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# MCIS BRIEFINGS

OCTOBER 2006

Comparative Program on  
Health and Society  
Lupina Foundation  
Working Papers Series  
2005-2006

*Edited by*  
Jillian Clare Cohen  
and  
Lisa Forman  
Comparative Program on  
Health and Society  
University of Toronto



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*The Comparative Program on Health and Society maintains a collection of academic papers which we call our Lupina Foundation Working Papers Series. These works can range from research papers to thought pieces; and from statistical analyses to historical case studies. Our series represents a snap-shot of the work being done by our Lupina Fellows, past and present. Taken together, our Working Papers Series encapsulates the wide-ranging approaches to the study of the social determinants of health. We hope that you will find the individual papers in our series thought-provoking and helpful.*

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## Foreword

### *Promoting Multidisciplinary Research on Health*

We are delighted to present in this edition of the Munk Centre for International Studies Briefings a collection of research papers from the Comparative Program on Health and Society based on work that our fellows undertook during 2005-2006. Founded in 2000, the Comparative Program on Health and Society (CPHS) is a vital and growing research institute based at the Munk Centre for International Studies at the University of Toronto. CPHS is funded by the Lupina Foundation, and supports innovative, interdisciplinary, comparative research on health, broadly defined through our extensive range of fellowships which for 2005-2006 included Lupina/OGS Doctoral Fellowships, Post-Doctoral Top-Up Fellowships, Research Associate Positions and a New Faculty Fellowship.

CPHS invites research on socioeconomic status; health outcomes and access to health and health-related services; and accountability mechanisms in the governance of health and health-related services. The research papers you will read in the following pages reflect these themes, and demonstrate the richness, variety, complexity, and importance of comparative health research. The diversity of disciplines — law, anthropology, history, and public health sciences — reflects our Program's openness to scholarly research that is comprehensive and probing. Our scholars demonstrate the importance of not rigidly adhering to disciplinary silos if the research requires broader approaches.

In her provocative paper, "Diversity and Objectivity in Medicine" the philosopher Kirstin Borgerson makes a compelling case for diversity in health sciences research. She forcefully critiques the evidence-based medicine (EBM) movement by explaining that it hinders diversity in medicine through its acceptance of the randomized controlled trial (RCT) as the optimal model for medical decision-making. As such, it limits access of researchers and physicians to rich evidence at lower levels of the EBM research hierarchy, such as case-control, cohort, and qualitative studies, and decreases the variety of both medical research questions and corresponding treatments. Diversity, in Borgerson's view, is necessary for earnest and solid inquiry.

Leah Walz and Delia Gavrus turn their focus to early twentieth century health policy and neuroscience in two different parts of the world. Leah Walz's paper "Infant Mortality vs. Overpopulation: Colonial Consistencies and Contradictions in Early 20th Century Malta" examines the issue from an anthropological perspective. Her paper emphasizes that while British administrators were concerned about the 'problem' of infant mortality in the UK and other British colonies (in part due to anxiety over depopulation and fertility decline), this concern was paradoxically applied in Malta, which did not suffer from these problems and whose inhabitants weren't required as labourers for the British Empire. Walz suggests that Malta's strategic value to the British Empire, in combination with the perceived problem of over-population, led to conflicting discourses on the perils of infant mortality and population size, and left Malta's colonial rulers unable to effectively reduce either death or growth rates.

In her paper "Mind Over Matter: Sherrington, Penfield, Eccles, Walshe and the Dualist Movement in Neuroscience," medical historian Delia Gavrus explores the

early twentieth century turn from mechanistic approaches disputing linkages between brain and mind function towards the more humanist dualist approach espoused by the British physiologist Charles Sherrington and his students Wilder Penfield, Sir John Eccles, and Sir Francis Walshe. She illustrates how the renaissance of dualism (the notion that the brain and the mind are two different entities) among brain scientists in the early twentieth century was precipitated by an emerging culture of holism in medicine and by ambiguously supportive scientific evidence. Ultimately, however, Gavrus indicates that this dualism failed to take root in the larger scientific community, both because of the changing nature of scientific training, and the inability of these brain scientists to reach consensus on a unified dualist framework.

Kate Parizeau, Kathryn Underwood and Lisa Forman adopt human rights and social justice-oriented analyses of health in their papers. Kathryn Underwood's paper, "The Case for Inclusive Education as a Social Determinant of Health" argues persuasively for including children with disabilities in regular class programs, so long as sufficient supportive services are in place. Underwood argues that people who have experienced inclusion through integrative education are more likely to have better long-term health and access to health care services, as well as other byproducts from better health which include reduced poverty rates and higher employment. She grounds her case on human rights treaties and declarations as well as pedagogical arguments and empirical evidence which connects education to better health outcomes. Her work offers important considerations for both health and education public policy.

Kate Parizeau's paper, "Theorizing Environmental Justice: Environment as a Social Determinant of Health," adopts a multidisciplinary theoretical framework to assess social, economic, cultural and political contributors towards the increased vulnerability of waste pickers to environmental health risks in urban Argentina. Drawing from literatures on environmental justice, urban political ecology and social capital, Parizeau presents a distinctly politicized notion of 'environment, which she contends should appropriately be regarded as a social determinant of health. She argues that social relationships and political and economic trends interact in diverse ways to affect environmental conditions and exposures. She advocates for further research of "uneven geographies of health" in marginalized communities as a necessary component of building healthier and more equitable societies.

In her paper, "Incentivizing Justice: Linking Human Rights, Trade and Access to Medicines," Lisa Forman engages a human rights analysis of the impact of international and bilateral trade rules on access to medicines in developing countries. She suggests that the priority accorded to essential medicines within international human rights law require a strict interrogation of the underlying justifications for globalizing stringent patent protection in developing countries. Forman points to growing evidence that pharmaceutical patents in poor countries serve a limited innovative function. She argues that since high drug prices are causal in a disproportionate loss of life in poor countries, that the limited evidence in support of their necessity suggests the need for the reform of TRIPS.

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The Editors

Jillian Clare Cohen and Lisa Forman

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## *Contributors*

**Kirstin Borgerson** is a Lupina/OGS doctoral fellow and is a PhD candidate in the Department of Philosophy at the University of Toronto. Kirstin is also a CIHR Strategic Training Doctoral Fellow in Health Care, Technology and Place. She completed her MA at the U of T, and received her BA from the University of Saskatchewan. Kirstin's research interests include philosophy of science, bioethics, feminist philosophy, and epistemology.

**Jillian Clare Cohen**, PhD is the Director of the Comparative Program on Health and Society and Assistant Professor at the Leslie Dan Faculty of Pharmacy, University of Toronto. Dr. Cohen research is focused on issues related to improving access to medicines for the poor. She has advised a diversity of governments on drug policy issues. She is the author of a number of academic and policy papers on pharmaceutical drug access.

**Lisa Forman** is a doctoral candidate at the University of Toronto, Faculty of Law, and from 2006 will be a CIHR and CPHS postdoctoral fellow. She qualified as a lawyer in South Africa with a BA and LLB from the University of the Witwatersrand, and has an MA (Human Rights Studies) from Columbia University. Her work focuses on human rights, HIV/AIDS, global health and access to medicines.

**Delia Gavrus** is a doctoral candidate at the Institute for the History and Philosophy of Science and Technology. She holds a BSc (Hons) from the University of Toronto, and an MA in science studies from New York University. Delia is currently working on the history of neurology and neurosurgery in the first half of the 20th century.

**Kate Parizeau** is a PhD student in Geography with the Centre for Environment's collaborative program in Environment & Health at the University of Toronto. Kate has a MSc in Planning from the University of Toronto and a BAsC in Arts and Science from McMaster University. She plans to conduct her doctoral research in Latin America, where she will study the effects of socio-economic status on the ability to identify and mediate environmental health risks within the waste management sector.

**Kathryn Underwood** is a SSHRC postdoctoral fellow in the Faculty of Education, York University. Kathryn's research interests include human rights and educational practice particularly with regard to disability rights and inclusive education. Her previous research has included a comparative study of parent attitudes toward disability in Ontario, Canada, and New Delhi, India, under the Rosemary F. Dybwad Fellowship. She has also worked on projects examining effective teaching practices and a review of inclusion research in Canada. Prior to her graduate work, Kathryn worked for the Canadian Abilities Foundation and as an ESL teacher.

**Leah Walz** is a PhD candidate in the department of Anthropology at the University of Toronto, specializing in Biological/Medical Anthropology. She completed undergraduate studies at the University of Manitoba. Leah's current research interests include examining the social, cultural, and biological determinants of health; disease transmission and the experience of illness and health through the life cycle; the effects of colonialism, globalization, and other global forces, as well as the impact of social inequalities, on patterns of health and disease; and exploring past and present medical systems and perceptions of health and illness.





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# Diversity and Objectivity in Medicine

Kirstin Borgerson

Diversity is in vogue. But should it be as celebrated in philosophy of science as it is in the political domain? In this paper, I argue that diversity is vital to good science and, in particular, to good medical research, and that the evidence-based medicine movement has detracted from diversity within medicine.

In the first section of this paper, I argue that in the context of medical research diversity is good because it advances objectivity. Diverse perspectives are one of the mechanisms that encourage critical reflection on the status quo and thereby limit the pernicious impact of dominant values. Drawing upon the social epistemology of Helen Longino, I argue that the presence of dissenting viewpoints allows members of the medical research community to advance the critical process charged with upholding objectivity. This allows researchers to identify and critique the values and background assumptions that guide medical inquiry and to thereby improve the accuracy of their research results. In sum, diversity is necessary for the optimal functioning of medical inquiry.

In the second section, I argue that the evidence-based medicine (EBM) movement suppresses diversity in medicine. This is manifested in two ways. First, the centerpiece of the EBM movement – the hierarchy of evidence – has given rise to a blind (perhaps even double-blind) adherence to the top-ranked randomized controlled trial (RCT) as the cure-all for medical decision-making.<sup>1</sup> This diverts the attention of both researchers and physicians from valuable evidence at lower levels of the hierarchy, such as that produced by case-control, cohort,

1. Technically, the meta-analysis of RCTs is at the top of most evidence hierarchies, but the RCT remains the top-ranked research methodology that produces evidence directly on the basis of empirical data gathered from patients. D. Sackett et al., "Evidence-based Medicine: What it is and What it isn't," *British Medical Journal* 312 (1996): 71–72.

and qualitative studies, and decreases the variety of both medical research questions and corresponding treatments. Thus, EBM suppresses *methodological* diversity. Second, increased social and political pressure resulting from EBM constrains diverse perspectives offered by those outside of the medical mainstream. Researchers in complementary and alternative medicine, for instance, have been instructed to conform to current standards and produce RCTs if they hope to gain credibility.<sup>2</sup> This demand for conformity persists despite concerns raised about the limits of RCT methodology, methodological innovations proposed by researchers in complementary and alternative medicine and, perhaps most provocatively, recent challenges to the metaphysical account of health underpinning the EBM approach.<sup>3</sup> Thus, EBM suppresses the development of alternative theoretical frameworks.<sup>4</sup>

In light of the arguments for diversity presented in the first section of the paper and the ways in which EBM suppresses diversity described in the second, there are good reasons to be concerned about the evidence-based medicine movement. In the final section, I consider one likely criticism of my argument thus far. This critique arises out of a tension between a requirement to cultivate diverse perspectives and the need to maintain rigorous standards for medical research. I argue that the EBM movement has not been sensitive enough to the importance of this balancing act. Further, I suggest that the conservatism underlying the present imbalance has significant practical and philosophical implications. These implications warrant open discussion by members of the medical community, broadly construed.

