MEME POOLS, WORLD 3, AND AVERROËS'S VISION OF IMMORTALITY

by Derek Gatherer

Abstract. Dawkins's concept of the meme pool, essentially equivalent to Popper's World 3, is considered as an expression in modern terms for what Averroës knew as the *active intellect*, an immortal entity feeding into, or even creating, the *passive intellect* of consciousness. A means is thus provided for reconciling a materialist Darwinian view of the universe with a conception of nonpersonal immortality. The meme pool/active intellect correspondence provides a strong basis for regarding science as a communal enterprise producing enrichment of the meme pool and expansion of consciousness. It also emphasizes the virtues of memetic conservation in relation to vanishing cultures.

Keywords: Averroës; consciousness; Richard Dawkins; immortality; meme pool; Karl Popper.

Richard Dawkins has developed his *meme* concept as the philosophical basis for a militant atheism. The atheism, however, is not an inevitable consequence of the meme theory, even in its strictest form. This essay attempts to place the meme concept in a broader historical perspective and to show that it is compatible with religious belief. When set against the background of Karl Popper's concept of *World 3* and Daniel Dennett's theory of consciousness as a *virtual machine*, the meme concept allows the synthesis of a philosophy of human consciousness that has many similarities to that of the twelfth-century C.E. Spanish Muslim philosopher Ibn Rushd (Latinized as Averroës). This philosophy permits a notion of immortality that does not necessarily relinquish materialism and demonstrates that acceptance of the meme concept need not necessarily lead to atheism, as Dawkins and his more zealous followers would maintain. The first step in this analysis is to unpack the meme concept.

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The Natural History of the Meme

The idea that human culture evolves in a manner analogous to biological evolution is not a new one, having been touched upon by Charles Darwin in 1859 as an aside in *The Origin of Species* (Darwin [1859] 1985, 406), but this understanding was largely supplanted by Marxist dialectical approaches in the early part of the twentieth century. The analogy between biological and cultural evolution was revived by Peter Medawar, among others, in the 1950s and received a major boost with Dawkins's *Selfish Gene* (Medawar 1959; Dawkins 1976).

Dawkins's ideas on the evolution of culture are outlined in the final chapter of the above work, in which he presses the analogy to the point of coining a new term for the unit of selection in culture, the *meme*, deliberately similar to *gene*. Luigi Luca Cavalli-Sforza, Marcus Feldman, and collaborators were already using the term *culturgen* in a similar but more cautious approach to the same topic (reviewed in Cavalli-Sforza and Feldman 1981; Cavalli-Sforza 1986), but Dawkins's meme concept openly invited direct transposition of the terminology of evolutionary genetics to cultural studies, including religion. In keeping with Dawkins's gene-centered approach to biology, the meme-centered approach to culture is totally reductionist and concentrates on the transmission and selection of individual memes.

Dawkins's definition of *meme* is somewhat laconic. He considers it simply an informational replicator within the brain, just as the gene is a replicator within the genome. He does, however, give an extensive list of examples, including tunes, ideas, catchphrases, fashions in clothes, and ways of making pots or building arches. The last three of these are the standard material of cultural studies, but the first three indicate a potentially more atomistic approach. What these diverse entities have in common is that they are transmitted from brain to brain by communication, verbal, literary, or otherwise, and can change and reshuffle components; in genetic terminology they can mutate or recombine in the process. That much may be granted, but the difference between a simple logical proposition and a complete belief system is obvious enough to make one wonder if the meme concept is precise enough to be of value. In order to resolve this difficulty, it is necessary to examine the genetic analogy in more detail.

The Meme and the Level of Selection

Before we conclude that the meme is a vague mirage that disappears when we inspect it more closely, it is worth recalling that the gene is equally elusive at close quarters. The classical "beanbag" genetics of Mendel has long since been superseded by the more flexible approach of molecular biology.

The modern concept of the gene is of a string of nucleotides of highly variable length and frequently indeterminate boundaries, at least when promoter and enhancer regions are considered. Nevertheless, the abandonment of the gene as an indivisible and well-defined entity has certainly not rendered classical beanbag genetics invalid. Individual nucleotides are the units of mutation, but the gene is still the best approximation to the unit of function. Thus, the use of the gene/meme analogy does not require that the meme be absolutely defined in terms of either its form or its informational content. Memes with low informational content, such as simple propositions, may be considered analogous to nucleotides. At the other extreme, large integrated complexes of memes, such as religions, are analogous to genomes. This hierarchical structuring of the meme concept strengthens the analogy between genes and memes and allows us to proceed to a consideration of memetic evolution. Like genes, memes propagate within a population either because they enhance the survival of those that carry them or because their capacity to replicate is so great that they are able to escape from this requirement.

Selfish Memes

Selfish memes constitute Dawkins's most famous development of his meme concept. Dawkins conjectures that memes, like genes, may be *selfish*, in the sense that they may spread by containing features that promote their replication rather than by having any truth-value or even any beneficial effect on the fitness of those that carry them. Dawkins posits that such selfish memes may be regarded as *mind viruses* (Dawkins 1993), singling out religious memes for special consideration as such. This anti-religious position has some similarities to Karl Marx's notion of religion as the opium of the people, but whereas Marx's opium may have contributed some selective advantage to those who carried it by virtue of being a psychological crutch or motivating agent ("the heart of a heartless world. . . . the spirit of spiritless conditions" [Marx (1844) 1975, 244]), or advantageous to some ruling class as a means of keeping the lower orders happy, Dawkins sees religious memes as being maladaptive to those that carry them and to society as a whole but highly self-perpetuating owing to their efficiency of transmission and resistance to replacement by other memes. A memetic view of culture might therefore appear to be fundamentally incompatible with religion, and Dawkins would insist that this is the case. In order to begin subverting this view, it is first necessary to consider the tradition in which Dawkins's criticism is situated.

