

Question 2): In your statement you make an argument for using a political ecology of health/disease framework in your dissertation and discuss core requirements for such an approach (pages 6-7 of your statement). Can you identify, discuss, and analyze examples in the literature which best exemplify prior uses of such an approach or at least examples which come closest to the ideal integrated approach as you have identified it?

Literature that explicitly identifies itself as contributing to the further understanding and elucidation of “the political ecology of health” or “the political ecology of disease” is actually quite limited, relatively speaking. A search of the National Library of Medicine via PubMed with the search phrase “political ecology” produces just 10 hits. Thus, it should not be surprising that prior approaches that exemplify in all dimensions the particular political ecology of health/disease approach that I have proposed are not found in the published peer-reviewed literature of medical geography, medical anthropology, and related disciplines, to my knowledge. However, the framework that I have proposed is drawn from a piecing together of various concepts and approaches from medical geography and medical anthropology and takes as its starting point the political ecology of disease formulation proposed by Mayer (1996, 2000). I will review here the literature that supports the ‘critical political ecology of disease’ framework I have proposed beginning first with literature that is explicitly in the realm of political ecology of health/disease, followed by examples from the general political ecology literature, and concluding with work from medical anthropology, medical geography, and related areas.

As I mentioned in my previous statement, Mayer’s 1996 paper was significant in that it provided the most robust elucidation to date of the outlines of a political ecology of disease framework using illustrative examples such as HIV/AIDS in sub-Saharan Africa, cryptosporidiosis in Wisconsin, and Lyme disease in Connecticut. Several papers in the literature have taken up Mayer’s formulation of the political ecology of health/disease, in

whole or in part, and applied it to a wide range of health and hazards issues. These include the refugee crisis in Africa (Kalipeni and Oppong 1998), the global tuberculosis pandemic (Gandy 2001), landmines in Africa (Oppong and Kalipeni 2005), self-reported health status of 'Namgis First Nation members affected by salmon aquaculture (Richmond et al. 2005), land degradation and disease ecology in Mozambique (Collins 2001; 2002), deforestation and environmental health in southern Malawi (Kalipeni and Fedder 1999), polio resurgence in Africa (Oppong 2006), flood hazard planning in Bangladesh (Paul 2005) and schistosomiasis and dam-building in Ghana (Hunter 2003). All of these authors explicitly refer to Mayer's 1996 political ecology of disease model with the exception of Hunter, who does not refer to political ecology, but whose pioneering study is a sine qua non of the political ecology of disease. They all emphasize local-global linkages and disease ecology or other ecologically-informed approaches. Other work has been done under the "political ecology of health/disease" rubric that does not satisfy the Mayer model, and this work will not be comprehensively reviewed here.

In a 2000 *Social Science and Medicine* article, Mayer briefly reviewed the political ecology of disease framework again, noting recent theoretical developments in the field of political ecology since 1996 (p. 948-950). The developments he points to mainly arise from the incorporation of critical perspectives into political ecology that strengthen its political economy-derived politics/power and profit/revenue calculus. However, Mayer once again underscores the fact that these recent developments in political ecology fail to mention health or disease, echoing similar sentiments from his 1996 article: "morbidity and mortality owing to disease are barely mentioned by those espousing political ecology, yet disease has been and remains a profound aspect of

human existence” (p. 448). In attempting to imagine what a political ecology of disease that incorporates the critical perspectives of Peet and Watts (1996) (and others) would look like, Mayer (2000) writes: “Using an interpretive framework developed in the context of advocating social change provides a challenge for the sociomedical interpretation of disease” (p.949). No examples are provided because, we can conclude, no political ecology studies that challenge the sociomedical interpretation of disease exist!

