, what one might also call 'theologies', by offering a scheme that relates them to metaphysical and to moral ideas; this scheme seeks to clarify various possible roles of the sciences relative to such theological proposals. Those roles of science will be the subject of the three subsequent chapters.

What might 'religion' be?

There are a multitude of religions in this world, just as there are many languages, cultures and subcultures. Furthermore, there are manifold practices and beliefs that are more or less religious. Bookshops have major sections on mind and spirit; we have seen the popularity of *The Celestine Prophecies* and *A Course in Miracles*, and there will be new contenders again and again. TV had *The X-Files* and *Charmed* mixing the supernatural with science fiction and magic. Magazines need an astrology column to sell. In addition to mainstream healthcare we find a wide variety of healers and therapists, many of whom have a religious or 'spiritual' approach on our wellbeing. The distinction between what is genuine faith or spirituality and what is superstition is not a scholarly distinction but a partisan one. Before becoming involved in such judgements, scholars of religion (and I assume that one who reflects on religion and science thereby to some extent aspires to be scholarly about religion) should seek to understand the nature of the bewildering variety of religious beliefs and practices.

Each religion and each understanding of religion has its own discussions on 'religion and science'. Some religions have a strong emphasis on God as the

Supreme Being who takes an active interest in processes in this world, whereas other traditions such as Buddhism may do without such a concept. Some understandings of religion give prominence to extraordinary experiences, whereas others may locate the religious dimension in ordinary life with its moral choices, existential burdens and ritual practices. Whereas evolution/creation is a major issue for some Christians, it is not so for Buddhists, for whom the understanding of mind and perception is more significant. For someone whose Christianity is primarily moral, inspired by the Sermon on the Mount, the atheist who rejects miracles is tilting at windmills; he is not an opponent but besides the point. There is no essence or single archetype of 'religion', no univocal definition; there are a variety of religions and there is variety within each religion.

Multiple modalities of religion

The discussion is not only shaped by the particular religion one has in mind, but also by the particular aspects of religion considered. Many classifications are possible. Eric Sharpe distinguished between four functional modalities of religion, not so much as phenomena (like ritual and myth) but rather as emphases (within religion) and hence as categories of analysis when considering religious life. Sharpe (1983: 95) gives the following summary:

- (1) Existential: *Faith* in the sense of *fiducia*, 'trust'
- (2) Intellectual: *Beliefs* in the sense of those statements to which one gives conscious assent (*assensus*)
- (3) Institutional: *Organisations* within which (1) and (2) are held and maintained, and by which they are transmitted.
- (4) Ethical: *Conduct* via-à-vis the members of (3) and others.

The *existential mode* is the most individualistic one. At the heart of such belief is acceptance of a transcendent order, a sense of dependence upon that order and an attitude of trust. A Dutch songwriter, André Hazes, had in one of his popular songs the line 'She believes in me.' 'Belief' in such a love song does not refer to knowledge: she believes that I exist. My existence is assumed, but the important meaning of 'she believes in me' is relational and fiduciary: she has confidence in me, in my behaviour and in my future with her. Using religious terms one might say that the Devil believes that God exists, but the Devil does not trust God or commit himself to God. The Devil is not a believer in the existential sense of believing. Well, maybe the Devil is afraid of God – and in that sense there is engagement. Existential belief need not be accompanied by positive emotions alone; fear and trembling could be involved in the relationship as well.

If personal experience is of major importance, as it is with this emphasis in religion, doctrinal articulation may well be deemed secondary. Mystics across

traditions may recognize each other, and contemporary spiritual seekers often engage in extensive bricolage, drawing on many sources and traditions. There can also be orientation based on the experience of certain inspiring leaders; in such cases believers have become followers. In the 'religion and science' field, some of the interest in this area has recently taken the form of work concerning research on human experience, and especially on the functioning of the brain. This is also a focal point in research on Buddhism and altered states of consciousness.

In the *intellectual* mode, convictions or beliefs would be more significant aspects of religion than experiences. Belief involves ideas about God or the gods, the Absolute, ultimate Nothingness and ideas about the human condition with its sins and delusions. Here we enter the area of doctrinal disputes, in which the one who disagrees might be deemed a heretic, a term that would not be applicable if the experiential aspect was central. The emphasis on the cognitive content of religious beliefs is especially prominent in an apologetic context (communicating with outsiders), during internal disputes and in teaching the next generation (catechism). In the field of 'religion and science' this mode most often takes centre stage, in discussions on creation and evolution, in arguments for the existence of God, in reflections upon human nature, and so on. Though the other modes are as important when studying religions, we will return to this aspect of religion, beliefs, whether metaphysical or moral in kind, when we come to speak of 'theologies' below.

The *institutional mode* emphasizes religious organizations into which one is born, such as the state, tribe, caste or family, and organizations to which one belongs by choice. Emphasis on individual choice is relatively recent, and predominantly European and American. Even there, someone might self-describe as Catholic 'by birth', thus indicating that that is part of their heritage and identity, without necessarily believing Roman Catholic doctrine. Religious communities are significant as communities, as forms of extended family, as social support in times of need. In this light, secularization in Europe may well be driven more by the loss of social function of religious communities, as the state took on responsibility for social welfare, than by loss of intellectual belief. In socially challenging environments religious communities tend to be more prominent, as witnessed by the role of churches formed by migrants. The social sciences have a professional interest in this institutional dimension. In relation to the natural sciences, this institutional mode is less prominent. An exception is the sociobiological study of David S. Wilson, *Darwin's Cathedral* (2002).