A Critique of Mind Virology and Its Place in English Rationalist Atheism

Dawkins's (1993) views on religion have a flavor that is distinctively English. Unlike Continental atheists, who either, like Marx or Freud, wish to replace religion with equally elaborate belief systems or, like Nietzsche, seek to appeal to irrationality or pagan religious impulses, the English tradition in atheism generally purports to dispense absolutely with religion in order that reason and science may be given a clearer, less superstitious, and more luminous environment in which to flourish. Alister McGrath (1994, 449), drawing on the sociological work of Anthony Giddens, refers to four elements of religion that are frequently attacked by its opponents, namely, (*a*) monotheism, (*b*) moral prescriptions, (*c*) explanation of the world, and (*d*) supernatural events. Dawkins's argument would seem to be that *mind virus* components account for aspects (*b*), (*c*), and (*d*). The inherent gullibility of human beings, coupled with their desire for consolation, leads them to believe in irrational supernatural ideas. These ideas include the stipulation that the believer should spread the ideas to new hosts, who in turn receive their childish comfort in return for assistance in proselytization. This is the principal means by which the mind virus spreads rapidly from host to host.

Several flaws may be identified in this argument. First, it relies on an assumption that religious experience is merely a comfort device, designed to reassure the believer. Even a cursory examination of any number of theologians would demonstrate that religion is frequently as unnerving as it is comforting—for example, Martin Luther, Søren Kierkegaard, Karl Barth, and so forth. Second, it suggests that religious believers, and that includes those who are scientists, are in some way lacking in the ability to distinguish rational sense from superstitious nonsense. Third, it neglects the mind virus–like nature of the mind virus concept itself. And fourth, many modern theologians conceive of religion without any of the components (*b*), (*c*), or (*d*) referred to above.

The third point requires a little elaboration. Dawkins's basic thesis may be stated as follows: Religion is equivalent to childish and superstitious comfort, and also to a compulsion to spread this sense of comfort to others, who in turn are comforted, and so on. The new believers also are required to take on a set of moral prescriptions designed to deter or dissuade apostasy. Examples of these include belief in eternal punishment and endogamy within the community of believers. The absurdity of this scenario may be demonstrated by the following parallel argument: Mind virology is equivalent to a sense of superiority over ignorant religious believers. This realization of intellectual superiority produces exhilaration and consequently the compulsion to spread the anti-religious mind virus concept to others, who in turn enjoy a sense of superiority. This is not an

argument against memetics. Dawkins's meme concept is a valuable contribution to the field of cultural evolution. The purpose of the present critique is to counteract the indiscriminate use of the mind virus concept.

Furthermore, Dawkins's use of the term *mind virus* to describe what he sees as the ruthlessly replicating memes of religion has connotations of disease and decay. Religion is thus portrayed as an unhealthy influence on the mind, something that would be better rooted out and destroyed in order to restore normal healthy mental function. Science, by contrast, is emphatically described as "good" and "useful" (Dawkins 1993, 26). This is no doubt the case, but the possibility that religion may also be good and useful in some circumstances is not considered. Likewise, much emphasis is given to situations where religion has had undesirable consequences, for example fatwas and religious wars, but the corresponding disasters of science, such as ozone depletion, acid rain, atomic weapons, and gas chambers are conveniently ignored. Science, like religion, can also be a dangerous weapon in the hands of fallible humans, but this does not seem to be a point that Dawkins is willing to concede. Dawkins attempts to portray John Wesley and Saint Paul as belonging to the same category as the Reverend Jim Jones and the "shiny-suited conmen" of evangelical television (Dawkins 1993, 23–24). He fails to pause to consider that a similar attempt to classify Albert Einstein and Linus Pauling with Josef Mengele and Trofim Lysenko would be met with indignation by the scientific community. John Wesley, incidentally, was a great enthusiast for science and insisted on the inclusion of Isaac Newton's *Principia Mathematica* as part of the curriculum of the Kingswood School, which he founded in 1739 (Brooke 1991, 189). Dawkins rounds off his argument by quoting from one of Tertullian's more florid confessions of faith ("Certum est, quia impossibile est") (Dawkins 1993, 21) and noting with approval Sir Anthony Kenny's abandonment of the priesthood (Dawkins 1993, 25). Religion, it appears, is not to be forgiven even the slightest mistake.

Dawkins seems to regard religious memes as containing the instructions "spread me" and nothing else, apart from the auxiliary instruction "reject rational debate." Such mind viruses are able to spread efficiently owing to the way that human minds have evolved for information collection and storage. The mind, especially that of a child, is lacking in discrimination and easily "infected" by mind viruses by means of the vectors of "nuns, Moonies and their ilk" (Dawkins 1993, 18). Deny the vectors of infection access to their minds, and enlightened, atheist mental health is sure to follow.