2. For the purposes of this paper, complementary and alternative medicine is defined as, “A broad domain of healing resources that encompasses all health systems, modalities and practices and their accompanying theories and beliefs, other than those intrinsic to the politically dominant health system of a particular society or culture in a given historical period.” – National Institute of Health, Panel on Definition and Description, “Defining and Describing Complementary and Alternative Medicine,” *Alternative Therapies in Health and Medicine* 3, no.2 (1997): 49–57.

3. For a summary of these arguments, see M.R. Tonelli and T.C. Callahan, “Why Alternative Medicine cannot be Evidence-based,” *Academic Medicine* 76 (2001): 1213–1220, and K. Borgerson, “Evidence-based Alternative Medicine?” *Perspectives in Biology and Medicine* 48, no.4 (2005): 502–515.

4. This could be called theoretical, metaphysical, or even framework diversity, but I fear that none of these potential titles is especially illuminating.



## SECTION ONE: The Epistemological Benefits of Diversity

### I. Definitions and Distinctions

Two distinctions will be helpful for this discussion. First, within the realm of medical research, a demand for greater diversity might refer to: the cultural backgrounds of trial participants, the gender or socio-economic backgrounds of researchers, the topics of investigation, the sources of funding, the methodologies, or the theoretical frameworks, to name just a few possibilities. Social epistemologist Miriam Solomon has recently suggested that “diversity is a blunt epistemological tool” and that while diversity is good for knowledge, the specific type of diversity doesn’t really matter that much; it is unimportant whether researchers are culturally diverse or a variety of topics are investigated, as long as diversity of some sort is playing an epistemological role.<sup>5</sup> I don’t want to go as far as this, so let me be a bit clearer on what type of diversity I will be advocating. Diverse perspectives increase the likelihood of full critical debate when they highlight *dissent*. It is this dissent from mainstream or accepted theories that provides the impetus for debate and discussion, which in turn contributes to epistemic strength of theories. In this paper, I am not interested in *weak* dissent, which involves mere disagreement with the status quo.<sup>6</sup> Rather, I am interested in those perspectives that give rise to *strong* dissent; holders of such perspectives pursue, develop, and implement alternative research programs based on alternative methodologies and/or theoretical frameworks. The strong dissent represented by research in complementary and alternative medicine is a case of diversity at the methodological and theoretical levels.

Second, there are (at least) two different senses of objectivity in common use. On the one hand, objectivity of *method* has to do with the non-subjective or non-idiosyncratic nature of the criteria used to develop, test and accept evidence, hypotheses and theories. This sense of objectivity is tied up with concerns about values and bias. On the

5. M. Solomon, “Epistemic Diversity or Epistemic Randomness? (Or, More on the Invisible Hand of Reason),” (paper presented at the 3rd Annual Episteme Conference at the University of Toronto, Toronto, Canada, May 2–3, 2006).

6. A version of this distinction was proposed by Deborah Tollefsen at the 3rd Annual Episteme Conference (University of Toronto), May 2-3, 2006 in a talk entitled, “Scientific Teamwork: Is there room for dissent?” I have modified it to better fit with the issues raised by this paper. It is a rough distinction, useful only for highlighting the ‘deep’ character of dissent discussed in this paper.

other hand, scientific *data* is said to be objective when it is believed to accurately fit with reality. This is referred to as objectivity of *data*, and is related to issues of scientific realism.<sup>7</sup> Scientific inquiry is thought to be objective in the second sense when it is objective in the first; thus, I will suggest that diversity contributes to the objectivity of the scientific method and therefore to the objectivity of the data produced. In what follows, I show how diverse perspectives contribute to the management of values (or objectivity of method) in science. I will also briefly discuss the ways in which diversity indirectly contributes to the accuracy (or objectivity of data) in science.

## **II. The Standard Argument for Diversity**

Before diving into the scientific context, it is useful to recall the brief, but powerful, arguments for diversity offered famously by John Stuart Mill, which form the core of both Longino's position and my own:

First, if any opinion is compelled to silence, that opinion may, for aught we can certainly know, be true. To deny this is to assume our own infallibility. Secondly, though the silenced opinion be an error, it may, and very commonly does, contain a portion of truth; and since the general or prevailing opinion on any subject is rarely or never the whole truth, it is only by the collision of adverse opinions that the remainder of the truth has any chance of being supplied.<sup>8</sup>

Mill goes on to argue that the presence of dissenting perspectives forces those in the mainstream to defend their views. In doing so, members of the mainstream gain a greater appreciation for the motivations and reasons that support their views. Mill's arguments here go beyond the political realm to the epistemological: it is not only morally good or politically advantageous to encourage the development and presentation of diverse perspectives, it also advances our understanding of the world. So now let us look a little closer at the arguments for diversity from a social epistemological perspective.

## **III. Social Epistemological Argument for Diversity**

Diverse perspectives are necessary in medicine because they increase the likelihood that research will be objective. Throughout this section I will draw upon the empiricist social epistemology of feminist

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7. H. Longino, *Science as Social Knowledge: Values and Objectivity in Scientific Inquiry* (Princeton: Princeton University Press, 1990): 62.

8. J.S. Mill, *On Liberty*, Edited by C.V. Shields. (New York: The Bobbs-Merrill Company, Inc. [1859], 1956): 64.

philosopher of science, Helen Longino, for support of my arguments. I have chosen this social epistemological framework for two reasons. First, I have chosen it because it offers the most convincing and comprehensive account of the role of values in science – an issue at the core of the ‘science wars’ of the past two decades and of central importance in both the philosophical and scientific literature. Second, because it deals with the justification of community knowledge and is thus especially helpful in understanding the epistemic debates occurring in the sciences. Social epistemology offers particularly useful perspectives on the problems of authority, testimony and experiential or intuitive knowledge, as well as the status of evidence claims more generally – all of which are hotly debated topics in the medical context. I will not be offering a full defense of the social epistemological framework, as such a project is beyond the scope of this paper and already the subject of several recent books, but I hope these two reasons provide some context for the arguments to follow.<sup>9</sup>

#### A. Objectivity of Method

Contextual values – individual, social, political, and economic – permeate science. It is generally accepted that scientific inquiry is influenced by certain well-established constitutive, or epistemic, values, such as consistency, simplicity and empirical adequacy, all of which play an important role in guiding scientific inquiry. In addition to these constitutive values, contextual values have been found to shape scientific practices, questions and data, as well as the specific and general assumptions of scientific inquiry.<sup>10</sup> There is extensive empirical evidence of the contextually value-laden nature of science from science studies, sociology of science, and feminist philosophy of science (all drawing on historical and contemporary case studies from science).<sup>11</sup> Given extensive literature documenting the presence of social values in science, contemporary philosophers of science

9. See, for instance, A. Goldman, *Knowledge in a Social World* (New York: Oxford University Press, 1999); H. Longino, *supra* note 7; H. Longino, *The Fate of Knowledge*, (Princeton: Princeton University Press, 2002); and M. Solomon, *Social Empiricism*, (Cambridge: MIT Press, 2001).

10. Longino, *supra* note 7, 4–7.

11. Perhaps the most famous of these are Shapin and Schaffer’s *Leviathan and the Air Pump* on the values in experimentation, Karin Knorr-Cetina’s analysis of decision-making in the laboratory in *The Manufacture of Knowledge*, and Donna Haraway’s investigation into gender bias in primatology in *Primate Visions*.

acknowledge that scientific inquiry broadly, and medical research more specifically, is not free from contextual values.<sup>12</sup>

There tends to be an awareness within the medical community (broadly construed) of two levels where values infuse themselves into medical research: values are influential at the social level (for instance, funding agencies influence the type of research that gets done, who does it, and whether it gets published) and at the level of the individual researcher (for instance, researchers may deliberately doctor trial methodologies, selectively present results or allow their personal biases to influence the outcome or presentation of evidence).<sup>13</sup> In addition to these more recognizable ways in which values influence medical science, Helen Longino draws attention to the values that form the guiding background assumptions of inquiry.<sup>14</sup> Longino identifies such assumptions as the primary and yet least recognized sources of contextual values in science.<sup>15</sup>

Most philosophers and scientists agree that something needs to be done to manage the value-laden nature of scientific inquiry, but proposed solutions have tended to divide along predictable lines between social constructivists who embrace the inevitability of values in science and practicing scientists who insist on the need for, and possibility of, ideal science based on unbiased standards and rules. Longino's position is located in the 'middle ground' between these

12. Throughout the paper, I will be assuming that medical research is a sub-category of scientific research. There are extensive debates over the status of medical *practice* as a science (many suggest that it is more like an art), but I take it as unproblematic that medical *research* is meant to be an investigation of the empirical world that follows general scientific principles, though with some contextual specifications of those principles.

13. T. Lemmens, "Leopards in the Temple: Restoring Integrity to the Commercialized Research Scene," *The Journal of Law, Medicine and Ethics*. 32, no.4 (Winter 2004): 641–657.

14. Other philosophers might call background assumptions 'principles of inference' but, according to Longino, this doesn't capture the contextual (and non-principled) nature of most background assumptions. I will stick with her terminology.

15. Longino, *supra* note 7, 60. Longino offers this account of background assumptions as a solution to the under-determination problem in philosophy of science. In another article, she describes this problem as "the insufficiency of any given body of observational or experimental data to rule out all but one from a set of contesting explanatory hypotheses." - H. Longino, "Essential Tensions – Phase Two: Feminist, Philosophical, and Social Studies of Science," in *A Mind of One's Own: Feminist Essays on Reason and Objectivity*, eds. L.M. Antony and C. Witt (Boulder: Westview Press, 1993), 260.

extremes and attempts to account for values in science in a way that is both descriptively and normatively satisfactory. Longino develops ‘contextual empiricism:’ an approach that attempts to regulate values through procedural requirements for transformative critical debate within scientific communities. This focus on the scientific process leads to an account in which objectivity is a characteristic of the *practice* of a scientific community. A scientific community is objective to the extent that it has four features: recognized avenues for criticism; responsiveness to criticism; shared standards; and equality of intellectual authority.<sup>16</sup> According to Longino, an approach that claims to have ‘managed’ values by drawing up and enforcing methodological rules will ultimately allow the deepest influences of social values on science to persist unquestioned. Thus, there is significant danger associated with narrow attempts to eradicate instances of values in science, as “in those cases where the warrants themselves – that is, the methodological procedures or framing assumptions accepted within a field – are ideologically driven or value laden,” and shallow investigation into values will only lend such structures greater authority.<sup>17</sup> And the rules and standards put in place to police values will themselves be value-laden, though unquestioned. Thus, “what we’re looking for in the account of objectivity is a way to block the influence of subjective preference at the level of background assumptions involved in observation and inference, as well as the influence of individual variation in perception at the level of observation.”<sup>18</sup>

In light of the pervasive nature of values in science, Longino proposes that we increase transparency in science through disclosure of the assumptions, values and goals of researchers, and encourage critical interaction amongst scientists not only on the results of research, but on all aspects of the scientific process. For many, this candid acceptance of values in science (albeit coupled with a ‘management plan’) looks like a betrayal of scientific ideals held for hundreds of years. In response, Longino argues that “[I]t is the more frightening prospect of a science continually at the mercy of dominant interests, a science that, under the guise of neutrality, helps create a world to serve those interests,” which should be of greater concern to us.<sup>19</sup> Elizabeth

16. Longino, *supra* note 7, 76–80.

17. *Ibid.*, 9.