In the *ethical* mode, duties and moral obligations are primary. This gives structure to the relations between leaders and people, between men and women, between generations and between insiders and outsiders. Often much more is allowed relative to outsiders than within the group. Religion has often served to create and consolidate social order by ascribing authority to religious and secular leaders ('God save the Queen'). It also strengthens social roles, e.g.

in marriage rituals and other rites of passage, such as those of a soldier who commits himself or a monk who vows celibacy, poverty and obedience. In 'religion and science', this side has received some attention, e.g. in studies regarding the biological and cultural basis of morality, especially the possibility or impossibility of altruism and self-sacrifice.

Deciding which of these modes has priority is a chicken and egg problem; the different modes evoke each other. The distinctions may serve to clarify, but they need not be taken as absolute distinctions. Perhaps various modes developed separately, each for good reasons, while their integration gave rise to the modern sense of religion (Söling 2002). The main role of the map here is to alert us to the fact that religion has multiple facets, and that a full consideration of religion in the light of the sciences should be fair to all these dimensions.

We tend to think that doctrine is more important than myth, and that myth gave rise to practice. However, as early as 1889 William Robertson Smith warned in his *Lectures on the Religion of the Semites* that it might well be the other way round (Segal 1998). Think of the following analogy. When putting their children to bed, parents have come to tell a narrative explaining why the seal is to the right of the bear and why the little rabbit is blue. Did the story precede the practice? It may well have been that there was this daily moment of intimacy, with the stuffed animals that had come to the child more or less haphazardly, and the mythic narrative encapsulates this moment but is not itself its core, and certainly not its origin. In thinking about religions, we tend to look for a creed and for sacred books, as did those who collected *The Sacred Books of the East* in the nineteenth century, but that assumes that there is a common intellectual and institutional structure to various religions – a creed, a sacred book, priests, and so on. This may well be a mistake made by scholars who themselves are too much shaped by Western examples, and by their academic bias towards the intellectual and literate.

In discussing religion in 'religion and science' we need to be alert not only to the diversity of religions, as large-scale traditions, and to the diversity within traditions, but also to the variety of aspects involved. At any one moment, one may limit oneself to one facet, but then we should not be too surprised if a conversation partner misunderstands us at first, as they were thinking of something else and thus posing different questions and having other concerns. In the next section I continue this exploration of diversity with special attention to the question 'who defines?', and hence for what purposes a particular understanding of religion is advocated.

Who defines?

Who is to say what religion is? That is, who defines what is to be considered as fitting the concept 'religion'? And, furthermore, who is to decide what *genuine* faith is? Or more practically speaking: what purposes are served by using the concept in a particular way? These are the questions to which we

will turn now. Is the question ‘What is religion?’ an academic one? Or is it one that is to be understood in its social context? One important example of this will be the understanding of ‘religion’ in public debates, where advocates of secularism and of ‘strong religion’ (Almond *et al.* 2003) serve each other well to the exclusion of moderate religious and secular voices. Both opposites understand theology primarily in terms of truth claims and the pious attitude as deference to the authority of the tradition and its scriptures, read in a more or less literalist way. Those reflecting on religion in relation to science often find themselves caught in the middle, seeking to articulate forms of religion that respect the tradition but give substantial weight to modern insights.

‘What is religion?’ as an academic question

Is the question ‘What is religion?’ an academic question? Is posing this question just like asking ‘What is a black hole?’ in astrophysics? If so, to answer the question is a job for those who study religions, or, more broadly, for those who study human societies. They would have to make proposals as to what distinctions best serve to clarify the phenomena.

The best definitions don’t come at the beginning of research, but rather at the end of our exploring. They embody insights gathered so far. If one begins to distinguish mammals from fish by having mammals live on the land and fish in water, the whale is classified as a fish. After studying whales one may come to an improved understanding which finds expression in new definitions of fish and of mammals.

When we come to religion we already have a whole history of research, both theological and anthropological in kind. One anthropologist studying religion is Clifford Geertz. He observed that

sacred symbols function to synthesize a people’s ethos – the tone, character, and quality of their life, its moral and aesthetic style and mood – and their world view – the picture they have of the way things in sheer actuality are, their most comprehensive ideas of order.

(Geertz 1966: 3; 1973: 89)

This insight regarding the role of symbols in synthesizing ethos and worldview brought him to an oft-quoted definition:

a religion is (1) a system of symbols which acts to (2) establish powerful, pervasive, and long-lasting moods and motivations in men by (3) formulating conceptions of a general order of existence and (4) clothing these conceptions with such an aura of facticity that (5) the moods and motivations seem uniquely realistic.

(Geertz 1966: 4; 1973: 90)

As a definition of the empirical phenomena of religiosity this is not perfect. There is too much emphasis on the cognitive role of symbols as contributing to conceptions of the order of existence, thus bypassing ritual, social and other non-cognitive roles of religious symbols. The definition can also be challenged as inadequate with respect to philosophical complexities of representation and truth (Frankenberry and Penner 1999). Besides, the definition suggests a causal arrow from symbols via conceptions to moods and motivations, whereas the symbols may also *express* moods and motivations rather than establish them. The observation about synthesizing ethos and worldview quoted above has less of this causal suggestion in it. Nonetheless, as a definition that involves the cognitive side of a religion, what could be called 'a theology' or 'a religious vision' (or non-religious equivalent), Geertz's definition highlights the observation that in religious thought conceptions of the order of existence are intertwined with the appreciation of reality and norms for our behaviour. To speak of the world as God's creation has both a descriptive and a prescriptive aspect to it. We will return to this in the final section of this chapter, when considering the nature of religious visions.

A definition to some extent has a *pragmatic* role. Physics is able to deal well with concepts such as energy and gravity, but the question 'What is energy?' makes physicists uneasy. Most of them would consider this a question that is not within their domain, or one that is not even properly posed. In his *Lectures on Physics*, Richard Feynman has a section titled 'What is energy?' He speaks of conservation of energy as the 'strange fact that we can calculate some number and when we finish watching nature go through her tricks and calculate the number again, it is the same'. And at the end of the section: 'It is important to realize that in physics today, we have no knowledge of what energy *is*' (Feynman *et al.* 1963: 4-1, 4-2). A metaphysical claim as to what energy is might be beyond our reach.

