Rehabilitating "Disease": Function, Value, and Objectivity in Medicine

Russell Powell and Eric Scarffe*†

The concept of disease remains hotly contested. In light of problems with existing accounts, some theorists argue that the disease concept ought to be eliminated. We answer this skeptical challenge by reframing the discussion in terms of the role that the disease concept plays in the complex network of health care institutions in which it is deployed. We argue that while prevailing accounts do not suffer from the particular defects that critics have identified, they do suffer from other deficits, and this leads us to propose a new account that satisfies the desiderata for a concept of disease in human medicine.

1. Introduction. Despite several decades of discussion and debate, the concept of disease remains hotly contested. Typically, the debate is cast as one between naturalism and normativism (or objectivism and subjectivism), with a hybrid view that combines elements of each staked out in between. In light of a number of widely discussed problems with each account, some theorists argue that the concept of disease is beyond repair and thus recommend eliminating it entirely in medical contexts. Any successful rebuttal of this skeptical challenge must rethink the way that the "disease" debate is framed. This reframing must not only clear away pseudoproblems and red herrings in the literature that have muddied the waters but also include a metamethodological critique that reconnects the disease concept with the role that it plays, and should play, in the complex network of health care institutions in which it is deployed.

* To contact the authors, please write to: Russell Powell, Department of Philosophy, Boston University, 745 Commonwealth Avenue, 511A, Boston, MA 02215; e-mail: powell@bu.edu.

† The authors would like to thank Marc Ereshefsky, Allen Buchanan, Şerife Tekin, Sune Holm, Steve Clarke, as well as audiences at the PSA 2018, University of Miami, University of Oxford, University at Albany, Rochester Institute of Technology, and Boston University, for comments on an earlier draft of this manuscript. Scarffe is grateful to the Social Sciences and Humanities Research Council of Canada for support of this research.

Philosophy of Science, 86 (December 2019) pp. 1168–1178. 0031-8248/2019/8605-0030$10.00
Copyright 2019 by the Philosophy of Science Association. All rights reserved.

https://doi.org/10.1086/705520 Published online by Cambridge University Press

In what follows, we attempt such a reframing by way of examining Ereshefsky's (2009) sweeping criticisms of disease concepts. We focus our attention on Ereshefsky because his discussion of "disease" is less insular than that of most philosophers of science and, thus, allows us to take a broader view of the philosophical landscape. In this article, we make three contributions to the literature. First, we show that although Ereshefsky is right that existing theories of "disease" are in need of refinement, they do not suffer from the particular defects that he and other critics have identified and (in any case) could readily be modified to avoid the problems that are commonly attributed to them. Second, we show that prevailing theories of disease do suffer from other serious problems that have been largely overlooked—problems that stem from their failure to meet the institutional and ethical desiderata for a concept of disease in human health care. Finally, we propose an amended hybrid view that places hybrid accounts, and "objectivist" approaches to disease more broadly, on stronger theoretical footing.

2. Does Disease Naturalism Fail on Its Own Terms? Although naturalistic approaches vary, common to all of them is that they propose definitional criteria that are allegedly purely "descriptive": that is, they claim to advert solely to biological matters of fact, and these matters of fact are typically in terms of some biotheoretic understanding of "dysfunction." There are several dominant understandings of biological function (and we will have more to say about them in a moment), but the thrust of naturalistic accounts is that whether a trait is dysfunctional is determined by facts about the biological world, not the contingent interests of researchers, the goals of policy makers, or the desires of patients. Nevertheless, an influential line of critique contends that although naturalistic accounts purport to offer value-free definitions of disease grounded in "objective" biological facts about function, they wind up importing values after all. Of course, there will always be epistemic values associated with concept choice in the sciences. So, the claim here must be about explicitly *moral* values: that, in practice, disease classifications are shaped (often insidiously) by value judgments of the robustly normative kind.