18. Longino, *supra* note 16, 265.

19. Longino, *supra* note 7, 15.

Anderson sums this up nicely:

Insistence on the value-neutrality of scientists is self-deceptive and unrealistic...Indeed, it is self-defeating: when scientists represent themselves as neutral, this blocks their recognition of the ways their values have shaped their inquiry, and thereby prevents the exposure of these values to critical scrutiny...<sup>20</sup>

Selective identification and exposure of ‘bad science’ is a part of any solution to the problem of the role played by values in science. In this spirit, medical researchers have proposed changes to the ways in which research is funded, designed, assessed and distributed, including: greater transparency and disclosure of conflicts of interest; public registration of research; strict peer review; and increased public funding of research. In addition to these standard suggestions for weeding out inappropriate values in research, Longino’s approach highlights the need for attention to diverse perspectives in science. This is the only way we can get at the deepest source of values in science: background assumptions.

Background assumptions shared by all members of a particular community are often invisible to its members. This invisibility can render such assumptions immune from criticism even when criticism is generally encouraged. The presence of diverse perspectives (of the type producing strong dissent based on alternate research programs) is vital for bringing these assumptions to the attention of members of the community and thus steers the community toward greater objectivity.

[Background assumptions] do not become visible until individuals who do not share the community’s assumptions can provide alternate explanations of the phenomena without those assumptions...until such alternatives are available, community assumptions are transparent to their adherents.<sup>21</sup>

Thus, diverse perspectives, which draw the attention of the community to its own assumptions, may then contribute to the critical evaluation of the assumptions. The views advanced by diverse communities of researchers are an “epistemological resource,” and this resource should not go untapped.<sup>22</sup> Diversity allows researchers to “compare

20. E. Anderson, “Feminist Epistemology and Philosophy of Science,” *Stanford Encyclopedia of Philosophy* (2006), <http://plato.stanford.edu/entries/feminism-epistemology/>.

21. Longino, *supra* note 7, 80.

22. Longino, *supra* note 9, 155.

standards and to assess (purported) knowledge produced and accepted in one community in reference to standards proper to another.<sup>23</sup> The only way to achieve this sort of ‘cross-community’ debate and critical evaluation is through the cultivation of, and open engagement with, communities in which strong dissent is present. This engagement makes possible a thorough critical interrogation of background assumptions and advances medical inquiry toward greater objectivity. It also encourages critical debate on more superficial assumptions and values such as those present in the results of published research. Longino sums up these arguments for diversity with the following statement:

[T]he greater the number of different points of view included in a given community, the more likely it is that its scientific practice will be objective, that is, that it will result in descriptions and explanations of natural processes that are more reliable in the sense of less characterized by idiosyncratic subjective preferences of community members than would otherwise be the case.<sup>24</sup>

Diverse perspectives contribute to the methodological objectivity of scientific inquiry and, therefore, to knowledge.

### *B. Objectivity of Data*

On this account, a process of scientific inquiry that cultivates diverse perspectives will be more objective. As a consequence, such inquiry can lead to more accurate, or empirically adequate, descriptions of the world. This is a straightforward consequence of greater objectivity of method. As I outlined above, unorthodox views can draw our attention to shared and otherwise invisible background assumptions held by researchers. If we fail to attend to the arguments made by those presenting unorthodox views, “the assumptions shaping our inferences [will be] hidden, [and] we will not see the level at which we might entertain and seriously develop new ideas.”<sup>25</sup> However, when accepted knowledge in one community is contested by outsiders, and the two engage in critical discussion over the nature of their goals and assumptions, the opportunity exists for revisions of our assumptions and goals. This process will give rise to more objective outcomes, which contributes to the accuracy of scientific research over the long

23. *Ibid.*

24. Longino, *supra* note 7, 80.

25. *Ibid.*, 225.

run: “The point in exposing the...biases lying behind certain research theories is not to show that they are false (they might in the end be empirically vindicated), but to make salient the room for alternative programs not based on such biases.”<sup>26</sup> The process is characterized as one in which knowledge is “produced collectively through the clashing and meshing of a variety of points of view.”<sup>27</sup> When more time is spent testing, analyzing and critiquing new hypotheses (rather than extensively developing accepted hypotheses), there is a greater likelihood of accuracy in the end results.<sup>28</sup> Thus, diversity increases the objectivity of both the methods and data of scientific research.

## **SECTION TWO: Examining Evidence-Based Medicine**

I have argued that diversity contributes to medical research by upholding and advancing the objectivity of inquiry. We have reason, on the basis of this argument, to ensure that the medical community adopts rules and practices that encourage responsiveness to diversity. In this section, I will investigate whether the evidence-based medicine movement moves us toward or diverts us from these sorts of rules and practices.

### **I. Evidence-based Medicine (EBM)**

EBM was proclaimed to the world in the ground-breaking 1992 article “*Evidence-based Medicine: A new approach to teaching the practice of medicine*,” which synthesized thirty years of progress by American, British and Canadian scholars working in the emerging field of clinical epidemiology.<sup>29</sup> Evidence-based medicine is “the conscientious, explicit and judicious use of current best evidence in making decisions about the care of individual patients.”<sup>30</sup> Given that one of the early goals of this movement was the increased standardization of medical care, it is perhaps unsurprising that the EBM approach contributes to a restriction on diversity within the domain of medicine. In

26. Anderson, *supra* note 20.

27. Longino, *supra* note 7, 69.

28. The trade-off is a decrease in fruitfulness as less attention is paid to the careful development of well-established hypotheses and theories. I will discuss this problem further in the final section of the paper.

29. Evidence-based Medicine Working Group, “Evidence-based Medicine: A new Approach to Teaching the Practice of Medicine,” *Journal of the American Medical Association* 268 17 (1992): 2420–2425.

30. Sackett et al., *supra* note 1.



spite of a deluge of critiques in a range of medical journals, the EBM movement has been highly successful in capturing the attention and allegiance of many physicians, journal editors and funding agencies, and is now a pervasive presence within health care systems worldwide. Critical debate on the nature and value of EBM has been extensive since this initial declaration.

## II. Epistemic Influences: The Hierarchy of Evidence

As I noted earlier, objective processes secure objective content – that is, objective methods secure objective data.<sup>31</sup> Given this focus on objective methods, the amount of attention paid to the evaluation and ranking of research methodologies within the medical context makes a lot of sense, at least at first glance. The evidence-based medicine movement is, at its core, an attempt to make medical research more objective and standardized.<sup>32</sup> It is no surprise, then, that the central element of that movement is a hierarchical ranking of research methodologies – the ‘evidence hierarchy’ – which was created to assist researchers in determining the relative value of research methodologies and the evidence they produce.<sup>33</sup> This hierarchy places large-scale, double-blind randomized controlled trials (RCTs) at the top as the highest quality of evidence, and evidence from sources perceived to be less objective, such as case studies and qualitative research, at the bottom of the hierarchy as the least reliable types of evidence.<sup>34</sup> In the middle are ‘observational’ designs, including case-control and cohort studies

The hierarchy was devised to guide researchers to produce the best possible research, and to encourage physicians to make use of this

31. The danger of talking about objectivity of method is that a (legitimate) focus on *practice* or *process* (method, broadly construed) shifts to a (somewhat narrower) focus on particular research trial designs (*methods*). Thus, scientists come to believe that a particular research method or trial design fully secures objectivity, and thus end up neglecting the other elements, such as critical debate, of scientific practice and process – or method, broadly construed – that are also significant in contributing to objectivity.

32. S. Timmermans and M. Berg, *The Gold Standard: The Challenge of Evidence-based Medicine and Standardization in Health Care* (Philadelphia: Temple University Press, 2003).

33. As Robyn Bluhm has pointed out, this means that the hierarchy is not really one of evidence, but rather of methodologies. See R. Bluhm, “From Hierarchy to Network: A Richer View of Evidence for Evidence-based Medicine,” *Perspectives in Biology and Medicine* 48, no.4 (Autumn 2005): 535–548.

34. Oxford Centre for Evidence-based Medicine, [http://www.cebm.net/levels\\_of\\_evidence.asp](http://www.cebm.net/levels_of_evidence.asp). Sackett et al. developed the levels of evidence in the 1980s.

top-quality research. As proponents of the EBM movement have freely admitted, this has led to a somewhat 'zealous' support for RCTs and a near-dismissal of all other sources of evidence.<sup>35</sup> Because researchers face various community incentives to publish research and require funding from agencies that uphold the EBM hierarchy, researchers have been compelled to produce RCTs whenever possible. And because medical guidelines are based largely (if not fully) on the results of meta-analyses and systematic reviews of RCTs, there is little incentive for researchers to bother producing research based on any of the other designs. Of course, these other research methodologies haven't completely died out, but EBM has certainly diverted researchers from using a variety of study designs.<sup>36</sup>

There are a number of reasons why this narrow focus on RCTs is problematic (many of which have received attention by philosophers). RCTs are thought to be more generalizable than other research methodologies, but because of strict inclusion and exclusion criteria, and the need to 'homogenize' the trial participants, there is a gap between the results of research and the individual cases faced by practicing physicians in clinical practice. The claim to greater generalizability of RCTs has been widely critiqued by practicing physicians for these and other reasons.<sup>37</sup> RCTs are also widely thought to be more objective than other trial designs, but the objectivity referred to in such claims tends to be restricted to the elimination of selection bias – only one bias amongst a potentially endless set, and one which other trial designs do not face. As such, the claim that RCTs are, by design, necessarily more objective than other trials is false.<sup>38</sup> Finally, the standard assumption is that RCTs get at 'real causes' while other trial designs do not, or that randomization somehow guarantees balanced groups in a way that no other tool can. They have also offered positive

35. J. Daly, *Evidence-based Medicine and the Search for a Science of Clinical Care* (Berkeley: University of California Press, 2005).

36. The term 'randophilia' was coined by Alvan Feinstein to capture the obsession with randomized trials that took place with the introduction of EBM. Feinstein was one of most outspoken critics of EBM in the 1990s. Daly, supra note 35, 104.

37. G.D. Rubenfeld, "Understanding Why we Agree on the Evidence but Disagree on the Medicine," *Respiratory Care* 46, no.12 (December 2001): 1442–1449; R. Upshur et al., "Meaning and Measurement: A New Model of Evidence in Health Care," *Journal of Evaluation in Clinical Practice* 7 (2001): 91–96.

38. K. Borgerson, "Evidence-based Alternative Medicine?" *Perspectives in Biology and Medicine* 48, no.4 (Autumn 2005).

accounts of the merits of methodologies ranked lower on the hierarchy.<sup>39</sup> John Worrall and Peter Urbach have offered particularly devastating critiques of these common claims.<sup>40</sup>

In addition to this vast critical literature on the evidence hierarchy, I would like to draw attention to the impact on diversity of such a narrow focus on RCTs. Because every research methodology is able to answer a specific range of questions, this means that the diversity of research questions decreases under EBM. This, after all, is essentially the point of the hierarchy of evidence: focusing attention on certain types of evidence whenever possible. I do not deny that there have been many benefits resulting from this approach, but it is too easy to overlook the costs on the other side of the equation. The costs, in this case, have been a significant decrease in the production, publication and institutional influence of studies ranked in the middle and near the bottom of the hierarchy. A narrow range of research questions corresponding to one or two 'best' research methodologies means a narrow range of research results. This has immediate implications for the practice of medicine at the bedside. The evidence hierarchy decreases attention to certain methodological designs and thus limits the range of possible treatments available to patients.