Furthermore, the boundaries of a concept may be vague, and sometimes necessarily so. If one is to develop a theory about the way multiple biological species may radiate from an earlier species, one needs a concept of species that allows for such a transition, where in the era of the transition it is not clear whether organisms belong to the earlier or to the later species. That the boundary is not sharp need not count against the usefulness of a concept, just as the gradual transition from day to night does not make the concepts 'day' and 'night' meaningless.

Even though definitions are never perfect, one needs a provisional grasp of the area to be explored and analyzed. In that context, one may prefer to begin with a few *examples* of what is considered religious, and suggest studying other phenomena sufficiently similar. However, this strategy of operating on the basis of a few examples has certain risks as well, as peculiarities of the exemplars chosen may skew the analysis.

In the history of the concept 'religion', Western Christianity has been the prominent model, and this has brought with it certain expectations. A 'Holy

Book' seemed characteristic of Christianity, and also of Islam and Judaism, as the alternatives best known to scholars of religions. When exploring Asia in the colonial period Max Müller and his colleagues thus collected various writings in the series *Sacred Books of the East* (nineteenth century), assuming that the canonical authority of holy books is central in each religion. Furthermore, as this was typical for Christianity, it was expected that a believer adheres to a single religion at most. However, this may not do justice to countries such as Japan where ritual practices from different religious traditions such as Buddhism and Shinto are often part of the life of a single individual operating in various social spheres.

The nature of rituals, religious officials, narratives, myths and hymns may be vastly different from one tradition to another. Whereas for a Protestant reading the Bible is central, and the intention is to understand the moral or intellectual meaning of the text, Muslims in Indonesia may recite the Qur'an in Arabic without even understanding the language; the recitation itself is religiously significant. If we begin with a single exemplary tradition, or at best a few, we may skew our understanding with assumptions adequate for the first example but not for other traditions.

'What is religion?' as an academic question engages us in a project that is open ended, always inviting further study, given the diversity of human practices and beliefs. But, as we will come to consider now, it is often not just an academic question.

'What is religion?' as a political question

Asking 'What is a human?' or 'When does life begin?' in a conversation about human embryos may seem a scientific question, but it is not. It is a political question. If the nature of the question 'What is religion?' is of such a kind, clarification and explanation is not the primary purpose. Rather, the purpose of the question may be to ascribe a certain status to the phenomenon thus classified. Or the purpose may be to dismiss certain challenges as irrelevant, as when Galileo stated that the Bible does not intend to teach us how the heavens go, but how to go to heaven. By offering a particular understanding of what genuine religion is, certain challenges can be dismissed as applying only to superstition but not to genuine religion. Such labelling is socially useful but academically problematic: academic definitions of superstition as distinct from genuine religion are hard to come by; the point of the label 'superstition' is dismissive.

That understandings of religion have political significance is typical of the debates over evolution. Though the dispute seems to be about science, the struggle is to a large extent about the nature of religion. Whether one sees evolution as a challenge or as irrelevant to faith reflects different understandings of the nature of faith, and this shows up in legal disputes. For instance, in 1981 the legislature of the State of Arkansas passed a law that

described its purpose as 'to require *balanced treatment* of creation-science and evolution-science in public schools; to protect academic freedom by providing student choice; (...) to bar discrimination on the basis of creationist or evolutionist belief'. As I have already mentioned in Chapter 2, this law was challenged in court by parents and teachers, as well as by bishops of the United Methodist, Episcopal, Roman Catholic and African Methodist Episcopal Churches, the principal representative of the Presbyterian Churches in America, United Methodist, Southern Baptist and Presbyterian clergy and three types of Jewish organizations. Thus the case was not just one of 'science versus religion' but at least as much a case of 'religion versus religion'. The judge, William R. Overton, concurred as he deemed 'creation-science' a religious rather than a scientific position. Thus the law favoured one particular religious position over and against other religious views, which was against the separation of Church and State. Therefore he declared the law unconstitutional (Act 590; Overton [1982] 1988).

The offence that creationist or intelligent-design presentations give to mainstream believers is not just that they disagree on a particular detail of faith, but that the creationists claim to represent genuine faith, and thus claim to represent religion as it really should be, thereby relegating other believers to a secondary status if not dismissing them as almost atheists. And vice versa; adherents of mainline churches (to use this label for simplicity's sake) may well dismiss others as not grasping what religion is really about, and thus as clinging to the wrong issues.

One recurrent pattern in defining religion for tactical reasons can be found when we consider the understandings of religion in public conversations in secular democracies. In this setting, the extremes seem to provide a useful service to each other, by sharing the answer to the question 'What is religion?', even though advocating different policies. We will turn to this now.

'Religion' and secular politics

There are authors who prefer to exclude religion from public debate. They consider religion to be private and hence unable to provide generally acceptable premises. Religious expressions and arguments need to be reformulated in terms acceptable to all. It may even be inappropriate to refer to one's religious preferences, as religion serves as a 'conversation stopper', as the philosopher Richard Rorty (1994) called it. This is a position which Rorty (2003) later retracted, partly in response to criticisms by Nicholas Wolterstorff (1997) and Jeffrey Stout (2004).

In opposition to the secular exclusion of religion from the public sphere, some advocates of religious positions such as John Milbank, Stanley Hauerwas and Alisdair McIntyre have rejected secular liberalism, suggesting that secular views fall short in providing substantial values that are essential to a flourishing human society (Stout 2004). By objecting to the secular character of

society, they agree with their opponents that religion and secular democracy are incompatible.