Although the notion of mind viruses is a new one, this general position belongs to a long tradition. Dawkins's intellectual predecessors include T. H. Huxley and Jeremy Bentham, but the line of ancestry may be traced back to Isaac Newton and the early English Enlightenment. An even

deeper root may be identified in the radical sects of the Cromwellian period such as the Diggers, the Ranters, the Levelers, and the Quakers. All of these shared an antidoctrinal approach and a revolutionary egalitarian political philosophy. Although few of these sects survived the seventeenth century, their uncompromising rejection of establishment theology, both Protestant and Catholic, paved the way for the skeptical rationalist intellectuals of the Restoration (Armstrong 1994, 368–69; McGrath 1994, 450–55).

The most eminent Puritan of all, Isaac Newton, in his *Philosophical Origins of Gentile Theology*, written in the 1680s, argues for a rational religion stripped of miracles and supernatural phenomena (Manuel 1974; Armstrong 1994). A similar tendency toward the removal of superstition and ritual and its replacement with a rational faith based on the burgeoning science of the seventeenth century can be found in Ralph Cudworth's *True Intellectual System of the Universe* (Cudworth [1678] 1845, cited by Armstrong 1994), and later in Matthew Tindal's *Christianity as Old as Creation, or, The Gospel a Republication of the Religion of Nature* ([1730] 1978, cited by Armstrong 1994). These two authors take a considerable step closer to Dawkins (and also Marx) in their idea that priesthoods have engineered religious beliefs to preserve their positions of power. Mind viruses and infective nuns are only a short distance away. Of course, these authors are not fully atheist but argue from an ultra-Protestant nonconformist standpoint which assumes a basic monotheism, or perhaps more correctly, monodeism. However, almost all other aspects of religion are considered to be incompatible with reason, the yardstick against which all religious belief must now be judged (Armstrong 1994, 351).

Another proponent of a simple rationalist monotheism as the true and uncorrupted religion was John Trenchard. What makes Trenchard's *Natural History of Superstition* (1709) interesting in the present context is that he was the first to propose that religion is based upon the "inherent credulity of humanity" (Trenchard [1709], cited by Armstrong 1994, 351). Like Dawkins, Trenchard sees little possibility that the vulnerable mind can defend itself against the ferocious process of religious indoctrination. A similar view was voiced by the *Independent Whig* newspaper on 31 December 1720: "the peculiar Foible of Mankind is Superstition, or an intrinsick and pannick Fear of invisible and unknown Beings" (Armstrong 1994, 351). All that separates the English rational monotheists/deists from Dawkins is their determination to cling to the idea of some deity. At this point the tradition bifurcated, with one lineage leading to modern Unitarian-Universalism and the other to scientific atheism/agnosticism. Leaders in this next step were David Hume in Scotland, in his *Dialogues concerning Natural Religion* (Hume 1948 [written in 1750 and hidden until 1778]), and in France, Denis Diderot, who moved from deism in

Pensées philosophiques ([1746] 1950) to total atheism in *A Letter on the Blind for the Use of Those Who See* ([1749] 1975, cited by Armstrong 1994). Interestingly, Diderot's impatient description of religious believers as "the blind" (Armstrong 1994, 352) is echoed in Dawkins's evident exasperation with those who resolutely refuse to clean their minds of religious viruses. The French Revolutionary atheist philosopher Paul Henri Thiry was a direct predecessor of Dawkins in his description of religion as a sort of pathological disorder from which people would be cured by the rational ideals of the Revolution.

It should be noted in passing that these ideas spread from England to France and not the other way round. Voltaire's skeptical deism, expounded in his *Philosophical Dictionary* (Voltaire [1764] 1955), is directly inspired by Newton, of whom he was a great admirer. Voltaire, Diderot, and Thiry may thus be considered representative of the English atheist tradition despite their French nationality. Perhaps the most important recent example is A. J. Ayer, whose *Language, Truth, and Logic* ([1936] 1952) was tremendously influential through the late 1930s and 1940s. Although he was philosophically eclipsed by the warring factions of Popperians and linguistic philosophers, Ayer's lean and tough skepticism toward all metaphysics and touchingly naive regard for science still pervade much of the non-Marxist half of British academia.

One of the first critiques of the view that religion is an irrational and harmful phenomenon was provided by Emile Durkheim in *Elementary Forms of the Religious Life* (1912), in which he pointed out that religion has a function as a central point in society, bringing about group cohesion and underpinning communal values (reviewed by McGrath 1994, 455; Armstrong 1994, 432–57). Religion is thus beneficial to the group. This applies as much to civil or state religion as to the older varieties. Dawkins refuses to recognize that religion may have any such beneficial effect and would probably reject this thesis as *group-selectionist* in any case. However, the mere possibility that religion may under certain circumstances be positively selected for its functional results refutes Dawkins's view that religious memes are necessarily maladaptive and code only for their own replication. Indeed, Dawkins seems to be denying the validity of the entire field of the social anthropology of religion, which is derived from Durkheim (reviewed by Beattie 1966; Mair 1972; Leach 1982; Kuper 1996). If, as Dawkins maintains, religions are merely "mutually compatible gangs" of mind viruses (Dawkins 1993, 21), it is very difficult to see how they have prospered in human minds for so long. Parasites, especially those that have infested their hosts over long periods of evolutionary time, tend to evolve toward either a state of innocuous commensal coexistence with their hosts or a state of beneficial symbiosis. Rather than mind viruses, religious memes, like scientific ones, may be considered as

mind symbionts, replicating themselves through a positive contribution to the well-being of (most of) those who carry them.