### III. Social Influences: Complementary and Alternative Medicine

There is a great deal of social and political power behind the EBM movement. This power not only influences the research patterns within mainstream medical research, as noted above, it also places tremendous pressure on researchers outside the medical mainstream to produce what it deems top-ranked evidence. Former editor of the *New England Journal of Medicine* Marcia Angell sums up the current

39. John Worrall, for instance, writes "If there is a simple take-home message it would be: don't believe the bad press that 'observational studies' or 'historically controlled trials' get – so long as they are properly done...there is no reason to think of them as less compelling than an RCT, and, if the RCT has not been carefully matched for known possible confounders ahead of randomizing, there is reason to think that a properly conducted historically controlled trial may provide *more* compelling evidence." J. Worrall, "Why There's No Cause to Randomize," *LSE Centre for Philosophy of Natural and Social Science, Technical Report*, 24 (2004), [www.lse.ac.uk/collections/CPNSS/pdf/DP\\_withCover\\_Causality/CTR%2024-04-C.pdf](http://www.lse.ac.uk/collections/CPNSS/pdf/DP_withCover_Causality/CTR%2024-04-C.pdf). (Accessed June 28, 2006.)

40. P.M. Urbach, "The Value of Randomization and Control in Clinical Trials," *Statistics in Medicine*, 12, no.15–16 (1993): 1421–1431; J. Worrall, *supra* note 40; J. Worrall, "What Evidence in Evidence-based Medicine," *Philosophy of Science* 69 (2002): S316–S330.

requirements for research in complementary and alternative medicine (CAM): “Alternative treatments should be subjected to scientific testing no less rigorous than that required for conventional treatments.”<sup>41</sup> Researchers in CAM are instructed to produce evidence that meets the top standards set out by the evidence hierarchy. That is, they are instructed to produce RCTs whenever possible. Article titles such as “A warning to complementary medicine practitioners: get empirical or else” (in which CAM researchers are advised to start producing RCTs) convey these expectations in an admirably candid way.<sup>42</sup> Conformity to mainstream research methodologies is not requested, but demanded. And these demands are having an influence on the design of research in many CAM communities. The research department at the Canadian College of Naturopathic Medicine, for instance, performs RCTs, meta-analyses and systematic reviews almost exclusively. The push for evidence-based CAM is also reflected in the CAM literature and in the recent creation of journals such as *Evidence-based Complementary and Alternative Medicine*, which are seen as the ‘wave of the future’ for CAM research.<sup>43</sup> Thus the social influence of EBM contributes to a decrease in the diversity of competing theories by requiring the assimilation of alternative theories of health, and alternative methodologies, to the mainstream theoretical framework.

The perceived rigidity and permanence of the evidence hierarchy contributes to the strength of claims made against CAM researchers. A model of “open-ended” standards, which is said to be critical to ensuring the cultivation of pluralism in the sciences, contrasts with this image of a rigid hierarchy of evidence.<sup>44</sup> More to the point, the epistemic authority attributed to the hierarchy can come to define the boundaries of legitimate debate in a way that perpetuates the status quo:

Because background assumptions can be and frequently are transparent to members of the scientific community for which they are back-

41. M. Angell and J.P. Kassirer, “Alternative Medicine – The Risks of Untested and Unregulated Remedies,” *New England Journal of Medicine* 339 (1998): 839.

42. R.B. Haynes, “Commentary: A Warning to Complementary Medicine Practitioners: Get Empirical or Else,” *British Medical Journal* 319 (December 18, 1999): 1632.

43. The journal *Evidence-based Complementary and Alternative Medicine* (Oxford University Press) was created in 2004.

44. Longino, *supra* note 18, 267.

ground, *because unreflective acceptance of such assumptions can come to define what it is to be a member of such a community* (making such criticism impossible), effective criticism of background assumptions requires the presence and expression of alternative points of view.<sup>45</sup>

The alignment of community standards with a narrow set of background assumptions can have a significant impact on scientific pluralism. One initial obstacle in research into traditional Chinese medicine (TCM), for example, arises because of the assumptions about homogeneity of patients within standard clinical trials. TCM has a different (and much more individualized) system of diagnosis than mainstream medicine. A group of patients suffering from, for instance, a mainstream medical diagnosis of hypertension, may have a variety of different ailments by TCM diagnoses and not form a homogenous group at all. Thus, challenges encountered by research into TCM draw our attention to assumptions about the homogeneity of patients and the desire for generalizability of treatments within a mainstream medical model. These may turn out to be good assumptions, but we are still better off for having been made aware of their status as assumptions, and of our reasons for holding such assumptions. Unfortunately, our attention is not drawn to such diverse perspectives as long as we define them as ‘outside the scientific community’ because they fail to adhere to the standards set by the evidence hierarchy of EBM.

### **SECTION THREE:**

#### **Finding a Balance: The Critical Project of Science**

Diversity is good for medical inquiry because it contributes to the objectivity of medical research. Evidence-based medicine suppresses diverse research methodologies through the evidence hierarchy, and widespread social acceptance of EBM has led to increased pressure on researchers from a variety of theoretical backgrounds to assimilate into the EBM model. Based on the arguments of the first section, I believe we have good reason to consider the negative implications of this decrease in diversity for the future of medical research.

##### **I. Concern**

One anticipated concern with this argument stems from the recognition that science proceeds not only through the advancement of new ideas, but also by slowly and tediously working out the details of

45. *Ibid.*, 266. Emphasis added.

accepted theories through experimentation. How, if we become too interested in cultivating diversity, are we going to avoid endless testing and retesting, endless new proposals and endless new ideas?<sup>46</sup> Progress seems to require some sort of balance between what Longino identifies loosely as the two missions of science. These are: the *knowledge-extending mission*, which involves the construction of comprehensive accounts of the natural world through piecemeal puzzle-solving and the gradual extension of theories to new data, and the *critical mission*, which aims at an accurate (or true) description of the world through extensive testing, re-testing, rejecting and reformulating of hypotheses.<sup>47</sup> If we allow a great number of diverse perspectives in science we will spend all of our time testing and rejecting new hypotheses instead of advancing and perfecting already established theories.

## II. Reply

I suggest that the EBM hierarchy is a straightforward instantiation of the knowledge-extending mission of science. Longino describes what happens when scientific inquiry tends more toward this sort of conservative approach and subordinates concerns with its critical mission. I will quote her description at length:

The systematic and unifying treatment of phenomena enables us to interact with the natural world with reliable expectations. A methodology that legitimizes the stabilization of inquiry thus serves some constitutive ends of knowledge seeking. It must also, however, subordinate science's critical function in order to avoid the endless testing and constant generation of new explanatory frameworks that would subvert knowledge extension, and it must disguise that subordination to deflect the accusation that the sciences are not after all concerned with truth. One way to achieve this disguise is through the adoption of an account that minimizes the need for and role of criticism beyond hypothesis testing, that is, by an account that can render invisible the role of background assumptions...If there are such assumptions and we deny their existence, they become enshrined and all the more powerful for being invisible. *Ironically, therefore, a conception of knowledge and inquiry developed in part to overcome the weight of tradition in favour of facts has become identified with a conservative tendency within the sciences.*"<sup>48</sup>

46. Longino, *supra* note 7, 223.

47. *Ibid.*, 32–34.

48. Longino, *supra* note 7, 224.

This describes the progress of the EBM movement with surprising accuracy. EBM was created as an anti-authoritarian, even liberating, movement. Proponents of the earliest version of EBM explicitly called for the need to supplant tradition and authority, and interject objective evidence in their place.<sup>49</sup> The EBM approach is positioned as a ‘critical’ approach, one that emphasizes active, engaged critical thinking. But this is not really the practice – at least as represented in medical journals – because the structure of EBM means that critical debate tends to be restricted to asking how sources of evidence such as intuition and experience can be fit into the evidence hierarchy or added on to the results of the hierarchy. Questions about the assumptions underlying the hierarchy itself are rarely seriously discussed.<sup>50</sup> According to Longino, emphasis on the conservative, knowledge-extending mission of science “requires that its critical mission be blocked.”<sup>51</sup> Over-emphasis on the knowledge-extending mission of science often “discourages the investigation of alternative frameworks.”<sup>52</sup> In fact, “those who might otherwise be inclined to [investigate alternative frameworks], in the spirit of free inquiry, are dissuaded by a combination of related phenomena: from the desire to be a ‘good’, effectively orthodox, scientist, to the lack of attention accorded to non-mainstream ideas.”<sup>53</sup> I hope to have demonstrated the ways in which EBM is doing just this.<sup>54</sup>

Those who are concerned that encouraging the cultivation of diverse perspectives will stall the production of good research and waste time

49. Interestingly, commentators have noted that EBM has led to the creation of new forms of authority (Cochrane collaborations, guidelines, the evidence hierarchy) and is now most often identified as an approach that preserves, rather than overturns, the status quo.

50. Notable exceptions to this trend do exist. See in particular Upshur et al., *supra* note 37, and Tonelli and Callahan, *supra* note 3.

51. Longino, *supra* note 7, 223.

52. *Ibid.*, 225.

53. *Ibid.*

54. As an interesting side note related to CAM, Longino also points out the ways in which emphasis on the knowledge-extending mission of science serves to shore up the professional boundaries of particular scientific communities: “struggles to exclude would-be scientists from the professional scientific community...are, among other things, battles to reduce the number of formative assumptions, thus stabilizing the object of inquiry and enabling the development of theory under a unifying or unified and eventually transparent set of values.”

and resources are right to point out the need for balance between the two missions of science. I agree that an over-emphasis on diversity would be bad for scientific inquiry. Of course, a diminished emphasis on diversity would be similarly bad for scientific inquiry. I hope to have offered some reason to believe that the danger in medicine is not currently one of embracing too much diversity. In addition to my arguments on this point, former editor of the *New England Journal of Medicines*, Marcia Angell, has argued that, at least in North America, medical research is plagued by a lack of innovation, medical practice is circumscribed by strict rules and guidelines, and available medical therapies exhibit an increasingly narrow focus on acute conditions and pharmaceutical treatments.<sup>55</sup> The trend in each of these areas is one away from diversity. If EBM and other social forces have shifted the balance of research in one direction, research that stimulates a return to equilibrium can only benefit medicine. I suggest that contemporary EBM proponents be encouraged to take a more diversity-friendly stance, or at least to consider (and debate) the need for such a stance. This might include a reconsideration of the central role of the evidence hierarchy, an extension of the emphasis on critical discussion that is already at the core of the EBM movement to its own background assumptions, and a re-evaluation of the demands made of CAM researchers. This will not mean the rejection of empirical standards or dissolution of the boundaries between good and bad science.<sup>56</sup>

## **Conclusion**

In this paper, I argue that diversity is critical to the advancement of knowledge in medicine. This is because communities expressing strong dissent from mainstream views are able to identify and draw attention to methodological and theoretical assumptions underlying research programs within the mainstream community. One advantage of this enforced self-reflection is that it enables members of both mainstream and alternative communities to correct flaws in their systemic assumptions. In addition, it promotes greater understanding of the epistemological foundations of standards of ‘good evidence’ and

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55. M. Angell, *The Truth About the Drug Companies: How they Deceive us and What to Do About It* (New York: Random House, 2004).