One commonly touted example is homosexuality: for much of the twentieth century, homosexuality was considered a disease by the American Psychiatric Association. The fact that homosexuality is no longer considered a disease largely reflects a shift in social values, not a new understanding of the evolutionary facts about the trait in question (Bingham and Banner 1999). It is true that some highly speculative hypotheses propose that homosexuality may have adaptive origins. But the reason the American Psychiatric Association no longer classifies homosexuality as pathological is not because such adaptationist hypotheses have prevailed. What has changed is the way the trait is valued. The counterexample strategy gains some traction when one realizes

https://doi.org/10.1086/705520 Published online by Cambridge University Press

the homosexuality case is far from an isolated incident: there are numerous examples when disease classification has clearly tracked changes in social values (e.g., masturbation; Engelhardt 1974), and many mental health disorders are characterized in reference to human moral values or subjective well-being.

This line of attack does little to undercut the naturalist's position, however, since the disease naturalist can readily reply that these cases are cherry-picked, erroneous, or simply reflect occasional illicit moral-political influence in what is otherwise a value-free classification scheme. Given the responses available to the naturalist, a more effective line of criticism would show that disease naturalism can be undermined from within. This is the heart of Ereshefsky's critique, which is aimed primarily at Boorse's "biostatistical" view (1977, 1997), which is far and away the most influential naturalistic/objectivist account of disease. Boorse originally set out to articulate a theory that can make sense of the diverse range of phenomena that are commonly taken to be diseases, from infections and birth defects to cancers and limb paralyses. He argued that there is a common theoretical thread that runs through these phenomena: they all implicate biological dysfunction. Boorse thus introduces the notion of "normal function," which he cashes out in terms of a statistically typical contribution of some part or process in individuals of a given reference class to survival and reproduction. When traits depart from normal functional efficiency by some arbitrarily decided degree, they are deemed dysfunctional—and hence diseased—against the idealized standard of "normal species design."

Ereshefsky's first charge is that biology does not have the resources to say what the "natural" or "normal" traits for a species are, since species are historical entities, not natural kind classes that organisms belong to because they possess certain essential characteristics (2009, 222). Species are ancestor-descendant sequences of populations that evolve over time, with trait distributions determined by "norms of reaction," not internal essences (Hull 1986; Amundson 2000). Boorse's appeal to normal species design might indeed smack of archetypal notions that render its naturalistic tenor questionable. Yet, despite this common (mis)reading of Boorse, his theory is not at odds with the received view that species are individuals (rather than natural kind classes), nor is it in tension with the developmental biological rejection of bioessentialism. The reason Boorse (1977) is compelled to introduce "species design" is that if contributions to survival and reproduction were indexed to an individual organism, the account would be unable to characterize as dysfunctional token traits, such as congenital deformities, that never contributed to the fitness of their bearer. The regularities on which Boorse's notion of species design depends are purely statistical and are produced by thoroughly Darwinian causes, such as common ancestry, stabilizing selection, and sexual recombination. Although Boorse's account of disease falters for other reasons (see below), it cannot be faulted for being

https://doi.org/10.1086/705520 Published online by Cambridge University Press

insufficiently naturalistic on the grounds that it reposes on a pre-Darwinian understanding of species.

Ereshefsky's second reason for thinking that Boorse's account fails on its own terms is that Boorse's theory rests on the claim that survival and reproduction is *the* goal of human life—a morally loaded assumption that does not follow from any scientific descriptions. It is true that biological fitness and psychological well-being come apart, sometimes spectacularly so. Yet nowhere does Boorse claim that survival and reproduction are the only, or even central, goals of human beings qua intentional, rational agents. The goals that Boorse has in mind are biological, not psychological—and this fits with his insistence that diseases may or may not impinge on human life in ways that warrant treatment, and it explains why Boorse's account of disease is touted as applying to all life, not merely organisms that can value things. That said, as we will see, the decoupling of fitness and well-being will cause serious problems for the naturalist later on.

