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Our disparaging view of sheep is indeed based on cognitive inadequacy: Unfortunately, it's ours

Commentary on **Marino & Merskin** on *Sheep Complexity*

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Abstract: Additional data, such as those surveyed by Marino & Merskin, are unlikely to change our perception of sheep. Arguably, the problem lies deeper than insufficient information. There are indeed cognitive deficits at the core of the problem, but they reside in *Homo sapiens,* not sheep. Judgmental biases that originated in the Pleistocene age have been over-extended in the modern world and result in unreasoning discriminative practices including speciesism. "Ism's" run deep and the more an "other" looks and acts like us, the more respect we give it. Sheep do not prosper as "individual sentient beings" under such a heuristic.

> **Hank Davis**, Professor Emeritus of Psychology, University of Guelph, has written extensively on animal learning and cognition with an emphasis on numerical competence and the ability of various species to discriminate between individual humans. In *Caveman Logic* (2009), he explores the evolutionary roots of human irrationality.
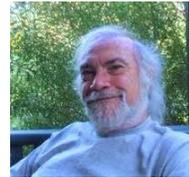
Marino & Merskin (2019) (M&M) have provided 16 pages of data summary and persuasive argument in support of upgrading our perception and treatment of sheep. In her commentary, Baker (2019) puts the issue even more bluntly: If these data aren't enough to change attitudes, then what will it take? Unfortunately, a dose of pessimism may be in order. No amount of additional data will accomplish the goal M&M have set out to achieve. Short of a delegation of sheep marching to The Hague and demanding, in elegant prose, that their public perception and welfare be upgraded in line with their sentient abilities, nothing is likely to matter.

Although it is true that there is much about sheep we don't yet know, the problem of negative public perception was never caused by too little data. It lies much deeper. In fact, we are looking in the wrong place for a solution. It does not reside in the sheep; it lies within *Homo sapiens.* So although M&M are to be commended for their diligent review of the literature, they have chosen the wrong species to analyze. They were right about one thing: there is a real cognitive deficit at the core of the problem. It just happens to be in us.

For better or worse, our species has evolved with a pervasive need to classify and judge. In *Caveman Logic* (2009), I argue that the mantra "You are either one of us or you are *other*" was useful in the Pleistocene age, but it has been over-extended in the modern world to the point of absurdity and danger. What started as "my tribe" (which carried a large genetic component 100,000 years ago) has become "my country" or "my religion" or "my race" or "my gender." In short, we have always sought reasons to discriminate and exclude. Whether wearing the cloak of racism, nationalism, sexism, or speciesism, the same circuitry has been humming merrily along since the Pleistocene age.

The corollary to this discrimination has been "the more you look and act like me, the more likely I am to extend respect, empathy and compassion to you." Using those rules, sheep are not big winners. They're better off than flounder or dung beetles, say, but they don't receive the "respect" we reserve for other primates. And even our treatment of chimps, for example, pales in comparison to how we treat our own species. Most of our own species, anyway. Humans have brought the same social and perceptual biases to the treatment of "others" (different races and ethnicities) within our own species. A massive amount of change in public perception had to occur in America before the Civil Rights Act could be signed into law in 1964, a hundred years after slavery was abolished. In short, "ism's" run deep.

Getting back to sheep, they have all kinds of image problems resulting in misunderstanding and mistreatment. The cumulative weight of research findings (which rarely inform public perception) cannot undo ignorant bias encoded in "The Great Chain of Being" or other religious dogmas. It's true that research findings can have shock value when they fly in the face of extreme popular biases. I was interviewed by the *New York Times* last week when they published a brief article about *transitive inference* in wasps (Giaimo, 2019). Any time an animal acts "smarter" than we expect it to, it becomes newsworthy. But the news cycle is short, and we revert to our stereotypes. The film *Babe* probably did more for porcine welfare than 20 years of research findings, and all that took was a talking pig. When my lab demonstrated the ability of *Madagascar hissing cockroaches* to discriminate between humans (Davis & Heslop, 2004), the findings made front-page news (with photo) in the *Toronto Globe and Mail,* and the *Discovery Channel* was in my lab filming a documentary within weeks. Ironically, the same demonstration in sheep (Davis, Norris & Taylor, 1998) stirred no interest from the popular press.

Perhaps we should take comfort from this. There was little or no media surprise that sheep could tell people apart. Wasn't that a step in the right direction? Probably not. We also tested seals, llamas, emu, cows, rabbits and chickens (Davis & Taylor, 1998). There was no interest there either. But the success of cockroaches mobilized the media. So, yes, while sheep may be smarter than insects, they are still not viewed as one of nature's cognitive prodigies. And that influences (to some extent, anyway) the manner in which they are treated.

Would the average person be surprised by most of the findings surveyed by M&M? Probably. But will that information alter popular perception? Probably not. First, you've got millennia of superstitious ignorance to counteract, and second, there are ancient perceptual circuits in us just dying to do their jobs by classifying sheep and many non-humans as "other" and "inferior." Cute? Maybe. Exploitable? Certainly. But "complex, individualistic and social"? Unlikely. Don't expect unbiased judgement unless you like betting against Darwin.

As I argued in *Caveman Logic* (2009), these over-extended Pleistocene strategies are not going away any time soon. They are enshrined in our laws and our religions. As the nightly news reveals, the appeal of nationalism that is based on fear of "others" is a winning strategy for politicians. And make no mistake about it: those same circuits are at the core of the exploitive, unsympathetic way we approach many animals, including sheep. Again, the problem is not lack of data. We can perform all the comparative cognition studies imaginable: transitive inference, delayed matching to sample, counting … it doesn't matter. To most of us, sheep will remain sheep. They are non-human, non-primate, compliant livestock. It would be far too costly for us to give up our sense of superiority and view sheep as individual sentient beings. Too many of us enjoy a warm wool sweater and a tasty rack of lamb.

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