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“Bioculturalism” -- An interview with Greg Downey

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By Greg Downy

This series aims to get anthropologists and closely-related others talking seriously, and thinking practically, about how to synergize biological and social scientific approaches to human health and well-being, and to what positive ends. In this interview, Greg Downey *responds to questions posed by series organizer Jeffrey G. Snodgrass.*

How and why might cultural anthropologists and social scientists interested in health benefit from integrating biological variables/biomarkers into their research and analysis?

I’m not particularly interested in health, to tell the truth. My research is about skill acquisition and enculturation, especially the biological consequences of these processes, such as specialised neural functioning, sensory plasticity, and embodied adaptation to behavioural patterns. The first reason biomarkers of a variety of sorts are useful is just to demonstrate that these sorts of physiological adaptations are happening in response to cultural-developmental regimens. The artificial separation of cultural and biological approaches, or of cognitive and brain research, can suggest that the brain or body are biologically determined or universal or innate, but the things we do with them are not. Sometimes the argument is that the brain is hardware and ‘the mind’ or ‘culture’ is software, or some such metaphor. Everything we know about neurological functioning suggests that the division is impossible to uphold, that skill-related refinement and patterns of use lead to architectural, functional, and connection changes in the brain, in non-conscious behaviour, and even in gross anatomy, such as skeletal remodelling or muscular hypertrophy. This is a long way of saying that biomarkers are important for my research to show that culture has biological consequences on basic human functioning.

How would you respond directly to one potential cultural

anthropological or social scientific critique of such an integrative "biocultural" approach?

When I have presented work to cultural anthropology audiences unfamiliar with my research, I will often have someone imply that talking about the biological consequences of skill acquisition or sensory learning is inherently "reductionist," as if any mention of a body part or brain system necessarily is a rush to throw out all other considerations. I've never really understood this critique, except as a knee-jerk response of defensiveness. To me, "reductionism" is the assumption that complex emergent processes can be explained by reference to smaller processes at lower levels of system analysis. On some level, every explanation that is not simply description is going to be "reductionist." Marxist analysis is notoriously "reductionist" in that sense. Post-structuralism is reliably "reductionist." Structuralism was fantastically "reductionist." If anything, when I see the complex neural-functional explanations of skilled performance, they look even more byzantine and complicated than even a fairly thorough descriptive account of what is happening in terms of overt behaviour and observable phenomena. And the whole thrust of considering the biological, neurological, and perceptual consequences of training and enculturation is to demonstrate how "top down" influences can restructure what are sometimes considered the substrates of that behaviour, such as brain anatomy.

Sometimes, I worry that anti-biocultural stances are just sort of well-rehearsed ritualised rhetorical moves, a kind of theory 'kata' that some people engage in, not recognising that the rehearsed situations are artificial. They are not so much a response to what we present as they are a comfortable, familiar way of rallying the like-minded. Of course, the reason that these ritualised rejections exist is because we have been preceded by generations of theorists who DID try to do the sort of pay-no-attention-to-emergent-properties reductionism that some of our critics think we are attempting. The brain sciences, like genetics, are susceptible to the sort of facile explanatory tricks that people who are really unfamiliar with either science find compelling ('genes cause behaviour' or 'a part of the brain is "designed" to serve one function').

What is one potential caution you'd have for cultural anthropologists or social scientists considering a biocultural approach?

If I have one caution, it's: don't think it's going to be quick or easy. The closer you get to biological processes, at least the ones I've looked at, the more difficult it can be to speak authoritatively or definitively about their relationship to culture. I often *wish* I could just resort to the "wiggle words"

I used to use before I got seriously involved in this area, like saying this or that cultural process was “embodied” and thinking that this meant something or was the resting point for my analysis. Even really simple facts about neurophysiological enculturation can be a veritable rabbit hole of complexity, and cause and effect sometimes become *less* clear the more you know. For example, signalling processes in the brain include a lot of chemicals that, if you don’t know much, might be easy to explain. We read these sorts of glib analyses in the popular press: oxytocin is the ‘tending and befriending’ molecule, or dopamine is the ‘pleasure’ signal. Anyone closer to this research knows that these sorts of processes are much more complex, and we cannot let the use of biomarkers reinforce a too-quick-to-be-satisfied rush to explanation. In my own research, which often can be seen as anti-innatist or anti-essentialist biology, I have to keep reminding myself and others that the possibility of plasticity in some systems in no way suggests that starting points are equivalent: innate “talent” is still a possibility. In fact, it’s likely given what we know about the diversity of neurological endowment and development.