The real problem with talking about survival as a biological goal of organisms, as Boorse and some of his contemporary defenders do (see Hausman 2014), is that survival is only instrumental to fitness and hence cannot be properly construed as an "apex" biological goal. Survival gets toggled by selection in different environments: some lineages are selected for short life spans and minimal tissue maintenance, while others are selected for longer life spans and extensive tissue maintenance. It is fitness that "decides" this life history balance, and it is fitness that is the apex biological goal of biological systems, if any such goals exist. The focus on survival seems to be based on the pretheoretical intuition that one is not healthier simply by virtue of the fact that one can be assigned a higher fitness value, whether this is taken to entail (mistakenly) greater actual reproduction or (correctly) greater expected reproductive success. I am not healthier than another merely in virtue of the fact that I have, or am likely to have, more children than another. What this says to us is not that survival should be the relevant measure of statistical functional contribution but that "disease" cannot satisfactorily be accounted for in wholly naturalistic terms.

Even if one were convinced that Boorse's account is essentialistic or infiltrated by moral values, the aspiring disease naturalist can avoid these difficulties by adopting an explicitly etiological account of function: one that adverts to a history of selection for one or more effects (Neander 1991). These effects are deemed evolutionary functions, and sufficient departures from these evolutionary functions constitute dysfunctions. How precisely does this view differ from Boorse's "species typical contribution to survival and reproduction"? One key difference is the time frame to which fitness contributions are indexed. On the Boorsean model, the time frame in which species-typical contributions to fitness are measured is unspecified, which leads to the well-known problem of "universal diseases." If uncontroversial pathologies (such as lung

https://doi.org/10.1086/705520 Published online by Cambridge University Press

cancer due to smoking or pollution) become predominant in a population, then the underlying trait's contribution to fitness will no longer be statistically typical, and Boorse will be unable to classify such cases as diseases, since they cannot exclude "disease-causing environments" without begging the question.

A potentially more serious problem, thus far unrecognized in the literature, is what we call the "problem of medical environments": in contemporary societies, with sophisticated medical infrastructure, many pathologies no longer detract from survival and reproduction since medical "prosthetics" (broadly conceived) nullify fitness differences between normal and pathological variants. Boorse's view has no resources by which to exclude medicine or other fitness-equalizing institutions from the relevant environment in which statistically typical fitness contributions are measured. If this is right, then even uncontroversial diseases that are not universal or predominant in a population—from infections to limb paralyses—cannot be considered diseases so long as medicine neutralizes their fitness effects.

In contrast, the selected effects account is immune to such criticisms, since it is indexed to time frames relevant to *evolutionary adaptation*. The failure of a part to perform a naturally selected function remains even if that failure becomes universal in a population or if institutions nullify their fitness effects. The Boorsean account might overcome these problems by picking a deeper time frame against which to measure statistically typical fitness effects, but the further back this measurement goes, the more the goal-contribution account begins to resemble the selected effects account. Hausman, for instance, wrestles with the relevant "benchmark environment" in which to measure statistically typical contributions, settling on environments that are "typical of the most common environments in which *Homo sapiens* have [*sic*] lived" (2015, 11). This is only marginally less vague than Boorse's account, although Hausman seems to interpret this phrase as referring to something like the environment of evolutionary adaptation. We see no reason why Boorse's account should pick out the environment of evolutionary adaptation as the relevant benchmark except as an ad hoc response to the above time-frame-oriented objections. Nevertheless, if the benchmark environment is interpreted this way, then it is verging on an evolutionary account of function—and this may not be an undesirable outcome, for the selected effects account has many advantages over Boorse's "normal function" model that make it better suited to support a naturalistic conception of disease (Bengt 2019).