Is the definition of religion shared by secular voices and religious traditionalists, which results in an understanding of the situation as characterized by a choice between these two positions, adequate? Empirical results seem to suggest that the exclusion of the middle excludes a very major segment of the population from being heard in what they consider important. In the Netherlands, a poll (Drayer 2004) showed that adherents of the outspoken theistic and the outspoken secular position together formed just about one third of the people questioned (twenty per cent claimed to believe in a personal God; thirteen per cent defined themselves as atheists), whereas the largest groups said they believed in 'something' ($\frac{1}{3}$) or considered themselves agnostic ($\frac{1}{3}$). According to a more recent Dutch survey (Kronjee and Lampert 2006: 176), slightly over a quarter of the population can be considered, qua lifestyle, members of a church and another quarter as more or less humanist or atheist. Another quarter consider themselves religious or 'spiritual' without affiliation. It is especially members of this latter group, as well as quite a few of the religious humanists and of the mainstream church members, who are not well served by the strong definition of religion shared by religious traditionalists and advocates of secularism. Religious positions that are less explicit by the standards of traditional religion are present in substantial numbers in other European countries as well.

In response to theocratic and atheistic exclusionary ways of defining religion in relation to democracy, Stout (2004) argues that in the United States there is an 'Emersonian piety' alongside an 'Augustinian' one. 'Emersonian piety' refers to the poet Ralph Waldo Emerson, but his name is used by Stout as a label for a religious attitude; about a century earlier, William James (1902: 33) also spoke of 'Emersonian religion'. 'Emersonian piety' is not deference to higher powers, to theological truth as a given, or reverence for authority, but rather it is characterized by self-reliance, by taking responsibility for one's own thinking. This need not be self-reliance as if our achievements are ours in isolation from a tradition shaped by earlier generations. Rather we can be grateful to earlier generations and to the whole of nature, the sources of our existence, without moving from gratitude to passivity. Respecting previous generations does not take the form of fixation of their traditions; their lives and contributions are honoured by moving on from where they brought us, by engaging in further explorations (Stout 2004: 38).

Stout argues a systematic thesis, namely that the polarization between the secular exclusion of religious voices and the religious sentiment against secular culture rests upon a shared assumption regarding the nature of religion and the nature of secular culture. Whereas a highly absolutist, authoritarian understanding of religion makes it hard to incorporate religious voices in a democratic process (thus justifying the secular exclusion, as well as the fear that religious voices are excluded), a more tentative attitude in religious life is not

at all in conflict with democracy, understood as a process of conversation, of exchange of reasons for one's values and concerns when challenged, rather than as the exclusion of all religious voices.

The empirical observations regarding the Dutch religious landscape and the systematic position defended by Stout suggest a similar conclusion. There are strong forms of religion and outspoken opinions on democracy and Enlightenment values that exclude each other, but these do so on the basis of a shared understanding of the concept of religion. Those who are moderate may be more comfortable with Stout's characterizations of religion and of democracy than with the more exclusionary ones. The controversy is to some extent a controversy over the meaning of 'genuine religion'.

By way of summary, I want to emphasize three theses. First, a choice as to what really counts as religion is a major component of controversies, in society and in 'religion and science' debates. Second, strong forms of secularism and strong forms of religion serve each other well to the exclusion of moderate religious and secular voices by sharing an understanding of religion in which theological truth claims and piety as deference to authority are important central characteristics. Third, such definitions are scholarly inadequate as they exclude various other options. Rather than serving academic analysis, their understanding of religion serves advocates of strong religion and advocates of strong secularism by focussing the debate on their own position and on their preferred opponent, to the exclusion of moderate alternatives.

Let me add one self-reflective worry. Above, I challenged advocates of the secularization thesis and adherents of strong religion who deplore secularization but agree with the others on the understanding of religion. But are such criticisms not serving particular interests as well? Indeed, the more moderate view is partisan as well. It serves church leaders who need a market and those believers who want their church to be a community open to all who earnestly seek, whether they seek God or their deepest self. And observations on the persistence of religion in multiple forms are also useful to scholars of religion, who thereby justify the continuing relevance of their academic disciplines in a way that would not be possible in the context of the polarized understanding of developments in terms of strong religion or secularization.

In the next section, we will consider the study of religion – and especially the question of whether one has to be religious to understand it. If that were the case, one could conclude that atheists do not just disagree with believers; they do not understand what it is to be a believer.

Insider-outsider problems in the study of religion

Can someone who is tone deaf understand music? In his study on *Das Heilige* (1917; trans. 1950: 8) Rudolf Otto wrote at the beginning of the third chapter:

The reader is invited to direct his mind to a moment of deeply-felt religious experience, as little as possible qualified by other forms of consciousness. Whoever cannot do this, whoever knows no such moments in his experience, is requested to read no farther (...). We do not blame such an one, when he tries for himself to advance as far as he can with the help of such principles of explanation as he knows, interpreting 'aesthetics' in terms of sensuous pleasure, and 'religion' as a function of the gregarious instinct and social standards, or as something more primitive still. But the artist, who for his part has an intimate personal knowledge of the distinctive element in the aesthetic experience, will decline his theories with thanks, and the religious man will reject them even more uncompromisingly.

According to Otto personal experience is necessary to gain access to the real meaning of religion. Unlike Otto, I make no claim for the priority of the participant over the observer, as if the one has real knowledge and the other merely an incomplete and distorted understanding. However, I think it is heuristically useful to pay attention to differences in their approaches. Speaking very generally, an *insider* participates in practices considered meaningful, true or right. An *outsider* might concentrate on the discourses of insiders, on the contexts and interests involved and consider the way these practices may be useful to insiders. The insider might speak religiously of revealed knowledge with universal and timeless significance, whereas the outsider sees texts that have been made by humans for humans in particular historical contexts (McCutcheon 1999).