Finally, to a certain extent Dawkins is attacking a straw man. The picture he paints of religion, one of "nuns, Moonies and their ilk" fiercely indoctrinating the gullible and innocent, is one that scarcely applies when one considers religion as a whole. The post-Protestant rationalist tradition in which he stands has always seen the public face of organized religion, and particularly the Roman Catholic Church, as its enemy. The stripping out of Catholic theology and ritual by the seventeenth-century English radical Puritans eventually led to the abandonment of the concept of God and the transformation of ultra-Protestantism into militant atheism. Dawkins may wonder why the rest of the world refuses to abandon its irrational religion, but he fails to recognize that he too belongs to a religious tradition, running from Wycliff through the Diggers and the Levelers to Bentham and Ayer, one of which he has every right to be proud, but not at the expense of the equally sincere and valid beliefs of others.

This concludes the negative critique of Dawkins's development of his meme concept in the field of religion. I now attempt to show how the meme concept may be usefully applied to the construction of a materialist theology that permits a conception of impersonal immortality and promotes respect for knowledge and cultural pluralism. I first consider the analogy between the meme pool and the gene pool.

The Meme Pool and World 3

Sewall Wright (1931) developed the idea of the gene pool as the total genetic constitution of a Mendelian population. A species may be composed of a single large gene pool or a varying number of isolated or partially connected ones. The limits of the gene pool are set only by the possibility of the spread of genes. The analogous structure in the meme theory would be the *meme pool* (Dawkins 1976, 207). This would be defined as all the memes available to a population at any given time, even if some of those memes were utilized by only a small section of that population. The meme pool of an isolated tribal society in New Guinea or Amazonia would probably, like its gene pool, be limited. Extremely small populations, such as the Pitcairn Islanders, may suffer from the consequences of both a small gene pool, producing inbreeding homozygosity and genetic load, and also a small meme pool, which results in cultural deprivation (reviewed by Diamond 1987, 1994). Small and medium-sized meme pools have been the norm for most of the history of humankind. At the other extreme, the meme pool of modern global civilization is the largest to date, having access not just to memes in contemporary use but also to many of the memes of previous eras and civilizations, insofar as

we are capable of understanding them, as well as the memes of isolated indigenous cultures extracted by means of anthropology.

The concept of the meme pool bears a distinct similarity to what Popper (1967) calls *World 3*. This entity represents all the objective contents of thought, in contrast to *World 2*, the world of subjective conscious experience, and *World 1*, the material world of physical substance. World 3 contains theoretical systems, problems and problem situations, and critical arguments, as well as the contents of books, journals, and libraries. All this sounds very similar to the meme lists given by Dawkins himself and also by Dennett (1991). World 3 is regarded as influencing World 2, which is another way of expressing the often-stated anti-Cartesian dictum that all experience is theory mediated (prior to Popper, this idea had previously interested Ernst Mach, who developed it along similar lines; Vesey 1964, chap. 1). It also bears a close similarity to the theory of Daniel Dennett (1991) that memes are the component parts of consciousness. Using a computing analogy, Dennett hypothesizes that memes constitute the *software* of a *virtual machine* of consciousness which runs on the neuronal *hardware* of the brain. Dennett's virtual machine is equivalent to World 2, and the memes are drawn from World 3. The neurons in the brain are the tangible realities of World 1. It should be noted that Popper's metaphysical stance is not materialist, because he posits that World 3 is real and autonomous and not merely an epiphenomenal manifestation of World 1 (Popper and Eccles 1977). Popper (1967) presents a hierarchical dissection of World 3 which is very compatible with the gene-meme analogy: *ideas* at the top, which would correspond to complex memes, devolving downward through statements, propositions, and theories to derivations and the lowest level, that of primitive propositions. This corresponds directly with the hierarchical nature of biological information, from genome down through individual genes to the nucleotide, and serves to strengthen the biological-cultural analogy.

Popper (1973) conjectures that the mechanism of adaptation is fundamentally the same in genetic adaptation, adaptive behavior, and scientific discovery. On all three levels, mutation and variation occur by random processes within the structure rather than as a directional response to the external environment. Darwin himself had an open mind toward the latter possibility, but it forms no part of the neo-Darwinian synthesis. Thus, directional evolution is rejected for World 3 structures as much as for biological structures. Popper views a new theory as a new organ—it enables us to see the world afresh as we could with a new eye. A disproven theory, like the Ptolemaic cosmology, would have the status of a vestigial organ. Perhaps a better analogy would be with the theory of molecular evolution of *junk DNA* (Ohno 1970), in which vestigial genes are posited as potential sources of new function; Similarly vestigial memes can persist in

World 3 waiting for their contents to be cannibalized in the construction of new memes. Memetic diversity—preserving indigenous cultures, for instance—is in our own interest as we search for the component parts of new theories and ways of viewing the world.