First, the selected effects account is immune to the "archetype" criticism, since it makes no reference to species design. Second, it is not vulnerable to the charge that its notion of dysfunction is illicitly shaped by moral values, since it adverts only to a history of selection for effects—a further socio-moral analysis is needed to determine how the dysfunction is valued. Third, it is explanatorily superior because it appeals to deep historical mechanisms

https://doi.org/10.1086/705520 Published online by Cambridge University Press

that explain why "species typical" traits are in fact species typical and why deep evolutionary time frames should be the benchmarks against which selected effects are measured. Fourth, it allows "disease" to describe a universal property of life: all living systems will be cobbled together by natural selection, and so all natural life forms will subject to function and dysfunction. Finally, it has operational advantages: it is easier to infer functions honed over millions of years than it is to gauge contributions to survival and reproduction in modern ecologies that poorly reflect the ancestral environments in which "species typical" traits congealed.

It is true that the selected effects account must deal with some of the same problems that Boorsean function must wrestle with, such as the contextual nature of function and the bounds of functional efficiency, and it must successfully rebuff pseudoproblems like the "paradox" of normal functional response to insult (Hausman 2011). It must also make sense of diseases of aging, which result, in part, from the lack of selective investment in tissue maintenance in postreproductive phases of the life span. But overall, the selected effects account does all that the normal function model does and more. In our view, therefore, little is lost and much is gained for the defender of disease naturalism by substituting an etiological account of function for Boorse's goal-contribution account. Nevertheless, it too fails to meet the ethical desiderata for a concept of disease in human medicine. Before explaining why, let us examine the limitations of explicitly value-based theories of disease, as this will motivate our own view.

3. The Normativity Thickens: Problems with Value-Based Accounts of Disease. In brief, the normativist believes that classifications of "health" and "disease" reflect value judgments about biomedical states of affairs and nothing more (Engelhardt 1976; Goosens 1980). On this view, healthy biomedical states are simply those we wish to attain or sustain, and diseased biomedical states are those we wish to avoid. A number of problems with this view are readily apparent. As Ereshefsky (2009) notes, there are significant cross-cultural differences in how biomedical states of affairs are valued and disvalued, implying that the same biomedical state can constitute a disease in one culture but not in another. Even within a single culture, the ways that biomedical states of affairs are valued are subject to change, such that the same state may constitute a disease at one time and not at another. The spatiotemporally contingent nature of disease classification is, of course, inconsistent with the notion that disease is a mind-independent phenomenon. But this is of little trouble to the normativist, who is happy to reject such notions of objectivity.

Another problem for the normativist is that some biomedical states are widely disvalued but not widely considered to be diseases (such as short stature or pattern baldness or diminutive male sex organs). This suggests that

https://doi.org/10.1086/705520 Published online by Cambridge University Press

our evaluative judgments and intuitive notions of disease come apart in a way the normativist denies. Like the defender of naturalism, however, the normativist could simply reply that cherry-picked counterexamples do not show that the normativist account is unable to capture broad usage of the concept. Yet this still leaves untouched one compelling critique of the normativist position: namely, it lacks the resources to identify ethically problematic abuses of the concept. For instance, the normativist account does not permit us to say that politically or religiously motivated cases of pathologization were problematic. And if diseases are delineated solely in relation to a sufficient level of community consensus about how some biomedical state is valued, then there is no basis by which to say that the disease concept was misused or abused in these morally problematic cases. Something more than whether a given biomedical state of affairs is valued—something biological—is thus needed to rein in normativity.

Enter the hybrid approach, which combines biological and evaluative components. Wakefield's (2007) version is the most influential: he proposes that disease be equated with "harmful dysfunction," where "harmful" is a value term determined by social values, and "dysfunction" is a scientific term referring to the failure of a mechanism to perform a natural function for which it was designed by evolution. Wakefield (2014) contends that Boorsean normal function and Wakefieldian natural function overlap in practice to the point that their differences can safely be ignored. If our earlier criticisms are right, however, then the nonoverlap is substantial, and the selected effects substitution implicit in Wakefield's view confers major advantages on the hybrid theory.