An insider has some problems that the outsider need not have. When considering implausible, immoral or horrible stories from the Bible, an outsider might treat such passages as throwing light on what people once believed; they do not imply any particular challenges to the outsider's own attitudes. A believer for whom the Biblical text is normatively significant has a problem: can one read those texts as relevant for us, and as appropriate to the story of God, without endorsing their unwelcome aspects? This problem is as old as religion; allegorical interpretation and other distinctions between the literal or superficial meaning and the deeper meaning have been made again and again.

Similarly, though suffering may be an existential issue for all humans, the question of how to acknowledge the reality of evil in combination with belief in a good and almighty God is only a problem for a believer. Religious discourse on God's reasons for allowing suffering might be interpreted by an outsider in psychological terms, as involving cognitive dissonance (McCutcheon 2007: 54–56).

From an external perspective it may be argued that belief in the truth of religion plays an important functional role. In the definition by Clifford Geertz quoted earlier in this chapter one element is that a worldview is clothed 'with such an aura of facticity that the moods and motivations seem uniquely

realistic'. The beliefs need not be true, but they need to be believed as truth. Geertz's definition is typically an outsider's definition which depicts religious symbols as useful (moods and motivations). However, his 'aura of facticity' implies that for the believer cognitive aspects are involved.

Insider-outsider problems are not exclusive to the study of religion. The human sciences have to face them all the time: humans speak of their ideas, ideals and feelings where the psychologist or sociologist might see interests and group pressure. And there are the neurologists and other physiologically minded observers who speak of brain processes and hormones when a subject claims to be in love, enchanted by a smile and personality.

With the problem of understanding reasons (an insider concept, related to mind) in a world of causes (brain processes) comes the question of what the relationship is between the explanation of behaviour and its justification. Similarly, there is the issue of values humans aspire to in a world apparently driven by interests: what is the legitimacy of moral discourse used by naturally evolved beings? Even science, the study of nature, may be considered in a dual perspective, as a quest for truth, driven by rational considerations, and as an all too human enterprise, driven by a drive for power and reward.

Philosophy might serve as mediator between the two perspectives, by dispelling false oppositions such as the one between brain and mind or the one between evolved and moral. The philosophy of mind typically addresses the question of how neural processes can be bearers of meaningful discourse. Meta-ethics and philosophy of biology concern the multiple ways in which 'selfish genes' might give rise to moral individuals (e.g. Midgley 1994). The philosophy of science is addressing the question of how fallible human practices can deliver more or less objective, culture-independent knowledge (e.g. Kitcher 1993).

Let us return to religion. My teacher in philosophy of religion, H. G. Hubbeling, defined the task of philosophy of religion in relation to religious studies as follows:

Science of religion does not ask for the truth or falsity of religious institutions or statements, it just describes and explains them. Philosophy of religion, then, may be characterized as follows: *Philosophy of religion = science of religion + the investigation of truth or falsity.*

(Hubbeling 1987: 3)

Philosophy of religion stands between the insider and the outsider perspective and thus comes close to systematic theology, the intellectual concern of the insider.

However, there is also a relevant distinction between the philosopher of religion and the systematic theologian: 'in a philosophical statement a reference to revelation is not permitted, whereas in theology one may refer to revelation as an argument' (Hubbeling 1987: 1).

Hence in philosophy of religion we do not have the insider perspective based on particular religious creeds, revelations or experiences but we do have the attempt to think through the truth and value *of* religion with the best available truth *about* religions. That is the spirit in which I think we ought to engage in religious reflection with a perspective that is external to religion, namely science. Thus ‘religion and science’ has to be philosophical, not in a strong disciplinary sense but in the sense that it deals with the outsider perspective on religion, human nature and the world while considering at the same time its possible meaningfulness, truth and value. In the next three chapters I will offer some explorations that move within this arena, approaching insider issues, about the place of mystery and ultimacy in a scientifically intelligible world, the place of values in a world of facts and the quest for meaning in a material world, but addressing those while operating from an outsider’s perspective, engaging scientific knowledge and attitudes.

Theologies as packages

We already came across the remark by the anthropologist Clifford Geertz that ‘sacred symbols function to synthesize a people’s ethos – the tone, character, and quality of their life, its moral and aesthetic style and mood – and their world view – the picture they have of the way things in sheer actuality are, their most comprehensive ideas of order’. This led to the definition of religions as systems of symbols. Here I want to use his definition as a stepping stone towards an understanding of the cognitive side of a religion, what could be called ‘a theology’ or, to be more inclusive, an integrated religious or non-religious vision of life. In this approach conceptions of the order of existence are intertwined with the appreciation of reality and norms for our behaviour. To speak of the world as God’s creation has a descriptive and a prescriptive aspect to it. In the same article, Geertz also speaks of models *of* the world and models *for* the world, that is of models that seem to be descriptive and models that articulate a normative orientation and transformative ambition. In order to acknowledge the concentration on cognitive and normative dimensions I will speak here not of ‘a religion’, as Geertz does, but of ‘a theology’ or of ‘a religious or non-religious vision’.

Theologies as ‘cosmology and axiology’

Typical of theologies and non-religious visions, as systematic positions, seems to be that they offer a particular view of the way the world *is* and of the way the world should be, of the True and the Good, of the real and the ideal. Each theology is a particular relationship between a cosmology – as a view of the way reality fundamentally is (what one might also call a metaphysics or an ontology) – and a view of the values that should be realized, an axiology, that is a philosophically reflected articulation of our moral intuitions. A typical

example: God created this world (a cosmological claim) and hence we need to be good stewards (a normative claim). Note that 'cosmology' here does not refer to a branch of astrophysics but to a more encompassing philosophical discipline.

Hence as a heuristic to clarify and explore a complex area of discussion I suggest the following 'formula' for understanding the nature of 'theologies', religious or non-religious visions of life:

a theology = a cosmology *and* an axiology.