In my literature search, I did, however, find one study from 1996 published in *Medical Anthropology Quarterly* that does succeed in using a rudimentary political ecology of health framework to challenge sociomedical understandings of a behavior that is often understood as maladaptive and unhealthy: female circumcision. Gruenbaum (1996), an anthropologist at CSU Fresno, seeks to critique the prevailing medical anthropological interpretation of female circumcision as a ‘maladaptive cultural pattern’ by conducting a political-economic analysis of the practice in central Sudan. Gruenbaum argues that “whether a cultural practice is adaptive or maladaptive depends to a large extent on whose viewpoint is taken, where the political forces for and against it lie, and whose interests are served by change” (p. 470). In holding this view, Gruenbaum is echoing views cogently expressed by medical anthropologist Singer (1989) in a paper entitled: “The Limitations of Medical Ecology: The Concept of Adaptation in the Context of Social Stratification and Social Transformation.” Singer recognized the dangers inherent in irresponsible and apolitical application of the notion of ‘maladaptive patterns of behavior’ to describe individual and group behaviors that challenge prevailing unjust norms. In critiquing McElroy and Townsend’s (1978) view on health as a measure

of environmental adaptation (interestingly, the same authors are also a foil for Gruenbaum), Singer writes: “the adaptationist perspective appears to assign inequities in social relationships to the environment, thereby not only legitimizing those inequities as natural, but implying that the noxious consequences of exploitation are indicators of the maladaptation of politically and economically subordinate groups” (p.226). Singer adds that the oft stated assertion that health and disease are a measure of the effectiveness with which humans adapt to their environment “ignores not only the social origins of disease...but also the degree to which diagnosis is a social process, disease a medically constructed category, and illness a socially regulated role” (p.228). Singer’s paper essentially lays a foundation for both Gruenbaum’s work in Sudan and for the critical political ecology of health/disease framework that I have argued for which seeks to challenge sociomedical diagnostics of what constitutes unhealthy and maladaptive human-environment-related behaviors. Gruenbaum challenges the notion that female circumcision is maladaptive by showing that it does not reduce fertility rates, that it is accepted by many villagers, and that it does not foreclose the possibility of sexual pleasure and orgasm. She also points out that a quarter of a million Sudanese died from starvation in 1989-90 and raises the possibility that the female circumcision issue may not be one that require as urgent attention as it receives and is serving other agendas. Gruenbaum argues for a view “in which circumcision is understood as just one of many obstacles to healthy lives for women and girls” (p. 457). Although this paper does not at all end the international debate on the issue of female circumcision (or better called: female genital cutting), it is an example of a political ecology of health study (in this case, based on a fusion of medical ecology with political economy) that challenges

sociomedically accepted notions of maladaptive, unhealthy behaviors and therefore comes closest to the ideal political ecology of health/disease approach as I have identified it. It does not however employ the fully integrated political-economy/cultural ecology model proposed by Mayer.

The political ecology of health/disease model that I have proposed is really a political ecology of psychopathology and health focusing on Cannabis Abuse and other Cannabis-related mental disorders that seeks to challenge the sociomedical understanding that certain patterns of cannabis consumption are maladaptive and therefore unhealthy and mentally disordered behaviors. It seeks to add the anticipated critical dimension to the political ecology of disease framework proposed by Mayer. Similar moves have already been in the wider political ecology literature. Arguing for an anti-essentialist political ecology, Escobar (1999) eschews reified terms such as ‘nature’ and ‘environment’ and offers an expansive definition of an antiessentialist political ecology concerned with “the study of the manifold articulations of history and biology and the cultural mediations through which such articulations are necessarily established” (p. 3). This sort of political ecology has absorbed elements of the poststructuralist analyses of social movements and expert knowledge biases, and Escobar believes that applying political ecology cast in such a light can have significant implications for “social struggles, collective identities, and the production of expert knowledges” (p. 2). Escobar reminds readers that the “natural sciences are not ahistorical and nonideological” (3) and thus are open for political ecological scrutiny. Though he does not identify them as such, diagnostic definitions of disease and disorder are one example of expert knowledges that can be challenged with an antiessentialist political ecology. Escobar goes on to describe