Yet this glosses over an important and overlooked problem with normativist and hybrid accounts of disease: rather than being too value laden, they are in fact not normative enough. They describe how biomedical states are valued, but they make no claim about whether these states are properly valued as such. Recall that disease naturalists have trouble with the homosexuality case because it looks straightforwardly dysfunctional from the standpoint of fitness. In contrast, on the normativist and hybrid views, homosexuality was rightfully declassified because it was no longer disvalued by the relevant populations. Thus, normativist and hybrid views pass the homosexuality litmus test, but they do so for the wrong reason. Homosexuality should not be considered a disease because disvaluing homosexuality is not rationally justified and causes objective harm. The real problem with the hybrid approach, then, is that whether it classifies a biomedical state as a disease is contingent on mere facts about evolution and social evaluation. Thus, although weakly normative hybrid accounts can make sense of misapplications that do not implicate biological dysfunctions (e.g., masturbation), they do not have the resources to recognize as misapplications biological dysfunctions that are

https://doi.org/10.1086/705520 Published online by Cambridge University Press

wrongfully or perniciously disvalued. Recent articulations of the hybrid account (see Kingma 2014) are encumbered by the same defect.

This deficit is not simply an oversight. It is a result of the methodology that has often been employed in the "disease" literature. Like naturalistic and normativist theories, hybrid approaches have been engaged in a traditional conceptual analysis project. They are asking what some community of language users—be they physicians, pathologists, or patients—means by the term "disease" when they use it. The problem is that conceptual analysis of this sort lacks the thick normativity that allows us to make sense of institutional applications and misapplications. What is needed, then, is a theory of disease that not only takes biology and normativity seriously but also takes institutions seriously.

4. In Defense of a Thickly Normative Hybrid Theory of Disease. Our proposal is that a biomedical state is a disease only if it implicates a biological dysfunction that is or would be properly disvalued. Although this might seem like a minor modification, it has significant consequences for disease classification and allows the amended hybrid account to succeed on several fronts where existing accounts have fallen short.

First, a truly thick evaluation avoids the implausible spatiotemporal implications of normativist and weakly normative hybrid views, since objective normative standards are not contingent on sociological patterns of evaluation that change over space and time. This is not to say that our views regarding what should be disvalued are fixed—rather, the point is that whether a biomedical state is a disease does not change with social shifts in evaluation. This metaphysical stability is due to two objective components: biological dysfunction and rational moral justification. The possibility that dysfunction can be delineated without recourse to moral values has already been discussed. The view that moral judgments about biomedical states can be objectively justified is not terribly controversial (Roache and Savulescu 2018; Powell and Scarffe 2019), as bioethical discussions generally proceed on that assumption, and one can be committed to moral objectivity without being committed to a strong species of moral realism.

A second advantage of a thickly normative hybrid account is that it can make sense of misapplications and pernicious abuses of the disease concept in the past, while recognizing that there has been progress in our understanding of which biomedical states constitute diseases as new normative and biological information has come in. A growing appreciation of the diversity of reasonable perspectives on the good life has transformed our understanding of which biomedical states are disvaluable, in part by correcting for "imperialistic" conceptions of human good that were historically tinged with racial, ethnic, gendered, and socioeconomic subtexts. Likewise, the discovery

https://doi.org/10.1086/705520 Published online by Cambridge University Press

that certain conditions, such as addiction and mood disorders, have neurodysfunctional causes has reduced their social stigma and brought them more firmly into the purview of medicine.

A third virtue of a thickly normative hybrid theory is that it interacts well with disability rights critiques that view the disease concept literature as "overly metaphysical" in failing to incorporate the first-person phenomenology of patients, families, and other stakeholders with lived experiences of the underlying conditions (Tekin and Mosko 2015). Rather than taken as diseases to be mitigated or eliminated, a number of conditions, such as deafness and forms of autism, have been reclaimed by some as morally valuable expressions of human identity and diversity. Whatever one thinks about these arguments, the resources for making them—and for countering them—are contained in the thickly normative component of the proposed view.