The *and* is not a mere addition, but the crucial issue: how the two are brought together; we will return to that below. 'Axiology' is a grandiose term for a theory of values, that is a philosophically reflected articulation of our moral intuitions. I speak of theologies in the plural, and hence of 'a theology', to indicate that we are not referring to a single discipline, nor to a single view. Rather this heuristic formula seeks to give an opportunity to understand each of the manifold theologies that people have as views of God, humanity and the world in which moral and factual aspects are interwoven.

To insiders in science-and-religion discussions this may seem to resemble the scheme proposed by Nancey Murphy and George Ellis (1996). However, my formula is a heuristic thesis for exploring the field, whereas Murphy and Ellis present a substantial thesis about the proper relationship between theology, ethics and the sciences. I do not want to make a statement on 'the moral nature of the universe'; the formula and scheme that follows also allows us to describe and analyse positions which consider the universe to be amoral, whether indifferent, meaningless or evil. Unlike Murphy and Ellis, for whom each level of understanding requires a higher one until it finally includes a doctrine of God, I do not consider an atheist to be deficient in understanding; rather, he or she holds a different existential position. Furthermore, I do not line up ethics with the social sciences as they did, as if ethics fits among the sciences, as I am convinced of the categorical difference between moral values and any factual analysis, including one by the social sciences.

Theologies can relate and prioritize cosmological and axiological aspects in many different ways; the 'and' can have many different meanings. The definition allows one to concentrate on *existential* issues which become prominent when our reality is not in accord with what we think ought to be, thus stressing the tension that might be involved in the 'and' in the formula. But it may also be about *supernatural* or *magical* elements, as particular claims regarding the cosmological order.

Within the Christian tradition, there are, upon this definition, various theologies. When the emphasis is on God's saving activity, the tension between the way the world is and the way it should be and will be is prominent, whereas in creation-oriented views (whether ecologically inspired or as natural theologies) cosmology and axiology stand less in contrast; a prophet

emphasizes the tension, whereas a mystic stresses the way we belong to reality. Whiteheadian process thought is one particular articulation of the interplay of axiological and causal elements. This way of integrating regulative ideals into cosmology has required particular, and in my opinion problematic, choices in cosmology, choices regarding pan-experientialism and regarding the place of physics in the order of the sciences. However, it is an interesting and relevant attempt to integrate valuational and causal elements in a single categorial scheme.

William James spoke of the connection of a worldview ('the universe') with values and attitudes ('manner of acceptance') in his *Varieties of Religious Experience* (1902: 41) as follows:

At bottom the whole concern of both morality and religion is with the manner of our acceptance of the universe. Do we accept it only in part and grudgingly, or heartily and altogether? Shall our protests against certain things in it be radical and unforgiving, or shall we think that, even with evil, there are ways of living that must lead to good? (...) It makes a tremendous emotional and practical difference to one whether one accepts the universe in the drab discolored way of stoic resignation to necessity, or with the passionate happiness of Christian saints.

In my opinion, the attempt to combine 'is' and 'ought' statements is what makes theology valuable *and* problematical.

The difficulty of the combination finds expression again and again in the problem of evil, which typically concerns the relationship or tension between the two main components. The formula also hints at a major difference between theology and philosophy. In philosophy, mixing 'is' and 'ought' statements is considered fallacious. One cannot get from the factual claim that a substance is natural to the recommendation that it is good – a herb may well be poisonous. To move from factual claims to normative ones would be to make 'the naturalistic fallacy'. Despite such categorical distinctions made by philosophers, religious belief lives on the combination. In beliefs about creation we find interwoven with each other ideas about ultimate origins and about appropriate behaviour. Even believers who do not argue from facts to value judgements (which would clearly be fallacious reasoning) tend to hold facts and values together in a single normative vision of the way things are and should be.

'Religion and science' plays a problematic role precisely at this interface. It often appears to be an attempt to use cosmological discourses to resolve value issues. This move does not work; whether certain phenomena can be understood in reductionist terms or in terms of emergence, or both, does not determine their significance and value. In engaging in 'religion and science' it is necessary to analyze the cosmological aspects, the contribution science makes to our worldview, but it is also of major importance, as a matter of

intellectual and theological honesty, to acknowledge explicitly where other judgements come into play, judgements that are not based on science but on moral, aesthetic or religious preferences. Those evaluations are not forced upon us by science, but independent relative to scientific information. Science has been so successful in a culture-transcending way, precisely by abstaining from value judgements. By introducing such evaluations, we shift from knowledge to belief, and thus engage in religious reflection (theology) rather than in philosophy or science.

A scheme

So far, I have described theological convictions as combining cosmological and axiological ones. Each of these is related to underlying disciplines, such as ethics and the natural sciences, while these in turn are related to observations, experiments and moral intuitions. Deep down, of course, both of these sequences of human analysis relate to the world in which we live and the experiences we have. Thus there are two levels at which integration occurs, the theoretical level of theologies (or, to use a more neutral term, religious and non-religious visions) and practice, in lives as lived.

A cosmology, a view of the way things ultimately are, is related to the sciences. However, the relationship is not straightforward. One may distinguish between science and any interpretation of science as a view of reality, that is any worldview, cosmology, metaphysics or philosophy of nature. A cosmology, in this sense, is a view of what the world might be like, given what we know and also what we know not to be the case; science may well be stronger in what it excludes than in what it includes. Any such metaphysics is an interpretation of scientific knowledge, constrained by the sciences but also underdetermined by them.

It may be useful to distinguish further between various aspects of the sciences: theories, taxonomies and empirical generalizations and observations and experiments. At the 'high' end there are theories that describe vast domains of realities. That is where the integration provided by the sciences is most clearly in sight. Among these are Newton's understanding of forces and motion; the atomic theory of matter with the periodic system; electromagnetism; evolutionary theory; quantum physics; Einstein's improved understanding of motion, space and time. At the 'low end' there are the manifold observations and experiments that connect scientific ideas to the world.

