

a science in which "the biggest" marine reptile, a fossil ichthyosaur over 20 m (the blue whale is around 25 m) long, the skull 6 m, is presently being excavated with the assistance of a logging helicopter, from an annually inundated river bank in the northern British Columbian bush. And it is a history where synonymy (p. 208) can be demonstrated by reference to the mosasaur *Tylosarus proriger*, for which Cope erected three and sank two binomials in 2 years, followed by three and three in a year by Marsh, all from 1869 to 1872.

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The Myths We Live By by Mary Midgley. London and New York: Routledge, 1993. 208 pp. \$43.95 (hardcover). ISBN 0-4153-4077-2.

Don't try to argue with Mary Midgley if you're pushing some grandiose scientific idea that doesn't quite make sense. Suppose, for instance, that you're crazed with genetic engineering, and you write (as Robert Sinsheimer did, way back in 1969) that "The horizons of the new eugenics are in principle boundless—for we should have the potential to create new genes and new qualities as yet undreamed of. . . . Indeed this concept marks a turning-point in the whole evolution of life. For the first time in all time, a living creature understands its origin and can undertake to design its future."

And now suppose some dissenter comes along, objecting that biotechnologists are trying to play God. "Oh, no," the biotechnologists say, no doubt with a patronizing chuckle. "That's just an emotional objection. Besides, there's no room for God in our universe. We're scientific."

And that's where Midgley pounces. Which living creature, she asks, can understand its origin and design its future? "It cannot be human beings in general," she says; "they wouldn't know how to do it. It has to be the elite, the biotechnologists who are the only people able to make these changes. So it emerges that members of the public who complain that biotechnological projects involve playing *God* [her italics] have in fact understood this claim correctly. That phrase, which defenders of the project dismiss as mere mumbo jumbo, is actually a quite exact term for the sort of claim to omniscience and omnipotence on these matters that is being put forward." (p. 118)

Midgley, a British moral philosopher who's written nine other books, is an old hand at these disputes, and her thrust here makes especially good sense when you read it in its proper context, toward the end of *The Myths We Live By*. By that time she's unveiled all kinds of claims to omniscience and omnipotence (or something very close to those things) that scientists have made—claims, for instance, that science alone can be the source of moral values (an old chestnut from Jacques Monod), that genetics and evolutionary thinking can explain all human behavior (Richard Dawkins and E. O. Wilson), or that human minds can

take root outside the body, and survive the heat-death of the universe (J. D. Bernal, Freeman Dyson).

And it was these deft swipes at overinflated scientific balloons that first attracted me to Midgley some years ago, when I read her 1990 book *Science as Salvation*. Not that she or I are anti-science; Darwin, as we'll see, is one of her heroes (one of mine, too), and while she finds some scientists in some ways ridiculous, she'll also praise them, thanking sociobiologists, for instance, for reminding us that human beings are part of nature.

But of course scientists sometimes can be ridiculous, and the silly things they sometimes say seem even sillier when they're offered in the guise of scientific objectivity. I'd noticed long ago that biologists call evolution a random process, and then personify it as something with a purpose, when they describe a fascinating trait of some animal, and then state that it evolved *in order to* give the animal certain capabilities. (Sometimes biologists, still claiming scientific objectivity, personify nature itself.) So I was glad to find Midgley—someone widely read (at least in Britain) and deeply informed—pointing out the same contradictions.

Of course, she goes beyond these simple swipes. Her goal in this book is to explore the way myths (understood as "imaginative patterns," or "networks of powerful symbols") are in fact not the opposite of science, but instead function as "a central part of it." She begins with notions from the Enlightenment that she thinks still persist in scientific thought, and while such old ideas might seem too distant now to carry any force, Midgley drives her point home.

She shows, for instance, how enlightenment atomic theory—the notion that everything breaks down into tiny indivisible parts, whose interaction creates all objects and events—rises up to bite us in the fashionable notion of "memes," proposed by Richard Dawkins and Daniel Dennett as, in effect, the atoms of culture. If memes—indivisible cultural units, whose interaction would create all cultural events—really do exist, then mental life could be studied in the same way that the physical world is, and psychology and sociology could be reduced to physics.