This brings us to the biggest advantage of account we are proposing: it takes institutions seriously. As a result, it avoids the undesirable fallout that comes from attempting to sever disease classifications from their social and ethical ramifications, as naturalistic theories attempt to do. Boorse (1997) has narrowed the epistemic scope of his theory to the point that it is now limited to describing how pathologists are using the term, effectively insulating his view from social-institutional critique (although even this parochial endeavor may not succeed; Wakefield 2014). Wakefield's (2007) conceptual analysis speaks to a broader community of language users but still does not fully capture the institutional dimensions of the concept.

There are significant costs that flow from dispensing with either the biological dysfunction component or the normative evaluation component, as well as from eliminating the disease concept itself. To appreciate these costs, it is critical that one sees medicine—and in particular, disease diagnosis—as a practice that is embedded in a diverse network of public and private institutions tasked with research, risk pooling, regulation, allocation, and delivery. The disease concept that is deployed in this framework is inferentially rich: it carries the information that some biomedical state is disvaluable because it significantly interferes with well-being, flourishing, or opportunity, which in turn has important ramifications for how limited health care resources are prioritized. The disease concept not only comes with the recognition that one may be entitled to social support, but it also helps ensure that the allocation of medical resources is carried out efficiently and fairly at the population level. It does this by prioritizing segments of the population who tend to be the worst off (biomedically speaking) over those that fall within the "normal" range of variation—in effect, prioritizing treatment over enhancement.

Since the impacts of biomedical conditions cannot be assessed on a case-by-case basis at the population level, given the practical and epistemic impediments to doing so, health care allocation must rely on population-level heuristics for deciding which biomedical interventions are to be prioritized

https://doi.org/10.1086/705520 Published online by Cambridge University Press

(Buchanan 2001). If biological dysfunctions tend, on average, to interfere with well-being and opportunity more so than low-end variation that does not rise to the level of dysfunction—and we have reason to prioritize the medically worst off in our health care allocations—then we have good pragmatic reasons for adhering to a treatment-enhancement distinction that is drawn in part on the basis of biological dysfunction.

This is not to say that health care should never extend to nondisease states or to the enhancement of normal function. Many conditions that do not implicate disease may nonetheless be afforded a high priority in medical institutional support, such as access to contraception and abortion services. And, to the extent they become safe and effective, some enhancements of lower-end function (e.g., cognitive enhancements) may have major impacts on well-being and opportunity that justify affording them a high priority in the allocation of biomedical resources. Nevertheless, all developed health care systems rely on the treatment-enhancement distinction in distributing limited medical resources, there are good ethical reasons for this reliance, and any conception of disease should be well suited to serve this institutional purpose.

Existing theories of disease are ill suited to this role. On naturalistic accounts, the ethical dimensions of disease classification are simply irrelevant, so it is better to consider these accounts biological rather than medical. But, to dispense with a biodysfunction component, as normativist theories want to do, would be to classify all (properly) disvalued states as diseases, which would prevent the disease concept from prioritizing conditions that tend to interfere most with well-being or baseline opportunity. Weakly normative hybrid accounts do better in some regards, but they cannot make sense of misapplications that are caused by wrongful evaluations, nor do they recognize why misapplications are problematic given what the disease concept is institutionally designed to do.

5. Eliminativism Revisited. It is against this moral institutional backdrop that we may now return to Ereshefsky's skeptical conclusions and the march toward eliminativism. Ereshefsky (2009) recommends that in medical contexts the disease concept be abandoned and that we speak instead of "biomedical states that are disvalued." Yet as we have seen, "disease" is interwoven into the institutional fabric of developed societies, and there are sound population-ethical justifications for its embeddedness that are not satisfied by the replacement term. Because it lacks a biofunctional component, eliminativism does not serve the goals of health care prioritization, and because it lacks a proper evaluation component, it does not protect against abuses of the concept. What drives abuses is not so much the smuggling of value into classification schemes that get peddled as naturalistic descriptions but rather the improper evaluation of states. Therefore, eliminating

https://doi.org/10.1086/705520 Published online by Cambridge University Press

the disease concept would fail to address the risks that motivate eliminativism in the first place.