What is one piece of research (ideally your own) that points to the benefits of such an integrative approach?

I don’t actually use a lot of biomarkers in my own work, although it’s an area I’m exploring right now. Because I work on sensory processes and skilled behaviour, I’m much more likely to use traditional ethnographic methods and simple psychological research techniques. But I’m also drawing heavily on lab-based research to try to see where in sensory processing and motor control there might be the sort of plasticity that is observable in human behaviour. In that sense, I’m an empirically-informed theorist of brain function in observable behaviour and performance, but I don’t have the money, facilities, or inclination to try to get these things into an imaging laboratory. I’ve been approached about doing that work, but the requirements of the research design to do a rugby-based project in a visual simulator (for example) so that you can brain scan a participant are so artificial that I’m deeply suspicious about the ecological validity of any of this testing. Instead, I’ve been experimenting with a range of other techniques, like head-mounted video in real games, biometric data on fatigue and heart-rate, and other observation techniques.

What is a good reference that cultural anthropologists or social scientists interested in such an approach could use to get started?

I’m so impressed with the work of my colleagues, especially people like

Jeffrey Snodgrass, Rebecca Seligman, Carol Worthman, Chris Lynn and many others. I suspect that there are many more, especially in medical anthropology, that I would love to learn about, but just haven't come across because it's been a while since I've done any sort of broad survey of this area. (You have to remember, my focus is really sensory processes and motor training, so a lot of cool developments happen in medical and psychological anthropology that it usually takes me a couple of years to catch up on — thank god I have Daniel Lende to point some of the more interesting ones out to me!)

I think we're entering a period where this type of research is only going to expand and get stronger. A lot of the venom in the biology-culture wars in anthropology seems to have drained out. Every once in a while we get a little spasm of it, like with the 'science' deletion skirmish in the AAA, but I'm reassured that most of the people who want to jump right in on one side or the other are either members of older generations of anthropologists or very retro-sounding young anthropologists who, in my opinion, can be persuaded that the war is over. As I've written about elsewhere, I think that the field is ripe for a range of integrative projects, and progress in other fields — including methodological breakthroughs in the way we can get data on biomarkers — make this an area where anthropology can really expand in theoretical and applied fields. Specifically in the brain sciences, my opinion is that the growing refinement of neural imaging has actually caused a real excitement about neurological diversity, cross-cultural imaging, and other themes that are amenable to cultural anthropologists. The more people we image, the less we're persuaded by innatist arguments or accounts of brain function that map a one-to-one relationship between a brain region and psychological function (the kind that evolutionary psychologists once argued for around "mental modularity," for example). If anything, the increased interest in brain diversity should expand the audience for what we do. Of course, we'll have to make sure that we're actually communicating in ways that they can make sense of.

Greg Downey *is Associate Professor and Head of the Department of Anthropology at Macquarie University in Sydney. Greg conducts research on skill acquisition, sensory change and phenomenology, especially in the Afro-Brazilian martial art and dance, capoeira, and sport more broadly. He is author of* Learning Capoeira: Lessons in Cunning from an Afro-Brazilian Art *(Oxford 2005), and co-editor with Daniel Lende of* The Encultured Brain: An Introduction to Neuroanthropology *(MIT 2012). Greg writes extensively on the weblog* Neuroanthropology*, as well, which he founded with Lende. His current research explores the rise of explicit training in echolocation among the blind and the sensory activism of World Access*

for the Blind.

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