E. O. Wilson (who believed in something like memes before Dawkins hypothesized them) calls the hope of uniting social and physical science "the Modern Synthesis." Midgley simply calls it "megalomania," (p. 45) and by the time she's finished with memes, it's easy to see why. To start with, concepts like "wearing clothes," "stiletto heels," or "Darwinism" (all proposed as memes by Dennett or Dawkins) can't unambiguously be shown to function as basic units of anything, the way electrons or chemical elements do. And then if memes—with the analogy shifting now from atomic theory to genetics—are thought to be not cultural entities, but instead the causes of things that happen in culture (cultural genes, in effect), then how can they be anything as specific as stiletto heels? What, in fact, *would* they be? "They are not physical objects. But neither are they thoughts or ideas of the kind that normally play any part in our experience. They seem to be occult causes of those thoughts. How then do they manifest

themselves? What makes us think they are there? . . . Invoking such extra stuff is as idle as any earlier talk of phlogiston or animal spirits or occult forces." (p. 66)

And the enlightenment idea of a mind/body split is also very much still with us, Midgley says, even though, as she notes, it's no longer necessary or even possible to make such a division, because mind and body clearly interpenetrate each other: "There is no set of perforations down the middle of a human being directing us to tear at this point." But because we do in many ways still believe that our minds are separate from our bodies and superior to them, we can see ourselves as separate from nature—from the physical world—and superior to it as well. (Notice, by the way, a paradox: We separate our minds from our bodies, even though we embrace the prevailing materialist belief that mind is nothing but a function of physical processes arising in the body.) From this separation and this sense of superiority, Midgley suggests, come extreme notions of bioengineering, of removing the mind from matter, and surviving past the death of the universe. If we're superior to physical processes, we can play God, and conquer them.

Here Midgley can be very droll, and very powerful. She quotes Freeman Dyson: "It is impossible to set any limit to the variety of physical forms that life may assume. . . . It is conceivable that in another 10^{10} years life could evolve away from flesh and blood and become embodied in an interstellar black cloud . . . or in a sentient computer. . ." To which she comments, "Our successors can thus not only avoid ordinary death, but also survive (if you care to call it surviving) the heat-death of the universe, and sit about in electronic form exchanging opinions in an otherwise empty cosmos. This, Dyson thinks, would restore the meaning to life, which has otherwise been drained from it by the thought that final destruction is unavoidable.

"Could fear and hatred of the flesh go further?" (p. 100)

But after this, I think, Midgley goes a bit astray. Quite wonderfully, her thinking leads her back to Darwin, whose work slashingly rebukes the pompous emptiness of (for instance) memes, because he never ventured any big ideas that weren't grounded in detailed study of mundane facts. Darwin (as Midgley pointedly reminds us) spent 40 years observing earthworms. How much time has Dawkins spent studying stiletto heels? But then she picks up a theme that had poked its head up often in her book, the unity of humanity (including human thought) and nature. I share her point of view, but when—in an attempt to show what happens when our lives diverge from nature—she declares that mad cow disease is more or less an inevitable result of factory farming, I lose her. I'd like to think that she's right, that bad things will happen if we feed cows ground-up sheep brains instead of foods that are more natural for them to eat, but simply asserting such a thing doesn't make it true; Midgley needs to prove her point, or at least develop it at greater length.

And when she finishes with a lengthy peroration about animal rights and animal consciousness, I again agree with what she says but find it all an arbitrary ending. Yes, the way we think of animals seems hobbled by the myths that

Midgley talks about, but so are many other things; she seems, in fact, to end with animals just because she cares about them, which is honorable but not a satisfying way to round off this book. Here, in fact, *The Myths We Live By* seems to show its origins—it began as 11 separate essays that Midgley stitched together, but perhaps not convincingly. The ending isn't the only problem; throughout the book, the arch of Midgley's argument isn't always clear, and neither is exactly how each separate chapter supports that arch. Her writing can be dense; she writes for people who know more about Enlightenment philosophy (and also the philosophy of our own time) than many of us do.

But Midgley's writing often sparkles (as I hope the passages I've quoted from it show), and precisely because it touches on so many subjects, the book can serve as a varied introduction to the many useful things that she says. Wonderful things jump from its pages, like this evocative moment from a passage in which Midgley asks why we use "animal" as a term of abuse: "'You have behaved like animals!' says the judge, to defendants found guilty of highly sophisticated human social offenses, such as driving a stolen car while under the influence of drink." (p. 136)

Or consider Midgley's comments on parsimony, which cut through fields of other people's nonsense to put things in the simplest, most sensible way: "Rationality does not actually demand the most economical account conceivable. It demands the most economical one *that will give us the explanation we need* [her emphasis]." ("To get this," she adds, "we need to consider carefully which lines to pursue: how wide our explanation needs to be, how large our question is, and what other questions are bound up with it." (p. 31) What a fine rebuke all this is to vulgar skeptics, who invoke Occam's Razor as a blunt response to any reasoning that asserts the possibility of something—UFOs, paranormal phenomena—unknown to cautious science.)

Mary Midgley is a treasure, and this book, for all its flaws, is full of flashing insights.

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FURTHER BOOKS OF NOTE

Cryptozoology: Science & Speculation by Chad Arment. Landisville, PA: Coachwhip Publications, 2004. 393 pp. \$16.95 (paper). ISBN 1-930585-15-2. Available at <http://www.Strangeark.com>.

The cover letter with the review copy of this book describes it as "the culmination of the author's interest in the methodology and practice of cryptozoology, and details the essentials