three different “regimes of articulation” of nature and biology which are often in conflict: “capitalist nature: production and modernity”; “organic nature: culture and local knowledge”; and “technonature: artificiality and virtuality”. All three history-biology articulations are relevant to the political ecology of psychopathology and health framework I have outlined. The capitalist nature regime, which Escobar identifies as the best known, is associated with new ways of seeing such as the linear perspective, the objectification of landscape as vista, the privileging of the visual gaze with a concomitant rise in large scale surveillance and monitoring (governmentality), and the production of nature as commodity through the mediation of labor. Importantly, for Escobar, the distanced totalizing gaze associated with the capitalist nature regime also gives rise to modern sciences such as clinical medicine, in whose early history occurred what Philo (2000) reminds us Foucault called ‘primary spatializations’ in which tabulated diagnoses were mapped onto inanimate bodies of *Homo sapiens* (also see Sullivan 2006). Escobar recognizes that diagnostics and disease definition are a way of “integrating the individual (and the biological) into rational discourse” and “creating an alliance ‘between words and things’” (p.6). He shows how disease diagnostics *can* be understood through the lens of political ecology and thus exemplifies the first requirement—disease definition—of the framework I have proposed. This insight allows one to better understand how a political ecology of disease might approach and challenge sociomedical understandings of disease along lines of cultural ecology, political economy, and medical geography. Mounting challenges to pathodiagnostic ‘bodily inscriptions’ are well covered by Parr (1999; 2002; 2004). She writes: “...some individuals...sometimes resist a totalising medical ‘naming’ of their states of mind/body. Hence, when we discuss a ‘geography of mental illness and

mental health', we should be doing so critically, with an eye to the alternative definitions and understandings that individuals and groups have of their own mental states" (1999, p. 183). Escobar's organic nature regime, with its emphasis on local knowledge and 'experiments in living', exemplifies the approach of the second requirement in the political ecology of health/psychopathology model I have proposed regarding localized individual/group interpretations and health-related experiences related to particular human-environment interactions. The clash between localized understandings of particular human-environment interactions and medical/public health policy interpretations of those same interactions creates stressful conditions to which individuals and groups adapt. More on the notion of adaptation shortly. Escobar's third regime, technonature, is all-encompassing of new and emerging developments in technoscience such as biotechnology and human-computer interfacing. One important axis for this political ecology that Escobar identifies is organicity-artificiality. Regarding my proposed work, this provides an analytic for understanding how particular chemical isolates/extracts of the cannabis plant have been marketed, sold, subsidized, and heavily profited from while the organic version remains prohibited. It also helps to understand the transformation of human excrement and hair into biomaterials routinely screened and scrutinized at the molecular level for metabolic evidence of cannabis consumption.

I agree with Anderson's (2000) critique of Escobar remaining "too 'essentialist' in his discussion of three types of construction of the natural realm" (p. 105). I also feel that his association of capitalist nature with objective clinical medicine is somewhat tenuous. While both rely on objectification and parsing, one does not necessarily imply the other. However, Escobar's insights do point the way forward towards a radically new

and radically simple way of understanding human-environment interactions. Robbins (2004), another accomplished and respected writer in political ecology, offers a similar view of the basic contestations in political ecology that provides a useful framework for addressing questions I wish to raise:

In recent history, powerful modern institutions and individuals ([e.g.,] environmental ministries, multinational corporations, corrupt foresters) have gained undue and disproportionate power by explicitly attempting to divide and police the boundaries between human and non-human nature, even while allying themselves and building new connections to the non-human world, leading to unintended consequences and pernicious results. In the process, resistance emerges from traditional, alternative, and progressive human/non-human alliances marginalized by such efforts (usually along lines of gender, class, and race) (p. 213).

Robbins' widened view of the basic political struggles taking place at the sites of human-environment interaction is fundamental to the political ecology of biotic Substance consumption-related psychopathology and health I have argued for.