The Meme Pool and the Active Intellect

The above synthesis of Dawkins, Popper, and Dennett depends entirely on ideas developed in the last thirty years. I propose that a similar idea is detectable in the Muslim Aristotelian philosophers of the twelfth century C.E. This may seem an unlikely suggestion, but if one bears in mind the idea of the meme pool/World 3 as an entity that feeds into individual consciousnesses/World 2 but is external to them, the parallels begin to emerge. This proto–World 3 is provided by the concept of the *active intellect* (*nous poietikos*); the concept was developed by Alexander of Aphrodisias (2d century C.E.) but has its ultimate origin in the work of Aristotle himself. However, the complexity of Aristotle's work and the apparent contradictions within his texts make it difficult to draw any firm conclusion as to his intentions (Lloyd 1968). The principal source is *De Anima* 3.5, in which he speaks of a separate intellect that acts on another intellect which is affected. The separate intellect is superior, immortal, and eternal, whereas the affected intellect is perishable and incapable of any activity without interaction with the separate intellect (paraphrase of translation by Lawson-Tancred 1986).

Elaboration of these ideas in a systematic manner was left to Aristotle's followers, many of whom attempt to fuse his ideas with Platonism, particularly the brand of Neoplatonism associated with Plotinus (Knowles 1962). Alexander's Neoplatonism can be detected in his view that the active intellect is a spiritual being (even the *First Cause*, i.e., God in Neoplatonic terminology) distinct from the human soul and acting upon it to animate it. Alexander had a seminal influence on the Christian Platonist tradition exemplified by Boethius and Augustine, who stressed the illumination of the human soul by God.

The Muslim tradition begins with Yaqub ibn Ishaq al-Kindi (d. 873), who also explicitly regards the active intellect as a divine heavenly body (Rasa'il al-Kindi 1.255, quoted by Davidson 1992, 17), but this Platonic view is toned down in the work of his successors Abu Nasr al-Farabi (c. 870–c. 950) and Abu Ali ibn Sina (Latinized as Avicenna, 980–1037), for whom the active intellect is merely a spiritual substance and not divine. The philosopher who represents the pinnacle of this de-Platonizing tendency is Abu al-Walid ibn Ahmad ibn Rushd—Averroës of Cordoba (1126–1198), who has been generally disparaged by the Western philosophical mainstream since his death, principally on the grounds that his interpretation of Aristotle was considered erroneous by Aquinas (and still

is by modern Thomists, e.g., Copleston 1955). Nevertheless, he inspired a vigorous countercurrent which thrived, often in secret, until the sixteenth century (Leaman 1988). Averroës discards the Neoplatonism present in all previous treatments of Aristotle. In his later work he also rejects the teaching of Avicenna, who, following the line stretching back to Alexander of Aphrodisias, believes that the passive intellect has an existence of its own. Averroës regards the passive as merely a potential intellect brought into existence by its contact with the active. During an individual's lifetime, the active intellect inhabits the body, and it is not destroyed at death. However, this immortality is not personal.

Similar tendencies occur within Christian philosophy of the same period (Kuksewicz 1982). Siger of Brabant (c. 1240–c. 1284) is usually regarded as the chief of the Latin Averroists, but his view that the active intellect is God takes him away from Averroës and back into the tradition of al-Kindi and the Platonists, particularly Plotinus (Mahoney 1982). Siger in later life adopted a more Thomistic position, but his earlier quasi-Averroistic doctrine persisted in the work of Agostino Nifo (1473–1538) and the Italian Renaissance Aristotelians.

The Fate of Averroism in Christian Europe

Following a series of Thomist-inspired ecclesiastical condemnations, the Averroist school decamped from Paris in the 1270s and took up residence in Italy from around 1277 onward (Cassirer, Kristeller, and Randall 1948, 8). Thomism did not become the official philosophy of the Roman Catholic Church until the Counter-Reformation, and the Latin Averroists found themselves in an environment which included other anti-Thomist factions, such as the Nominalists and the Augustinian/Neoplatonist followers of Duns Scotus. The leading figures in the new Italian Averroism were John of Jandun and, in the early part of the fourteenth century, Pietro d'Abano.

There are several letters from Petrarch to various correspondents which demonstrate the heatedness of the debate about Averroës even as late as 1370. The University of Padua had freedom of teaching guaranteed by Venice after 1405, but by this time Averroism was gradually accommodating itself to the growing demands for orthodoxy in the Church (Cassirer, Kristeller, and Randall 1948, 140–43, 10). Nevertheless, the Thomists maintained their opposition and within a century were victorious. Aquinas's principal argument against Averroës was that with only one passive intellect there could be no free will (Cassirer, Kristeller, and Randall 1948, 17; Copleston 1955). Even if we leave aside the possibility that Averroism was becoming a form of proto-Calvinism, its influence was still sufficiently annoying to the Church for the Lateran Council of 1512 to definitively establish the immortality of the individual soul as a dogma, thus

finally giving Aquinas the full backing of the Church and rendering Averroism officially incompatible with Catholicism. Averroism also was facing opposition from humanists such as Pietro Pomponazzi (1462–1525), who placed a premium on individual worth and responsibility and who were reluctant to see anything communal in human psychology. Pomponazzi's *On the Immortality of the Soul*, written in 1516, advances the argument that the unity of the passive intellect denies individuality, not merely individual moral responsibility but any individuality whatsoever in consciousness (Cassirer, Kristeller, and Randall 1948, 297). The apparent absurdity of this consequence was enough to totally discredit Averroism.