56. Much more needs to be said on this point, but such considerations are unfortunately beyond the scope of this paper. My doctoral dissertation addresses such questions.



requires that researchers justify such standards against alternatives. Unfortunately, as I demonstrate in the second section of the paper, the recent evidence-based medicine movement constrains the cultivation of diversity in medical research. It does so by suppressing diverse research methodologies through the evidence hierarchy, and by increasing the social pressure to adhere to these standards. In the final section of the paper, I argue that EBM advances the knowledge-extending mission of medical research at the expense of the critical mission, and suggest that this imbalance is dangerous. Correction of some of the ways in which EBM suppresses diversity will contribute to a more appropriate balance for medical research. It may even provide grounds for greater confidence in the objectivity of scientific research over the long run.

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Worrall, J. "What Evidence in Evidence-based Medicine?" *Philosophy of Science* 69 (2002): S316–S330.

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# Infant Mortality vs. Overpopulation: Colonial Consistencies and Contradictions in Early 20th Century Malta<sup>1</sup>

Leah Walz

“Why bother with the loss of lives,” some people would ask, “what matters if fewer babies survive to the first twenty-four hours or their first month, when the problem that faces Malta today is one of a high birth rate and overpopulation.”<sup>2</sup>

At the beginning of the twentieth century, the British Crown Colony of Malta was a site of intersection and contradiction – geographically, politically, culturally, and ideologically. Located in the narrow channel joining the eastern and western parts of the Mediterranean, the island archipelago of Malta is said to lie in the geographical centre of the sea.

1. This paper derived from a presentation I gave as part of the Comparative Program on Health and Society (CPHS) seminar series. I would like to express my appreciation to CPHS, the Lupina Foundation, and the Munk Centre for International Studies for their support. I would also like to thank D. Gavrus, B. McElhinny, J. Cattaneo, and N. Anderson for their comments and suggestions on an earlier draft.

This paper is part of my Ph.D. thesis, entitled *Malta, Motherhood, and Infant Mortality: Integrating Biological and Sociocultural Insights*, which I am writing for the Department of Anthropology at the University of Toronto. This larger project is based on several months of archival research in the National Archives of Malta, the University of Malta’s ‘Melitensia’ section, the National Library of Malta, and the Public Records Office in London, in addition to an analysis of the secondary literature. Moreover, in keeping with the mandate of medical anthropology as well as of the CPHS, my project combines social history with historical demography to provide a holistic and broadly comparative analysis of infant mortality and focuses on the social and cultural determinants of health in the Maltese Islands.

2. R. Eminyan, "Ante-natal Services in Malta," in *Survey (A) of Child Welfare Problems in Malta by Save the Children-Fund*, 1st ed., ed. G. Muscat (Malta: 1956), 228.

Historically, the islands have been described as a nerve-centre between the Occident and Orient,<sup>3</sup> and a port of call between the Christian and the Muslim worlds.<sup>4</sup> Taken under protection by the British government in the early 1800s, Malta occupied a position of ambivalence in the British colonial imagination, considered neither fully European because of its linguistic and cultural ties to the Arab world, nor fully 'other' because of its strong Roman Catholic and Italian traditions.<sup>5</sup> In contrast to many other locales, the Maltese Islands were not colonized for resource exploitation or labour power; rather, their oft-cited 'strategic location' was the source of their great value to a succession of occupiers, including the Knights of the Order of St. John (1530–1798) and the French under Napoleon (1798–1801), culminating with the arrival of the British (1801–1964).<sup>6</sup> Furthermore, unlike many other colonies, Malta was both small in size and densely populated, such that the population 'problem' was not depopulation (and therefore a shortage of labourers) but over-population and high fertility (and therefore a shortage of employment opportunities and resources).

This combination of strategic locality and over-population placed Malta in a unique position within the colonial Empire and had important consequences in terms of its economic development and the Colonial provision of social services, particularly in responding to elevated rates of infant mortality. However, the significance of the island's geographical and metaphorical location cannot be elucidated without attention to more global processes. Therefore, in this paper, I examine parallel trajectories and developments in the imperial centre and in the colonies, including the state's discovery of the child and the consequent focus on the behaviours of mothering, and high-

3. Sir H. Luke, *Malta: An Account and Appreciation*, 2nd ed. (London: George G. Harrap & Co. Ltd, 1960).

4. J. Boissevain, "Fieldwork in Malta," in *Being an Anthropologist: Fieldwork in Eleven Cultures*, ed. G.D. Spindler (New York: Holt, Rinehart & Winston, Incorporated, 1970), 58–84.

5. S. Goodwin, *Malta, Mediterranean Bridge* (Westport: Bergin & Garvey, 2002); J. P. Mitchell, *Ambivalent Europeans: Ritual, Memory and the Public Sphere in Malta* (London: Routledge, 2001).

6. Malta gained independence from Britain in 1964, after decades of constitutional and political turmoil over issues of representation in government and debates surrounding Malta's official language (i.e., the use of English, Italian, and/or Maltese in schools, government, and the courts). There is simply not space to address this complex history, and its impact on Maltese identity and politics, in this paper.

light the ways in which globally circulating discourses and concrete interventions were articulated and instituted in very different contexts. When placed alongside contemporaneous developments in the United Kingdom and in other colonies, a number of convergences – as well as divergences – come to the fore. Specifically, at a moment in history when the ‘problem’ of infant mortality came to the attention of British administrators within the United Kingdom and in many of its colonies (in part due to concerns regarding depopulation and fertility decline), discourses regarding the perils of infant mortality were transposed to Malta in tandem with a paradoxical preoccupation with ‘over-population’ and anxiety over elevated fertility rates.

Yeo has argued that “population politics [can] move in opposite directions or contain huge contradictions,”<sup>7</sup> and in this paper I will show that this concomitant concern with the problems of infant mortality and of over-population resulted in the circulation of discourses that contained contradictions and inconsistencies regarding the most pressing issues facing the Maltese Islands, and called for very different solutions and the implementation of conflicting policies and interventions. Moreover, the simultaneous and alternating priority placed on reducing population size and/or infant mortality had a significant impact on the ways in which infant death was framed in Malta and mediated colonial responses to elevated rates of infant mortality in the colony. That is, Malta’s strategic value to the British Empire, in combination with the perceived problem of over-population, led to conflicting discourses on the perils of infant mortality *and* population size, and left Malta’s colonial rulers unable to effectively reduce either death or growth rates.

### **The Discovery of, and Response to, Infant Mortality**

Today, the infant mortality rate (IMR, defined as the number of deaths under one year of age per one thousand live births) is a commonly calculated and familiar statistic to health researchers.<sup>8</sup> However, it was

7. E.J. Yeo, "Constructing and Contesting Motherhood, 1750–1950," *Hecate* 31, no.2 (2005): 5.

8. Although a number of commentators have questioned the utility of the infant mortality rate (see, for example, Reidpath and Allotey, 2003, who argue that “health policies begin to target the chosen outcome measure, while ignoring the rest of the population for which the outcome measure was supposed to be an indicator”), it has come to be regarded as a general barometer of health (see Armstrong, 1986), a sensitive indicator or index of the state of public health and sanitary conditions. It is often quoted and used as a benchmark to compare the health and well-being of populations across and within countries.

not until 1877 that infants' deaths were numerated and reported according to this measure.<sup>9</sup> Armstrong argues that the establishment of an overall statistic to encompass all infant deaths "suggests both the emergence of a social awareness of these young deaths and, more importantly, the social recognition of the infant as a discrete entity, a new object of social and medical interest."<sup>10</sup> In effect, in the mid- to late-nineteenth century, the child, as political object, was discovered: infancy and infants, "childhood and children [...] became the subjects of legislative attention and were at the centre of social policy as they had never been before."<sup>11</sup> And the problem of infant mortality became a pressing concern.

In her ground-breaking work *Imperialism and Motherhood*, Anna Davin explores the basis for this 'discovery' of the child, and the context of the preoccupation with infant mortality and domestic management in nineteenth and twentieth century England.<sup>12</sup> In the United Kingdom, Davin showed that concern with infant welfare was sparked at the beginning of the twentieth century by worries about fertility decline, combined with the ill health and consequent poor performance of British soldiers in the Boer War.<sup>13</sup> As Dwork has simply stated, "war was good for babies;"<sup>14</sup> and so was the threat of depopulation. New human lives were reconceptualized as extremely valuable, and there followed a "surge of concern about the bearing and rearing of children – the next generation of soldiers and workers, the Imperial race".<sup>15</sup>

A fundamental shift took place: children were seen as national assets, the capital of a country, and population was power. Healthy

9. D. Armstrong, "The Invention of Infant Mortality," *Sociology of Health & Illness* 8 (1986): 211–232.

10. *Ibid.*, 212.

11. A.L. Stoler, *Carnal Knowledge and Imperial Power: Race and the Intimate in Colonial Rule* (Berkeley: University of California Press, 2002), 120.

12. A. Davin, "Imperialism and Motherhood," *History Workshop Journal*, no.5 (1978): 9–65.

13. *Ibid.*

14. D. Dwork, *War is Good for Babies and Other Young Children: A History of the Infant and Child Welfare Movement in England 1898–1918* (London: Tavistock Publications, 1987), 209.

15. Davin, *supra* note 12, 12.

babies (and great numbers of them) were seen as necessary not only to ensure strong, suitable recruits for future wars, but for the very maintenance of empire, as imperial domination required officers and officials, and expansion of territories called for soldiers and settlers. Large numbers of healthy infants were also required for production, because a stable workforce was necessary for industry. Children came to be considered commodities, “a form of capital into which parents and others invest and who yield returns when they are capable of being fully economically active.”<sup>16</sup> Thereafter, nation-states and international organizations, such as the Save the Children Fund, emphasized the extreme importance of protecting the “health and development of the next generations,”<sup>17</sup> insisting that “the welfare of children physically, mentally, and spiritually must be the first concern of every nation.”<sup>18</sup>

However, this was not just a national concern; it quickly became a colonial problem as well. Following Davin’s study, a number of researchers have conducted historical studies of infant care, but in colonial settings, including: British Malaya,<sup>19</sup> Belgian Congo,<sup>20</sup>

16. L. Jordanova, "Interrogating the Concept of Reproduction in the Eighteenth Century," in *Conceiving the New World Order: The Global Politics of Reproduction*, ed. F.D. Ginsburg and R. Rapp (Berkeley: University of California Press, 1995), 378.

17. Report on the Food Situation in Malta, 1942. National Archives of Malta, Rabat (NAMR)/GMR 1543/1942.

18. J. Galea, Chief Government Medical Officer, *Report on the Working of the Medical and Health Department During the Year 1953–54* (Malta, 1954), 249. NAMR/GMR 1746/1954.

19. L. Manderson, "These are Modern Times – Infant-Feeding Practice in Peninsular Malaysia," *Social Science & Medicine* 18, no.1 (1984): 47–57; L. Manderson, "Health-Services and the Legitimation of the Colonial State – British-Malaya 1786–1941," *International Journal of Health Services* 17, no.1 (1987): 91–112; L. Manderson, *Sickness and the State: Health and Illness in Colonial Malaya, 1870–1940* (Cambridge: Cambridge University Press, 1996); L. Manderson, "Shaping Reproduction: Maternity in Early Twentieth-Century Malaya," in *Maternities and Modernities: Colonial and Postcolonial Experiences in Asia and the Pacific*, eds. K. Ram and M. Jolly (Cambridge: Cambridge University Press, 1998), 26–49.