Relationships between the high end and the low end are various. Some of these are inductive in kind, generalization towards general rules or statistical expectations. Major relations are, however, hypothetical-deductive, where the creative researcher postulates entities, forces or causal factors that may explain the observed phenomena. Certainty is always limited. Inductive generalization may be of limited validity beyond the phenomena that formed the basis for the generalization as conditions not yet taken into account may be essential.

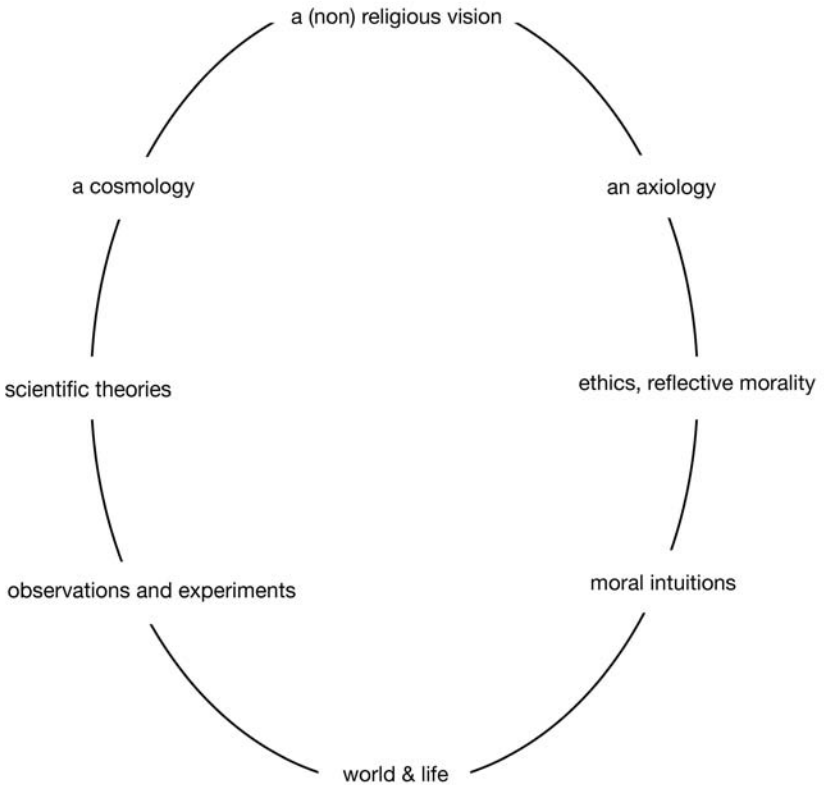


Figure 4.1

Hypothetical-deductive approaches acknowledge openly the creative and provisional nature of the hypothesis, which may be refuted if deduced consequences do not match observations. However, even such refutations are not final, since it may be that one does not consider the theory itself refuted, but rather one of the additional hypotheses involved, such as hypotheses regarding the measuring equipment or the initial conditions, an insight regarding the underdetermination of refutations and theories that has come to be known in philosophy as the Duhem–Quine thesis.

Given a particular theory, any metaphysical or cosmological inferences drawn from it may be speculative and disputable. Does quantum mechanics force upon us an indeterministic metaphysics? Not necessarily, as witnessed by the continuing debates over the interpretation of quantum mechanics. Does the Special Theory of Relativity that describes space-time as four-dimensional force upon us the idea that time is spatial and the future is just as much

'already there' as the past is? Again, interpretations diverge. Precisely where the cosmologically most interesting issues are, such as the nature of time and causality, science and its interpretation is most speculative. Chemists work with the periodic table, and atoms consist of protons, neutrons and electrons, and the first two are made up of quarks and gluons, and these ... : what is the end of the line? The Big Bang theory is a very successful theory describing the evolution of the universe, but precisely when we get to the very beginning, beyond the Planck horizon, the theory becomes unreliable as we need a quantum theory of space and time, an area of quantum cosmology where approaches are as much guided by pre-conceived philosophical ideas and preferences in mathematics as by observations. In a review article Jeremy Butterfield and Christopher Isham (2001: 38) wrote about theory construction in this field of quantum gravity and quantum cosmology:

In this predicament, theory-construction inevitably becomes much more strongly influenced by broad theoretical considerations, than in mainstream areas of physics. More precisely, it tends to be based on various *prima facie* views about what the theory *should* look like – these being grounded partly on the philosophical prejudices of the researcher concerned, and partly on the existence of mathematical techniques that have been successful in what are deemed (perhaps erroneously) to be closely related areas of theoretical physics (...).

The situation (...) tends to produce schemes based on a wide range of philosophical motivations, which (since they are rarely articulated) might be presumed to be unconscious projections of the chthonic psyche of the individual researcher – and might be dismissed as such! Indeed, practitioners of a given research programme frequently have difficulty in understanding, or ascribing validity to, what members of a rival programme are trying to do. This is one reason why it is important to uncover as many as possible of the assumptions that lie behind each approach: one person's 'deep' problem may seem irrelevant to another, simply because the starting positions are so different.

Underdetermination is a genuine issue, especially so when one comes to metaphysical or cosmological conclusions regarding the nature of nature. However, underdetermination need not be understood as 'anything goes' since lower levels and requirements of consistency considerably constrain the options.

Two levels of integration

The scheme presented has two levels where different strands come together (cf. Hübner 1990). One level arises due to intellectual effort to think through facts and values, the issues of what is and what should be; that is the level of

theology or non-religious visions. However, whether intellectually articulate or not, values and facts are intertwined also in daily life, when people perceive their environment and make choices as to how to act. Regarding religion, there may be the level of theological reflection and speculation, but there is also religious and human life, communities that come together for worship, individuals who pray or just light a candle, one who experiences the beauty of a forest in the Autumn or that of the Sun setting over the North Sea, someone touched by music or moved by a poem, attention given by a friend, the joy of a communal meal, and much more.