We may deflect this criticism, however, by using Popper's three worlds model. Here the unity of the passive intellect, to which Aquinas and Pomponazzi objected so strongly, has its analogue in the existence of a single World 2, just as the unity of the material world and the active intellect are mirrored in Worlds 1 and 3, respectively. Affirmation that there is only one material world does not amount to the denial of individual objects within it, and likewise the unity of World 2 does not preclude the existence of individual selves within it. Another way to avoid Pomponazzi's criticism is to take the Humean view that there can be no self, or rather that the notion of self is an illusion. Hume's radical empiricism is rather contrary to the spirit of memetics, and it is perhaps unfair to co-opt him in its defense, but a more comfortable compromise can be found in Dennett's notion of individual narrative as the basis of self-definition (Dennett 1991). We are conscious of individual elements in all three of Popper's worlds, but each has an underlying unity.

The meme theory, when extended to include the concept of the meme pool/World 3 and the virtual machine analogy of Dennett, generates a modern parallel to the ideas of Averroës. Subjective consciousness/World 2—filling the role of Averroës's passive intellect—is not capable of making sense of the world by itself but requires a conceptual tool kit drawn from the meme pool/active intellect/World 3. This active intellect is nonpersonal but immortal and is independent of Worlds 1 and 2, although stemming originally from them, created as it is by the cumulative activity of millions of brains in the course of human evolution in World 1. An examination of the concept of immortality in the works of Muslim philosophers will show that this idea is by no means novel but stands within a long tradition.

Muslim Philosophers on Immortality

Al-Farabi takes the active intellect to be a nondivine spiritual substance and believes that immortality is a natural consequence of the development of an individual's intellectual faculties, illuminated as they are by the external agency of the active intellect. Intellectual perfection leads to

union with the active intellect and ensuing immortality (*sacada*), whereas the souls of the ignorant perish (Al-Madina al-Fadila 270–71, quoted by Davidson 1992, 56). However, he is unclear as to whether this immortality is individual or not. This is characteristic of the Neoplatonic/Aristotelian tradition of Alexander of Aphrodisias.

Avicenna democratizes al-Farabi's elitist view by positing that conjunction of the passive and active intellects occurs in any individual whenever a thought is produced. Avicenna's emphasis is on achieving a permanent conjunction. This can be achieved by any individual and is not dependent on any degree of intellectual perfection. Avicenna also posits that such *sacada* can occur even before death, producing a raised state of consciousness in a living individual. This is one of the few occasions on which Avicenna has any time for mysticism. His generally sober tone is reflected in his vocabulary, where he prefers the term *ittisal* (conjunction) to *ittihad* (union), a term still used today by Sufi mystics to describe the ecstatic state of union with the divine (Goodman 1992, 170).

Averroës's later philosophy has little place for immortality of the personal variety (*Long Commentary on De anima*, quoted by Davidson 1992, 356). In his early work, under the influence of Avicenna, he allowed some space for a personal immortality in the concept of *ittihad*, laid out in his (possibly apocryphal) *Epistle on the Possibility of Conjunction*. As in the work of his predecessors, this occurs by the conjunction of the active and passive intellects, that is, the active intellect becomes the total focus of the passive as its single direct object of thought. Viewing the active intellect as the meme pool/World 3, we might say that memetic *ittihad* requires the total dedication of consciousness to intellectual pursuits. This, however, would satisfy the skeptical later Averroës as little as it satisfies a modern materialist.

Averroës's novel contribution is to consider the passive intellect as an entity as unified as the active. The question of whether this is a misinterpretation of Aristotle is unimportant (contrary to what Thomists would maintain), because the idea is highly original and interesting in itself. In Averroës's later philosophy, the passive intellect is engendered only by the interaction of the active intellect with a preexisting physical disposition (Davidson 1992, 354). This addition of a third layer brings the Muslim Aristotelian tradition into line with Popper. World 3 is the active intellect, interacting with the physical disposition of the brain in World 1 to produce the passive intellect of consciousness in World 2. This is exactly the mechanism proposed by Dennett (1991), although his terminology is entirely different. Popper is quite clear that there is only one World 3 but never specifies how he stands on World 2. Are there as many World 2s as there are individuals? Averroës's answer would be a firm no. Consciousness is shared (that is, it is the same thing in all individuals, which neatly

dispenses with solipsism in passing), just as the meme pool from which it is constructed is shared. The varying meme pools of different cultures may thus produce slightly variant forms of consciousness, but many characteristics will be common despite wide cultural distances. Only the meme pool is immortal, however, and this immortality is not of any individual.

All this talk of immortality may seem to be a long way from the materialism of Dawkins, but he has his own views on the subject (Dawkins 1976, 214). He sees immortality as being of two kinds, genetic and memetic. Genetic immortality involves the preservation of the genes that code for an individual. Of course, these genes are dispersed throughout the descendants of that individual, increasingly mixed with and diluted by genes from other individuals. Individuals are thus diffusely immortal, in this genetic sense, in all their descendants. Memetic immortality involves the preservation of an individual's memes. Socrates' genes, Dawkins says, are likely to be long extinct, but his memes are still going strong. This, however, places an incorrect emphasis on the memes as the "property" of individuals. Socrates' memes have entered the meme pool and therefore now "belong" to whoever draws on them. This is not to belittle the contribution made by individual great minds in the formation of new memes. Socrates, after all, is not likely to be soon forgotten. However, just as Socrates' passive intellect drew on the communal reservoir of the meme pool as it existed in fifth century B.C.E. Athens, so his novel contributions passed back into that same meme pool, from which our present meme pool is partly drawn.