20. N.R. Hunt, "'Le Béb  en Brousse': European Women, African Birth Spacing and Colonial Intervention in Breast Feeding in the Belgian Congo," *The International Journal of African Historical Studies* 21, no.3 (1988); N.R. Hunt, *A Colonial Lexicon: Of Birth Ritual, Medicalization, and Mobility in the Congo* (Durham & London: Duke University Press, 1999).



Australia and New Zealand,<sup>21</sup> Ceylon,<sup>22</sup> Latin America,<sup>23</sup> the Philippines,<sup>24</sup> Sudan,<sup>25</sup> and Fiji and Vanuatu.<sup>26</sup> These investigations emphasized the ways in which concerns regarding infant health and developments in the imperial centre were transposed upon colonized peoples in very different settings and contexts for political, economic, and ideological purposes.<sup>27</sup> For example, similar pragmatic concerns about ensuring the reproduction and maintenance of the labour force emerged in the colonies: driven by the political economy of colonialism, it was considered economical to 'breed' workers locally rather than rely on adult immigration.<sup>28</sup>

With the recognition of the relationship of reproduction to production, health services were instituted with the aim of maintaining the health of infants in metropolitan centres. Strategies of intervention into infant health that were instigated in the United Kingdom were gradually introduced into many of the colonies; they included: the training of midwives, the provision of antenatal and postnatal services, the incorporation of pregnancy and birth into hospital-based

21. P. Mein Smith, *Mothers and King Baby: Infant Survival and Welfare in an Imperial World: Australia 1880–1950* (London: MacMillan Press Ltd., 1997).

22. M. Jones, "Infant and Maternal Health Services in Ceylon, 1900–1948: Imperialism or Welfare?," *Social History of Medicine* 15, no.2 (2002).

23. A.-E. Birn, "'No More Surprising than a Broken Pitcher'? Maternal and Child Health in the Early Years of the Pan American Sanitary Bureau," *Canadian Bulletin of Medical History* 19 (2002): 17–46.

24. B. McElhinny, "'Kissing a Baby is not at All Good for Him': Infant Mortality, Medicine, and Colonial Modernity in the U.S.-Occupied Philippines," *American Anthropologist* 107, no.2 (2005).

25. J. Boddy, "Remembering Amal: On Birth and the British in Northern Sudan," in *Pragmatic Women and Body Politics*, eds. M. Lock and P.A. Kaufert (Cambridge: Cambridge University Press, 1998), 28–57.

26. M. Jolly, "Colonial and Postcolonial Plots in Histories of Maternities and Modernities," in *Maternities and Modernities: Colonial and Postcolonial Experiences in Asia and the Pacific*, eds. K. Ram and M. Jolly (Cambridge: Cambridge University Press, 1998), 1–25; M. Jolly, "Other Mothers: Maternal 'Insouciance' and the Depopulation Debate in Fiji and Vanuatu, 1890–1930," in *Maternities and Modernities: Colonial and Postcolonial Experiences in Asia and the Pacific*, eds. K. Ram and M. Jolly. (Cambridge: Cambridge University Press, 1998), 177–212.

27. Manderson, *supra* note 19.

28. Davin, *supra* note 12; Hunt, *supra* note 20; Jolly, *supra* note 26; Manderson, *supra* note 19.

medicine, the establishment of home visiting, and the expansion of domestic science and health education.<sup>29</sup> The nature and scope of these interventions were heavily influenced by a prominent discourse that resonated in early twentieth century Europe, the colonies, and the Americas: depopulation and elevated infant mortality was attributed to the ignorance, irresponsibility, and heartlessness of mothers.<sup>30</sup>

If maternal ignorance was the primary cause of elevated rates of infant mortality – and of depopulation in general – then the education of mothers was the underlying premise of most interventions and the “universally demanded solution.”<sup>31</sup> Somewhat counter-intuitively, the same women who were blamed for elevated rates of infant mortality because they lacked the intelligence (and will) to prevent the deaths of their own children, were also conferred the responsibility of maintaining the population.<sup>32</sup> These women, and mothers of the future, needed to be taught mothering (specifically “scientific mothering”) “in the name of civilization, modernity, and scientific medicine”.<sup>33</sup> The “mothercraft” movement emphasized the superior knowledge of a variety of health professionals and put women in a position of “powerless responsibility,”<sup>34</sup> by making them simultaneously responsible for the health and welfare of their infants, families, and nations while

29. Davin, *supra* note 12; Jolly, *supra* note 26; Manderson, *supra* note 19. There is some debate as to the timing of interventions in various sites; that is, some initiatives were likely first implemented in colonial sites and transposed into metropolitan centres, rather than vice versa. However, the abundance of archival materials from the perspective of the colonizers can obscure this fact and emphasize those initiatives that were led by the colonial governments (Thanks to B. McElhinny for this insight).

30. Davin, *supra* note 12; Hunt, *supra* note 20; Jolly, *supra* note 26; Manderson, *supra* note 19. T. Moffat and A. Herring, "The Historical Roots of High Rates of Infant Death in Aboriginal Communities in Canada in the Early Twentieth Century: The Case of Fisher River, Manitoba," *Social Science & Medicine* 48, no.12 (1999); A.C. Swedlund and H. Ball, "Nature, Nurture, and the Determinants of Infant Mortality: A Case Study from Massachusetts, 1830–1920," in *Building a New Biocultural Synthesis: Political-Economic Perspectives on Human Biology*, eds. A.H. Goodman and T.L. Leatherman (Ann Arbor: The University of Michigan Press, 1998), 191–228.

31. Davin, *supra* note 12, 42.

32. R.D. Apple, "Constructing Mothers – Scientific Motherhood in the 19th and 20th Centuries," *Social History of Medicine* 8, no.2 (1995): 161–178; Jolly, *supra* note 26.

33. Jolly, *supra* note 26, 1.

34. A. Rich, *Of Woman Born: Motherhood as Experience and Institution* (New York: W.W. Norton & Company, Inc., 1976).

deeming them incapable of that responsibility and denying them control over the process.<sup>35</sup>

### The Maltese Case

These same preoccupations and discourses echoed in Malta. By the turn of the twentieth century, as the problem of infant mortality became a national and colonial concern for British authorities, the infant mortality rate first appeared in the Health Reports for the Maltese Islands. The reported rates of infant mortality in Malta were exceptionally high – in excess of 250 per thousand live births – a rate four times that of its colonial ruler, and which declined much later than in the United Kingdom and in other British colonies.<sup>36</sup> Numerous references to “appallingly,”<sup>37</sup> “deplorably,”<sup>38</sup> and “abnormally”<sup>39</sup> high rates of infant death appeared in colonial writings of the time. Much as in other locations, chief among the posited causes of elevated infant mortality rates was “sheer ignorance,” a phrase used by the Committee on Nutrition in the Colonial Empire in their report on Malta.<sup>40</sup> Although environmental and socio-economic factors were not entirely disregarded in Malta, their significance was generally downplayed. For example, in a *Survey of Child Welfare Problems in Malta* by the Save the Children Fund, the emphasis was placed largely on bad mothering:

Many others under similar conditions at home achieve very good result. It is the mother in question that [sic] is at fault. Results are

35. R.D. Apple, "Constructing Mothers: Scientific Motherhood in the Nineteenth and Twentieth Centuries," in *Mothers & Motherhood: Readings in American History*, eds. R.D. Apple and J. Golden (Columbus: Ohio State University Press, 1997), 90–110.

36. L.A. Sawchuk et al., "Two Different Worlds: Infant Mortality as a Proxy Measure of the Health Experience in the Maltese Islands," (paper presented at the 30th Annual Meeting of the Canadian Association for Physical Anthropology, 2002).

37. L. Fairfield and T. Drummond Shiels, *Report of Commission of British Social Hygiene Council*, addressed to His Excellency Lt. General Sir Charles Bonham-Carter, KCB, CMG, DSO, Governor and Commander-in-Chief, Malta (1938), NAMR/GMR 1391/1938; Eric Shepherd, *Malta and Me* (London: Selwyn and Blount Ltd., 1928), 109.

38. *Report on the Food Situation in Malta*, supra note 17.

39. United Kingdom. Economic Advisory Council. *Committee on Nutrition in the Colonial Empire: First Report – Part I. Nutrition in the Colonial Empire* (1939), 119. NAMR/GMR 1405/1939.

40. *Ibid.*, 128.

equally poor, even when social standards are good, if the mother is of poor capacity.<sup>41</sup>

Consequently, proposed and instituted interventions, aside from an increased regulation of midwives,<sup>42</sup> focused primarily on improving the quality and standards of “mothercraft” in the islands. Infant welfare clinics were opened for the examination of babies and the instruction of mothers, and affiliated home visitors were assigned to advise newly confined<sup>43</sup> mothers on the feeding and caring of their children. However, when compared to the initiatives in the UK and other colonies, the number and scope of these interventions were extremely limited. Whereas infant welfare centres existed from the mid-nineteenth century in France and England, the first consultation centres in Malta did not open until 1919, and in only four central locations (Valleta, Cospicua, Hamrun, and Zejtun), leaving most mothers, particularly those in rural areas, without accessible services until 1947.<sup>44</sup> The clinics themselves were described by the Chief Government Medical Officer (CGMO) as “poor, ill-equipped, and overcrowded,”<sup>45</sup> and the health visitors were said to be under-trained and required to cover much larger districts than they could efficiently manage. Moreover, the CGMO suggested a reduction in their workload, which signals the degree to which these individuals were overstretched:

Under present conditions, a health visitor should preferably have no other duties to perform, and her work should be limited to the care of not more than five hundred children under five years of age.<sup>46</sup>

41. E. Cachia, “The Infant in the Home,” in *Survey (A) of Child Welfare Problems in Malta by Save the Children-Fund*, 1st ed., ed. G. Muscat (Malta: 1956), 40.

42. Calls for increased training and licensing of midwives – and derogation of their “insanitary” practices, procedures, and social status – was common in Malta, as it was in other colonies (e.g., Davin, *supra* note 12, Jolly, *supra* note 26; McElhinny, *supra* note 24). This tendency to deny the authority and knowledge of traditional birth attendants is consistent with the disparaging of women’s own practices of mothering, as both emphasize the superiority of biomedical practitioners, practices, and knowledge.

43. The term “confined” refers to confinement: the state attending and consequent to childbirth.

44. The timing of the opening of the first clinics in Malta coincides with the opening of infant welfare centres in other colonies; however, in comparison with the Belgian Congo (Hunt, *supra* note 20), Ceylon (Jones, 22), and British Malaya (Manderson, *supra* note 19), for example, it took *longer* to establish *fewer* additional centres.

45. J. Cauchi, Chief Government Medical Officer. *Report on the Working of the Medical and Health Department for 1946* (1947) NAMR/GMR 1499/1947, 480.