The notion of adaptation is central to the framework I have argued for. Phrasing the question in Robbins' terms, how do individuals and groups adapt to (and challenge) the division and policing of human/non-human nature boundaries by powerful institutions and individuals? The modern concept of human adaptation has its roots in the cultural ecological work of the mid-1950s spearheaded by Julian Steward, student of the renowned anthropologist Alfred Kroeber (Grossman 1977; Singer 1989). The geographer Bennett (1969) in his book on the inhabitants of the Great Plains of North America, helped to bring the human adaptation concept into geography. He offers valuable insight to the nature and type of adaptation patterns that individuals and groups practice when responding to problems and stressors. He sees adaptive behaviors as coping mechanisms that take a multitude of forms including "problem-solving, decision-making, consuming and not consuming, inventing, innovating, migrating, staying" (p. 11).

To define or measure adaptation, Bennett suggests looking in terms of goal-satisfaction and resource conservation (p. 13). He also insists on making the very useful distinction between *adaptive strategies* and *adaptive processes*. Adaptive strategies pertain to “the pattern formed by the many separate adjustments that people devise in order to obtain and use resources and solve immediate problems” and are generally conscious decisions. Adaptive processes pertain to “changes introduced over relatively long periods of time by the repeated use of such strategies or the making of many adjustments” and usually can be seen only by outside observers (p.14). The study of human adaptation patterns is a significant part of work in human geography and has been examined in diverse contexts, from natural hazards and threats to subaltern studies of peasant resistance strategies. Given the universal, embodied human experience of distress and threat, it should be no surprise that adaptation to various types of environmentally-induced distress may take similar forms. Mitchell (1974), in a review on the geographic study of natural hazards states as much: “the insights of natural hazard research may aid in developing general theories of man-environment relations. The possibility exists that models of human response to environmental threat may also function as analogs for research on man’s adjustment to more pervasive forms of social stress” (p. 312). The topical diversity of the studies using Mayer’s political ecology of disease framework also attests to this. Mayer (1996) also recognizes the relevance of socially stressful stimuli for a political ecology of disease framework: “it is important in the context of political ecology to ascertain the causes, both intentional and unintentional, of social isolation and marginalization” (p.451). He would agree, I am sure, that it is equally important to ascertain the responses and adaptations of individuals and groups to conditions that produce social stress.

Literature in ecological anthropology, such as work by Vayda and McCay (1975), has made significant headway in showing that how category of hazards can subsume “social and psychological insults” which produce demonstrable “psychological and behavior adaptations strategies.” In their excellent review of work in this area, they write broadly about the nature of various hazards that face organisms and groups and their responses. They are particularly concerned with those hazards that lead to “the risk of losing an ‘existential game’ in which success consists simply in staying in the game” (p.293). This aptly describes the hazards faced by those who produce and consume cannabis and other forbidden substances. Indeed, Vayda and McCay see the notion of ‘hazards’ to encompass not only “extreme geophysical events such as floods, frosts, droughts, hurricanes, and tornadoes” but also “predation by warfare, plundering or raiding...exactions of tribute and taxes...or acts of religious persecution” (294). Those affected by the ‘war on drugs’ prohibitions, aka ‘the pharmacratic inquisition’ or ‘psychopharmacological Calvinism’ (Ott ‘95;’96;’97; & Riley ’00), do certainly perceive their life hazards in the terms such as predations, raiding, and persecution. These hazards form the backbone of the adaptation pressures I have argued for in my framework.

The critical aspects of the political ecology of disease approach I have argued for which challenge sociomedical understandings of diseases may only be applicable to illnesses characterized by signs and symptoms perceived as maladaptive, such as those often found in psychopathology (Sarason 2002), e.g. DSM-IV substance-related disorders diagnostics, wherein the term *maladaptive* is left purposely undefined. However, specific modifications may allow for its application to other projects of human-environmental depathologization seeking to explain new patterns of health and health hazards.

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