Reconciling Materialism and Averroism

This outline draws on four principal sources: Dawkins, who is uncompromisingly materialist and has little, if anything, to say about mind; Dennett, who also is a materialist but has devoted himself to an analysis of how such a thing as mind could be created; Popper, who espouses dualism (although since his model consists of three entities, dualism is something of a misnomer); and Averroës, who predates the mind-matter debate. The meme concept is useful because it can fit either materialism or dualism. It also is tailored to fit both animal and human culture, and to avoid the problems involved in attributing mind to nonhuman organisms. Dualists may consider memes to have a real mental existence, independent of any physical basis, and materialists may view them simply as the behavioral manifestations of brain states. Either way, they evolve in the same manner.

Although I am attempting to resurrect the notion of the active intellect, I do so in the de-Platonizing spirit of Averroës, which rejects the notion of the active intellect as something originating outside of the human mind. The active intellect has arisen gradually from millions of

brains during evolution. Nevertheless, once created, it exists independently and evolves as World 3. The active intellect/World 3/meme pool is utilized by the physical neural apparatus in World 1 to produce consciousness/World 2/the passive intellect. Whether this World 2 is real, as Popper and other dualists would have us believe, or merely a grand illusion, following Dennett, is outside of the present discussion. Either conclusion would still be compatible with the meme concept. In both cases, the active intellect/meme pool/World 3 is still common to all, persisting and evolving immortally.

Having equated the active intellect with the meme pool/World 3, I repeat that it is not my intention to follow the Platonist tradition and equate it with God or any other spiritual substance, although the option is of course still available to those of a Neoplatonic bent. "The active intellect may be something demonic or angelic" (Marinus, quoted by Davidson 1992, 15), or rather the meme pool contains both good and malignant memes. For Dawkins, God is one of many memes in the pool, not the pool itself, and indeed is something of a pollutant in the pool. Alternatively, even if we recognize that God is a memetic creation of human culture, it still is possible to accept traditional notions of divinity and transform them for our own benefit. From this point of view, the divine is our creation but one that has become independent of any individual creator. Having given divinity to the meme pool, it now exists there independently and immortally, and we are also capable of drawing it back. The awareness that it is our own creation only serves to add to its refreshing quality in what may seem to be an essentially purposeless universe.

Maimonides and Respect for Knowledge

Moses ben Maimun—Maimonides of Cordoba (1135–1204)—was a Jewish contemporary of the Muslim Averroës. To describe him as an Averroist is scarcely to do him justice. Maimonides was a highly original thinker in his own right and may not even have had access to many of Averroës's works. Rather he develops the ideas of Avicenna in his own distinctive manner, which runs parallel to Averroës in many respects. Like Averroës, he had to tread carefully for fear of censorship by religious authorities, and he occasionally modifies his theories according to whether he is addressing a philosophical or religious audience. Maimonides reserves immortality for the *ruah*, or active intellect, as opposed to the *nephesh*, or passive intellect, which perishes (Yesode-ha-Torah 4.9, quoted by Blumberg 1975). The highest perfection of man is deemed to be cultivation of the intellectual faculties, and it is this which leads to immortality. Referring to the *ruah* he states that "separate from the body only one of them exists" (*Guide of the Perplexed* 1.70, quoted by Cohen 1968).

Every acquisition of knowledge by an individual enriches the *ruah* and is therefore a gain. Maimonides' position provides a basis for the respect for education and learning that pervades Jewish culture. In memetic terminology it might be said that enriching the meme pool is the ideal and also provides grounds for pleading for the preservation of memetic diversity.

The imagery of the meme pool as the modern manifestation of the universal active intellect provides a metaphor for a spirituality which stresses the communal and altruistic aspects of the pursuit of knowledge. As we divest ourselves of the idea that our consciousness consists directly of basic sense data—which has been a theme of modern empiricist philosophy from Hume to Russell and Ayer—and replace it with an evolutionary epistemological model in which our consciousness is progressively constructed as we partake of the meme pool, we realize that our individual differences are outweighed by the memetic heritage we all have in common, but which cannot be exclusively possessed by any one individual. Thus Dawkins' meme theory, far from being bleak and materialist (in the derogatory sense of the word), as some of his critics have maintained, provides us with a basis for reconstructing a spiritual approach to knowledge of which Averroës and Maimonides would surely have approved.

References

Armstrong, Karen. 1994. *A History of God*. London: Mandarin.

Ayer, A. J. [1936] 1952. *Language, Truth, and Logic*. New York: Dover.

Beattie, John. 1966. *Other Cultures: Aims, Methods, and Achievements in Social Anthropology*. London: Routledge and Kegan Paul.

Blumberg, Harold. 1975. "The Problem of Immortality in Avicenna, Maimonides, and St. Thomas Aquinas." In *Studies in Maimonides and St. Thomas Aquinas*, ed. Jacob I. Dienstag. New York: Ktav.

Brooke, John Hedley. 1991. *Science and Religion: Some Historical Perspectives*. Cambridge, England: Cambridge Univ. Press.

Cassirer, Ernst, Paul Oskar Kristeller, and John Herman Randall Jr., eds. 1948. *The Renaissance Philosophy of Man*. Chicago and London: Univ. of Chicago Press.

Cavalli-Sforza, Luigi Luca. 1986. "Cultural Evolution." *American Zoologist* 26:845–55.