‘Life as lived’ may feed into the intellectual reflection, as it is the point of departure of observations about the world, and hence of science, as well as the sphere of human intentions and actions which incites moral reflection. It may also be affected by the intellectual reflection, whether at the highest level indicated or at some lower level; human life should be where the reflections land again. People may be changed by the engagement with a theological vision, whether for better or for worse. Two levels, ‘reality itself’ and ‘reflection about reality’, are distinguished, but the reflections shape the ways people live, and thus become reality. That they become a reality for those who live within that framework of understanding does not determine the truth of the theological integration. Like the symbols Geertz spoke of, our speculative thoughts may have an aura of facticity, and thus function well, without being adequate depictions of the way things are. This question will return in the next chapter, when we study the scientific understanding of reality and questions of ultimate explanation.

The next three chapters deal with different vertical lines in the scheme presented. First, we will consider the left-hand side, the scientific–cosmological column. How much do we know about reality? What does that imply for a religious understanding of reality? To what extent can science deliver certitude, or are we limited to ‘an aura’ of facticity, as in the definition of religion given by Geertz? The sixth chapter will deal with the right-hand side – morality and values. Could one not subsume these under the scientific side, as evolved strategies that promoted survival? The final chapter addresses the central axis of the scheme – what can we say about the intellectual integration in relation to lives as lived? A central term will be ‘meaning’, not in the sense that a dictionary gives the meaning of terms, but in the sense that humans find their lives more or less meaningful. Such judgements engage our imagination in integrating our legacies and new knowledge creatively.

But is this really religion?

Does it do justice to religious faith to present theologies as efforts to integrate factual and moral concerns? Above we quoted Rudolf Otto, who suggested that the one who lacks personal religious experience should not speak of religion; in his view religion is a category of its own and not to be conflated with

something else. Here I will regard some remarks by Friedrich Schleiermacher, a German theologian who in the period following the main writings of the philosopher Immanuel Kant suggested that religion should be granted a domain of its own, alongside theoretical reason (science) and practical reason (ethics). In the second of his speeches on religion 'to its cultured despisers', in 1799, he said on these three domains the following.

If you put yourselves on the highest standpoint of metaphysics and morals, you will find that both have the same object as religion, namely, the universe and the relationship of humanity to it. This similarity has long since been a basis of manifold aberrations; metaphysics and morals have therefore invaded religion on many occasions, and much that belongs to religion has concealed itself in metaphysics or morals under an unseemly form. But shall you, for this reason, believe that it is identical with one of these? I know that your instinct tells you the contrary, and it also follows from your opinions; for you never admit that religion walks the firm step of which metaphysics is capable, and you do not forget to observe diligently that there are quite a few ugly immoral blemishes on its history. If religion is thus to be differentiated, then it must be set off from those in some manner, regardless of the common subject matter.

Schleiermacher ([1799] 1996: 19) thus acknowledges that all three have the same subject matter, namely the universe and the relationship of humanity to it. In that sense, his remarks may well be taken as support for the scheme presented above. However, Schleiermacher (*ibid.*: 20) is very critical of carrying over notions from one side to the other.

You take the idea of the good and carry it into metaphysics as the natural law of an unlimited and plenteous being, and you take the idea of a primal being from metaphysics and carry it into morality so that this great work should not remain anonymous, but so that the picture of the lawgiver might be engraved at the front of so splendid a code. But mix and stir as you will, these never go together; you play an empty game with materials that are not suited to each other. You always retain only metaphysics and morals. This mixture of opinions about the highest being or the world and of precepts for a human life (or even for two) you call religion! (...) But how then do you come to regard a mere compilation, an anthology for beginners, as an integral work, as an individual with its own origin and power?

Thus, in the terms used here, the 'and' of the scheme, the attempt at integration, is the sticky point. For Schleiermacher (*ibid.*: 22f), the resolution has been to take leave from any engagement with metaphysics and morals.

In order to take possession of its own domain, religion renounces herewith all claims to whatever belongs to those others and gives back everything that has been forced upon it. It does not wish to determine and explain the universe according to its nature as does metaphysics; it does not desire to continue the universe's development and perfect it by the power of freedom and the divine free choice of a human being as does morals. Religion's essence is neither thinking nor acting, but intuition and feeling. It wishes to intuit the universe, wishes devoutly to overhear the universe's own manifestations and actions, longs to be grasped by and filled with the universe's immediate influences in childlike passivity. Thus, religion is opposed to these two in everything that makes up its essence and in everything that characterizes its effects.

The approach presented here respects that the theological integration is not itself part of either metaphysics or morals; in that sense I concur with Schleiermacher. Furthermore, my scheme differentiates between the intellectual integration and life as lived; religion as feeling, as a creaturely sense of dependence upon all, is not to be found in the intellectual integration but in the fullness of life as lived.

While granting such characteristics, I cannot take the theological reflection to be totally independent from modern knowledge and moral discourse. Not that the theological vision arises out of the cosmological information, as in natural theology, or just recapitulates values. Not that either science and its philosophical interpretation nor morality and its more reflective articulation need religion or theology; they can do well without the integrative project. However, religion cannot exist without engaging our ideas about the way the world is and the way the world should be. In this sense the scheme proposed is more in line with the anthropological definition of Geertz than with Schleiermacher's claim for independence. But in the integration itself, the religious heart of the matter, there may well be something that does not come from either side, but from religious life, whether ascribed to upbringing or to a personal sense of being grasped by something deeper, by a moral and aesthetic sense of harmony and beauty or disgust and anger, by awareness of our ultimate dependence.