46. *Ibid.*

The comparative lack of social services in Malta is particularly evident when seen in the context of government expenditures per head of the population on all social services, which for the latter part of the 1930s was forty times less than in Great Britain.<sup>47</sup> Moreover, the Maltese case was seen as exceptionally dire even in comparison to other British colonies, according to E.E. Dodd, who proclaimed: “Social services expenditure is greater than that of Malta even in the Gold Coast.”<sup>48</sup>

### Malta’s Strategic Location

I argue that this relative lack of investment in social services generally, and in infant welfare services more specifically, is directly tied to Malta’s position within the British colonial empire as a strategically placed (and over-populated) island colony. Unlike other colonies, the Maltese Islands were not a site of agricultural or mineral exploitation requiring large numbers of local labourers. In fact, it was argued at the beginning of the twentieth century in a *Royal Commission on the Finances, Economic Condition, and Judicial Procedure of Malta* that Malta’s own agriculture, industries, and commerce were never capable of supporting even its own inhabitants, let alone providing surplus for export.<sup>49</sup> Rather, as East contended in his book *Mediterranean Problems*, in comparison with other British colonies, “Britain [...] sought in the Mediterranean strategic bases and economic ends rather than colonial areas for settlement and economic exploitation.”<sup>50</sup> Thus, the island’s greatest assets were its position astride British imperial routes and its spacious deepwater harbours, first for the purposes of trade and thereafter as a military/naval base. As Dr. Alfredo Mattei, one of the Elected Members of the Council of Government, explained:

47. As recorded by E.E. Dodd, in a report prepared for the Fabian Society’s Colonial Bureau entitled *Strategic Colonies and their Future: The Problems of Hong Kong, Gibraltar, Malta, Cyprus* (London: Fabian Publications Ltd. in conjunction with Victor Gollancz Ltd., 1945).

48. *Ibid.*, 23. This reference to “even on the Gold Coast” indicates that Malta’s position within the Empire, and the Maltese people in general, may have been considered as somehow superior to Africans.

49. United Kingdom. Royal Commission on the Finances, Economic Condition, and Judicial Procedure of Malta. Sir F. Mowatt and Sir M. Dalzell Chalmers. *Minutes of Evidence*. Presented to both Houses of Parliament by Command of his Majesty. August 1912. (London, His Majesty’s Stationary Office, Eyre and Spottiswoode, Ltd., 1911) NAMR/GMR 606/1911.

50. G. East, *Mediterranean Problems* (London: Thomas Nelson and Sons Ltd., 1940), 60.

“our raison d’être in the British Empire is solely our harbour, where the British fleet can winter and repair vessels in times of peace or war.”<sup>51</sup>

Indeed, some have argued that Malta’s strategic importance superseded all other considerations and was responsible for the subordination and underdevelopment of the islands’ economy. For example, Thomas Balogh and Dudley Seers (both of Oxford University), appointed by the Labour Government of Malta to survey the island’s economic situation and to indicate to what extent Malta could legitimately expect economic aid from Great Britain, argued that, with priority given to defence needs,

[N]o effort was made until quite recently to develop alternative sources of employment or to give the Maltese universal education and social services. Britain is therefore responsible for the peculiar social and economic structure that has grown up in the Islands, a structure the main feature of which is that Maltese living standards depend wholly on Imperial expenditure.<sup>52</sup>

Similarly, many years prior to this report, in an electoral address published in the *Gazzetta di Malta*, the Elected Members of the Council of Government, after resigning en masse as an act of protest,<sup>53</sup> contended: “the Government shows but little regard for the population [...] being wholly absorbed in one sole idea, namely, the interests of the Fortress and the Naval Station.”<sup>54</sup>

Although the degree to which the government disregarded the needs

51. United Kingdom. Royal Commission on the Finances, Economic Condition, and Judicial Procedure of Malta. A. Mattei. *Minutes of Evidence*. Presented to both Houses of Parliament by Command of his Majesty. (London: His Majesty’s Stationary Office, Eyre and Spottiswoode, Ltd., 1911), 35, NAMR/GMR 606/1911. Emphasis his.

52. T. Balogh (Fellow of Balliol College Oxford) and D. Seers (Senior Lecturer in Economic Statistics Oxford), *The Economic Problems of Malta: An Interim Report* ([Malta?], 1955), 16, NAMR/GMR 1850/1955.

53. According to the elected members, they resigned because “the Government endeavours to force us into adopting the English language, and to compel us to approve of many public works that are meant to drain the treasury, and to render the creation of taxes indispensably necessary; and the Government has threatened to deprive us of the Constitution if we do not comply with these pretensions” [A.M. Micallef et al., translation of an electoral address published in the *Gazzetta di Malta* (Further Correspondence Relating to the Political Condition of Malta, 1902) NAMR/GMR 486/1902].

54. *Ibid.*, 21.

of the civilian population is open to debate – and considering the context of these comments by the elected members, political rhetoric was clearly at play – it is unquestionable that a stable and regenerating supply of labour was not a priority for the imperial government. In contrast to the UK and many of its other colonies, where declining birth rates and high rates of infant (and adult) mortality threatened the labour force and the potential prosperity of the nation and/or colony, in a report on the economic conditions in Malta by the Department of Overseas Trade, J.B. Greaves argued that “one of the most difficult problems confronting Malta [was] how to maintain and provide useful economic activities for her people.”<sup>55</sup> Only a small proportion of the civilian population was required for government service and for work in the dockyards, while the remainder of the Maltese, mainly engaged in small-scale subsistence agriculture and fishing operations, were deemed in the words of Director of Navy Contracts Francis W. Roswell as “redundant.”<sup>56</sup>

### **The ‘Problem’ of Over-population**

Yet Malta’s strategic location being its primary value is not a sufficient explanation for the colonial administration’s relative lack of investment in social and infant welfare services; this was also directly tied to Malta’s position as an *over-populated* island colony within the British Empire. Concomitant with local and international concern over elevated rates of infant mortality, and second only to references to Malta’s strategic location, colonial writings of the time similarly stressed the island’s problems associated with “over-population.” Interestingly, this occurred at the same moment that, as Davin indicates, the UK’s “plummeting birth rate led to doom-laden prophecies of national decline,” and imperialists called for the establishment of family allowances to encourage procreation among British citizens in light of concerns about labour shortages and under-population.<sup>57</sup> According to Malta’s Superintendent of Emigration Henry Casolani, it was not Britain itself that was in peril, but “[t]he great lands of the Empire [that were]

55. J.B. Greaves, Department of Overseas Trade, *Report on Economic Conditions in Cyprus and Malta, with a Note on the Trade of Gibraltar* (1935), 38. NAMR/GMR 1370/1935.

56. F.W. Roswell, *Mr. Roswell's Report, Correspondence Respecting the Taxation and Expenditure of Malta* (1877), 11. NAMR/GMR 279/1877.

57. Davin, *supra* note 12, 48.

crying for souls.”<sup>58</sup> As such, “sparsely-populated countries”<sup>59</sup> were thought to “need population,”<sup>60</sup> and in a report by a committee examining post-World War I British commercial and industrial policies, emigration within the Commonwealth would “make [Malta’s] manhood more useful to the Empire.”<sup>61</sup> Further, as Casolani’s successor in the Department of Emigration argued, this would also effect “a more consistent distribution”<sup>62</sup> of the population of the British Commonwealth as a whole; therefore, the “great Dominions” of Australia (and, to a lesser extent, Canada) were deemed “the best outlet for [Malta’s] surplus population.”<sup>63</sup>

Because emigration was considered a possible solution, government officials admitted their “anxiety to find satisfactory outlets for [the] surplus population.” The preoccupation with population density, size, and growth in Malta, and with “regulating the population,”<sup>64</sup> which was described as “redundant” and “surplus”, is also made clear by the numerous examples of superlative – and inherently pejorative – language in the colonial writings of the time. Early visitor accounts describe the islands thus: “extremely over-populated,”<sup>65</sup> “appalling over-population,”<sup>66</sup> and in contemporary and later government reports, “teeming population,”<sup>67</sup> “seriously overpopulated,”<sup>68</sup> and “exces-

58. H. Casolani, Superintendent of Emigration. *Report of the Emigration Department, for 1922–23* (1923), B4, NAMR/GMR 858/1923.

59. Sir P.G. Julyan, *Report on the Civil Establishment of Malta* (1879), 56, NAMR/GMR 280/1879.

60. H. Casolani, *Report of the Emigration Department, for 1924–25* (1925), C4, NAMR/GMR 950/1925.

61. A. Parnis et al., *Report of a Committee Appointed to Advise as to the Steps, if any, that Should be Taken to Secure Consideration of any Circumstances Affecting the Interests of Malta at a Representative Conference which is to Consider the Commercial and Industrial Policy of the British Empire after the War* (1917), 8, NAMR/GMR 732/1917.

62. H. Arrigo, *Report of the Emigration Department, for 1935–36* (1936), 109, NAMR/GMR 1290/1936.

63. *Ibid.*, 109.

64. Sir G.E. Schuster, *Interim Report on the Financial and Economic Structure of the Maltese Islands* (1950), xvi. NAMR/GMR 1640.

65. G. Peto, *Malta and Cyprus* (London & Toronto: J.M. Dent and Sons Ltd., 1927), 59.

66. Shepherd, *supra* note 37, 273.

67. H. Casolani, *supra* note 60, C1.

68. United Kingdom. Colonial Office, "Volume VI: The Mediterranean and Pacific Territories," in *An Economic Survey of the Colonial Territories 1951*, 8.



sive over-population.”<sup>69</sup> Population *growth* was described in similar terms: “[t]he rapid increase of the population will, in the near future, become a cause of considerable anxiety,”<sup>70</sup> “our population is perilously increasing,”<sup>71</sup> and “[t]he perennial problem with us is the increase in population.”<sup>72</sup>

At times, the reason that population size and growth was a cause of anxiety was more overtly articulated. For example, Roswell stressed that rapid population growth, without emigration, “had the most depressing effect upon the price of labour.”<sup>73</sup> Speaking on the adverse effects of population growth and density on such things as employment opportunities, housing accommodation, and water supply, Chief Government Medical Officer J. Galea stated: “the saturation point has been reached some time ago and possibly surpassed.”<sup>74</sup>

It is notable that a great many references to over-population in Malta have a distinct Malthusian bent. In Malthus’s *Essay on the Principle of Population*, in which he spoke of “redundant” population, Malthus explored the disequilibrium between the capacity of human beings to reproduce and that of the earth to feed them, stating that “[p]opulation, when unchecked, increases in a geometrical ratio. Subsistence

69. J. Galea, Chief Government Medical Officer, *Report on the Working of the Medical and Health Department During the Year 1951–52* (1952), 99, NAMR/GMR 1673/1952.

70. President of Malta. Address at the opening of the Session of the Council of Government. Colonial Office. Further Correspondence Relating to the Political Condition of Malta (1903), 31, NAMR/GMR 487/1903.

71. H. Casolani, *supra* note 60, C6.

72. J. Galea, *supra* note 69, 99.

73. Roswell, *supra* note 56, 11. This opinion has become so commonplace in contemporary debates on population, labour supply, and wages that its veracity is seldom questioned. Nevertheless, other commentators argued, in contrast, that an “increase of population is a safe index of prosperity, [therefore] the general condition of the island under British rule must be considered to have been very flourishing on the whole” because of the rapid growth of the population which occurred through the 19th century [see A. Bartolo, “History of the Maltese Islands,” in *Malta and Gibraltar Illustrated: Historical and Descriptive, Commercial and Industrial Facts, Figures, & Resources*, ed. A. Macmillan (Valletta: Midsea Books, 1985).] Moreover, today, there remains disagreement among demographers regarding the relationship between economic growth and population growth/size (i.e., whether or not population growth has positive or negative effects on prosperity and development).