Finally, we do not intend this argument to extend to other sciences that make their own fruitful use of the disease concept. Theoretical unification is a worthwhile scientific pursuit, but a concept of disease that is useful, say, in veterinary medicine or forestry science may be poorly suited to the thickly normative aims of human medicine. The notion that medicine is an irreducibly normative discipline may be disquieting to some, but to us it provides greater reasons for medical theory to engage more substantively with ethical thought. We hope to have made a persuasive case that we should strive to eliminate disease but not its very concept.

REFERENCES

Amundson, R. 2000. "Against Normal Function." *Studies in History and Philosophy of Biological and Biomedical Sciences* 31 (1): 33–53.

Bengt, A. 2019. "Survival, Reproduction, and Functional Efficiency." *Philosophy of Science*, in this issue.

Bingham, R., and N. Banner. 1999. "The Definition of Mental Disorder: Evolving but Dysfunctional?" *Journal of Medical Ethics* 40 (8): 537–42.

Boorse, C. 1977. "Health as a Theoretical Concept." *Philosophy of Science* 44:542–73.

———. 1997. "A Rebuttal on Health." In *What Is Disease?*, ed. J. M. Humber and R. F. Almeder, 3–143. Totowa, NJ: Humana.

Buchanan, A., ed. 2001. *From Chance to Choice: Genetics and Justice*. Cambridge: Cambridge University Press.

Engelhardt, T. 1974. "The Disease of Masturbation: Values and the Concept of Disease." *Bulletin of the History of Medicine* 48 (2): 234–48.

———. 1976. "Ideology and Etiology." *Journal of Medicine and Philosophy* 1 (3): 256–68.

Ereshefsky, M. 2009. "Defining 'Health' and 'Disease.'" *Studies in History and Philosophy of Biological and Biomedical Sciences* 40 (3): 221–27.

Goosens, W. 1980. "Values, Health, and Medicine." *Philosophy of Science* 47 (1): 238–55.

Hausman, D. M. 2011. "Is an Overdose of Paracetamol Bad for One's Health?" *British Journal for the Philosophy of Science* 62 (3): 657–68.

———. 2014. "Health and Functional Efficiency." *Journal of Medicine and Philosophy* 39 (6): 634–47.

———. 2015. *Valuing Health: Well-Being, Freedom, and Suffering*. Oxford: Oxford University Press.

Hull, D. 1986. "On Human Nature." *Philosophy of Science* 2:3–13.

Kingma, E. 2014. "Naturalism about Health and Disease: Adding Nuance for Progress." *Journal of Medicine and Philosophy* 39 (6): 590.

Neander, K. 1991. "Functions as Selected Effects: The Conceptual Analyst's Defense." *Philosophy of Science* 58 (2): 168–84.

Powell, R., and E. Scarffe. 2019. "Rethinking 'Disease': A Fresh Diagnosis and a New Philosophical Treatment." *Journal of Medical Ethics* 45 (9): 579–88.

Roache, R., and J. Savulescu. 2018. "Psychological Disadvantage and a Welfarist Approach to Psychiatry." *Philosophy, Psychiatry and Psychology* 25 (4): 245–59.

Tekin, S., and M. Mosko. 2015. "Hyponarrativity and Context-Specific Limitations of the DSM-5." *Public Affairs Quarterly* 29 (1): 109–34.

Wakefield, J. 2007. "The Concept of Mental Disorder: Diagnostic Implications of Harmful Dysfunction Analysis." *World Psychiatry* 6 (3): 149–56.

———. 2014. "The Biostatistical Theory versus the Harmful Dysfunction Analysis." *Journal of Medicine and Philosophy* 39 (6): 648–82.

https://doi.org/10.1086/705520 Published online by Cambridge University Press