Cavalli-Sforza, Luigi Luca, and Marcus W. Feldman. 1981. *Cultural Transmission and Evolution: A Quantitative Approach*. Princeton, N. J.: Princeton Univ. Press.

Cohen, A. 1968. *The Teachings of Maimonides*. New York: Ktav.

Copleston, Frederick C. 1955. *Aquinas*. London: Penguin.

Cudworth, Ralph. [1678] 1845. *True Intellectual System of the Universe*. London: Thomas Tegg.

Darwin, Charles R. [1859] 1985. *The Descent of Man*. Reprint of 1st ed., ed. J. W. Burrow. London: Penguin.

Davidson, H. A. 1992. *Alfarabi, Avicenna, and Averroës, on Intellect*. New York: Oxford Univ. Press.

Dawkins, Richard. 1976. *The Selfish Gene*. Oxford: Oxford Univ. Press.

_____. 1993. "Viruses of the Mind." In *Dennett and His Critics*, ed. Bo Dahlbom. Oxford, England: Blackwell.

Dennett, Daniel C. 1991. *Consciousness Explained*. Boston: Little, Brown.

Diamond, Jared M. 1987. "Survival in Extreme Isolation." *Nature* 325:394.

_____. 1994. "The Last People Alive." *Nature* 370:331–32.

Diderot, Denis. 1749. *Lettre sur les aveugles: à l'usage de ceux qui voyent.* London.

_____. [1749] 1975. *Oeuvres complètes*. Ed. Herbert Dieckmann; Jean Fabre; Jacques Proust; and Jean Varloot. Paris: Hermann.
_____. [1746] 1950. *Pensées philosophiques*. Ed. Robert Niklaus. Geneva, Switzerland: E. Droz.
Goodman, Len E. 1992. *Avicenna*. London: Routledge.
Hume, David. [1750] 1948. *Dialogues Concerning Natural Religions*. New York: Hafner.
Knowles, D. 1962. *The Evolution of Medieval Thought*. Chap. 16, "Arabian and Jewish Philosophy." London: Longmans, Green.
Kretzmann, Norman, Anthony Kenny, and Jan Pinborg. 1982. *The Cambridge History of Later Medieval Philosophy*. Cambridge: Cambridge Univ. Press.
Kuksewicz, Z. 1982. "The Potential and the Agent Intellect." See Kretzmann, Kenny, and Pinborg 1982, chap. 29.
Kuper, Adam. 1996. *Anthropology and Anthropologists: The Modern British School*. 3d ed. London: Routledge.
Lawson-Tancred, Hugh. 1986. *Aristotle, De Anima (On the Soul)*. London: Penguin.
Leach, Edmund. 1982. *Social Anthropology*. Glasgow: Fontana Press.
Leaman, Oliver. 1988. *Averroës and His Philosophy*. Oxford, England: Clarendon Press.
Lloyd, G. E. R. 1968. *Aristotle: The Growth and Structure of His Thought*. Cambridge: Cambridge Univ. Press.
Mahoney, E. P. 1982. "Sense, Intellect and Imagination in Albert, Thomas, and Siger." See Kretzmann, Kenny, and Pinborg 1982, chap. 30.
Mair, Lucy. 1972. *An Introduction to Social Anthropology*. 2d ed. Oxford: Oxford Univ. Press.
Manuel, Frank Edward. 1974. *The Religion of Isaac Newton*. Oxford, England: Clarendon.
Marx, Karl. [1844] 1975. "A Contribution to a Critique of Hegel's Philosophy of Right." Introduction. Reprinted in *Early Writings*, trans. Rodney Livingstone and Gregor Benton. London: Penguin.
McGrath, Alister E. 1994. *Christian Theology: An Introduction*. Oxford, England: Blackwell.
Medawar, Peter. [1959] 1990. "The Future of Man." In *The Threat and the Glory*. The BBC Reich Lectures 1959, No. 6. Oxford: Oxford Univ. Press.
Miller, David, ed. 1983. *A Pocket Popper*. Oxford, England: Fontana Paperbacks.
Ohno, Susumu. 1970. *Evolution by Gene Duplication*. New York: Springer Verlag.
Popper, Karl R. [1967] 1983. "Knowledge: Subjective versus Objective." Third International Congress for Logic, Methodology and Philosophy of Science. In *A Pocket Popper*, ed. David Miller. Oxford, England: Fontana Paperbacks.
_____. [1973] 1983. "Evolutionary Epistemology," Herbert Spencer Lecture, Univ. of Oxford, 1973. In *A Pocket Popper*, ed. David Miller. Oxford, England: Fontana Paperbacks.
Popper, Karl R., and John C. Eccles. 1977. *The Self and Its Brain*. Berlin: Springer International.
Tindal, Matthew. [1730] 1798. *Christianity as Old as the Creation: or, The Gospel, a Republication of the Religion of Nature*. Newberg, N. Y.: David Denniston.
Trenchard, John. 1709. *The Natural History of Superstition*. London: A. Baldwin.
Vesey, G. N. A., ed. 1964. *Body and Mind*. London: George Allen and Unwin.
Voltaire. [1764] 1955. *Dictionaire philosophique*. Mount Vernon, N. Y.: Peter Pauper Press.
Wright, Sewall. 1931. "Evolution in Mendelian Populations." *Genetics* 16:97–159.