74. J. Galea, *supra* note 18, 247.

increases only in an arithmetical ratio”.<sup>75</sup> Similar language appears in colonial reports about Malta: “the increase of the population is not proportionate with the increase of the means of subsistence,”<sup>76</sup> and “[t]he population of Malta has for many years been pressing hard upon the means of subsistence”.<sup>77</sup>

Similarly, several individuals who spoke at the *Royal Commission on the Finances, Economic Condition, and Judicial Procedure of Malta* in 1911, cited population size and growth as the root of poverty in Malta:

[...] the difficulties, financial and economic, from which Malta is at present suffering can be traced almost in their entirety to the rapid growth of her population without a corresponding increase in their means of subsistence.<sup>78</sup>

Moreover, in keeping with Malthusian thinking, if population growth was not checked, the predicted result was misery in the form of war, disease, and/or starvation: “[...] the population will soon begin starving if it goes on increasing at its present rate,”<sup>79</sup> “[...] ultimately starvation or pestilence [...] ultimately nature will cure the disease.”<sup>80</sup> In addition, if starvation and pestilence were the *expected results* of population pressure on resources, there was also the inference that

75. T.R. Malthus, *An Essay on the Principle of Population as it Affects the Future Improvement of Society, with Remarks on the Speculations of Mr. Godwin, M. Condorcet, and Other Writers*, 1st ed. (London: J. Johnson, 1798).

76. United Kingdom. Royal Commission on the Finances, Economic Condition, and Judicial Procedure of Malta. J. Howard. *Minutes of Evidence*. Presented to both Houses of Parliament by Command of his Majesty. August 1912 (London: His Majesty's Stationary Office, Eyre and Spottiswoode, Ltd., 1911), 293, NAMR/GMR 780/1911.

77. E.E. Dodd, *supra* note 47, 20. Attention should be paid to the differing historical moments in which these comments were made. Although in this paper I highlight consistencies in discourse across decades, the differing historical context of these discussions of infant mortality and overpopulation should be disentangled. For example, due attention should be paid to factors such as WWI and WW2, along with emigration policies, advances in medical and sanitary systems and knowledge, and changes in the political situation in Malta and the Commonwealth; however, because of the limited scope of this paper, these discussions will be taken up in another venue.

78. Mowatt and Chalmers, *supra* note 49, 30.

79. Howard, *supra* note 76, 293.

80. United Kingdom. Royal Commission on the Finances, Economic Condition, and Judicial Procedure of Malta. F. Azzopardi. *Minutes of Evidence*. Presented to both Houses of Parliament by Command of his Majesty. August 1912 (London: His Majesty's Stationary Office, Eyre and Spottiswoode, Ltd., 1911), 355, NAMR/GMR 606/1911.

socio-economic conditions, health problems, and deteriorating standards of living were *caused by* over-population. As Ross has argued, Malthusianism became “a way of explaining poverty, death, and environmental degradation as products of human population pressure on resources.”<sup>81</sup> Thus, in Malta, the government explained high rates of infant mortality, among other things, as resulting from over-population:

The painful struggle for existence to which so large a proportion of the inhabitants is condemned, the alarming increase of pauperism, and the yet more alarming extent of infant mortality, attest to the redundancy of the population...<sup>82</sup>

Population density was also often employed as proxy or alternative formulation of the hazards of crowding. It was not just the island as a whole that was over-populated, but individual residences as well, as Emanuel Cachia stated: “the bulk of our families are overcrowded and live under most unhygienic conditions.”<sup>83</sup> But reference to overcrowding itself often carried allusion to family size.

Much like the citations relating to population size and growth above, references to Maltese family size and fertility in government reports as well as in popular accounts reveal value judgments, casting the tendency towards (and the desiring of) large families as irrational and negative.<sup>84</sup> For example: “[t]he [birth] rate is abnormally

81. E.B. Ross, *The Malthus Factor: Poverty, Politics, and Population in Capitalist Development* (London: Zed Books, 1998), 1.

82. Julyan, *supra* note 59, 56.

83. Cachia, *supra* note 41, 35.

84. Where the infant mortality and overpopulation discourses most clearly intersect is on the subject of multiparity – the hazards of excessive fertility and an abnormally high birth rate. (Although this, too, is not uncomplicated, because one of the primary catalysts, and rallying points, of the preoccupation with infant mortality was the problem of depopulation and fertility decline in a variety of locations and contexts.) While disparaging comments do exist, there is surprisingly little written on the dangers of multiparity. Or, perhaps more accurately, there is unsurprisingly little written – considering the power of the Catholic Church in Malta. Immediately prior to their arrival at the beginning of the 19th century, the British were privy to the imprudence of disrespecting and underestimating the power and importance of Catholicism in Malta: a revolt against, and the eventual expulsion of, Napoleon and the French was partly the result of their pillaging of Malta’s churches. Moreover, throughout their tenure on the islands, the British colonial government had several opportunities to experience the influence of the Catholic Church in Malta; the debates surrounding, and political fall-out associated with, the ‘Language Question’ (the disposition of the Italian language for English in the schools, courts, and government) was probably the most blatant example. For an elaboration of the role of the Catholic Church in Malta, please see Walz (paper in progress).

high,”<sup>85</sup> “[f]amilies in Malta tend to be enormous,”<sup>86</sup> and “[t]he Maltese breed like rabbits.”<sup>87</sup> Further, the Chief Government Medical Officer A.C. Briffa extended the association between over-population and infant mortality to include the effects of overcrowding and/or family size:

The abolition or at least the decrease of overcrowding is an important and necessary measure in the reduction of infantile mortality especially in our case where families are large. A high birth rate in itself militates against a low infant mortality...<sup>88</sup>

This Malthusian association between birth and death rates appeared in earlier health reports including CGMO Caruana Scicluna’s, who wrote “[i]t cannot be expected that with our high birth rate, our death rate can fall much lower than it is at present.”<sup>89</sup> Significantly, in other locales where concern centred around the dangers of depopulation, such as early twentieth century Australia, the argument that high birth rates contributed to high infant mortality rates was subject to “trenchant criticism as old-fashioned and untrue.”<sup>90</sup> Yet, in Malta, “the pressure of a numerous *and fertile* population on a very limited area [was long thought to be] one of Malta’s most serious problems.”<sup>91</sup>

Moreover, the presumed association between birth rates and infant mortality rates was confirmed in the (self-proclaimed) first empirical study of the causes of infant mortality in Malta “in the history of Social

85. United Kingdom. Economic Advisory Council. Committee on Nutrition in the Colonial Empire. *Summary of Information Regarding Nutrition in the Colonial Empire with Special Reference to the Replies Received to the Circular Despatch from the Secretary of State for the Colonies, First Report – Part II.* 1939, J2.

86. Shepherd, *supra* note 37, 269.

87. P. Bloomfield, *The Mediterranean: An Anthology* (London: Cassell and Company, 1904 [1935]), 205. Granted, birth rates in Malta were higher than those elsewhere, ranging from 30–40 per 1000 people (as compared to 15–25 in England). Nonetheless, the language used to describe this difference is derisive rather than matter-of-fact.

88. A. C. Briffa, Chief Government Medical Officer, *Report on the Health Conditions of the Maltese Islands and the Work of the Medical and Health Department for the Year 1948.* (1949), xii, NAMR/GMR 1590/1949.

89. G. Caruana Scicluna, *Report on the Working of the Public Health Department During the Year 1909–10* (1910), J2, NAMR/GMR 567/1910.

90. Mein Smith, *supra* note 21, 31.

91. J. Boissevain, *Saints and Fireworks: Religion and Politics in Rural Malta*, London School of Economics: Monographs on Social Anthropology (New York: Humanities Press Inc., 1965), 2. Emphasis added.

Medicine,” by Dr. Joseph Morana, published in 1946.<sup>92</sup> Based on a highly dubious ‘statistical’ analysis of the effects of seven “presumable” causes of infant mortality (mother’s education, the occurrence of a previous infant death, bad sanitation, rural residence, artificial feeding, family income, and multiparity<sup>93</sup>), Morana concluded that “multiparity emerges as the chief cause of our high infant death rate.”<sup>94</sup> Interestingly, and in contradiction to the prevailing hypothesis of the time, Morana argued that “the much abused ignorance of our mothers shows that it is not responsible for our high infant mortality rate.”<sup>95</sup> Morana then went on to discuss two interrelated ideas that I will expand upon: the role of infant mortality as a check on population growth, and the role of infant mortality in the context of natural selection.

### Infant Mortality as “Safety Valve”

First, discourses on infant mortality and over-population (and/or multiparity) often collided. For example, in a report examining medical and public health administration in Malta, Sir Walter B. Johnson suggested that, in Malta, a high birth rate was “partly balanced” by a very high infant mortality rate.<sup>96</sup> Morana himself argued that “if our mortality had to fall within reasonable limits like that of other countries having a moderate infant death rate, the population of this country would present a formidable demographic problem” and contended that “nature is apt to find a balance for our excessive birth rate; much as we deprecate the loss of those we miss.”<sup>97</sup> In light of the high birth rate, and the existing ‘problem’ of over-population, infant mortality was thought of as a “safety valve”:

Not until 1943 was public opinion in Malta led to support the effort for lowering the infant death rate. Previous appeals had been meeting

92. This pamphlet was located in the National Library of Malta, and it contained no additional information on its author. Nor was there any indication of why, or for whom, this study was prepared. This illustrates one of the major drawbacks of archival research: that there are frequently gaps, omissions, inconsistencies, and contradictions that the investigator is forced to reconstruct, reconcile, or simply accept.

93. Multiparity refers to having borne a number of children.

94. Dr. J. Morana, *An Investigation on Infant Mortality in Malta*. ([Malta?, 1946?]), 6.

95. *Ibid.*, 2.

96. Sir W.B. Johnson, *Report Upon a Visit to the Maltese Islands to Inquire into the Existing System of Medical and Public Health Administration, and to Make Recommendations to Increase Efficiency* (1937), NAMR/GMR 1134/1937.

97. Morana, *supra* note 94, 6–7.

with a cold response. Public opinion had been alarmed by increasing over-population and had tolerated the high infant mortality rate as a safety valve. But reaction was provoked by the unprecedented death rate of the war. More enlightened views began to prevail.<sup>98</sup>

Thus, infant mortality was considered, by some, to be less worrisome than over-population. Population growth was seen to be a more pressing concern, because “*in spite of an infant death rate*” of over 250 per 1000 live births, the population was continually increasing.<sup>99</sup>

However, the above quotation also alludes to a common perception of the time – that the Maltese were apathetic and unconcerned with elevated infant mortality rates. In some instances this is made explicit and tied to (over-)population and multiparity: “[T]he very high infant mortality rate [...] tends to be regarded with apathy, probably owing to the high birth rate and general overcrowding of the population.”<sup>100</sup> In others, it is tied to socio-economic conditions; for example, in a report on sanitary conditions and mortality in Malta, Dr. G. Gulia wrote: “moral supineness [sic] engendered by poverty has rendered the parent apathetic of consequences [...] [H]undreds of sick children have been allowed to die, no effort being made towards their recovery.”<sup>101</sup> In still other instances, apathy is implied. For example, while writing for the Save the Children Fund, Debono states “it is the normal thing among the older mothers to have lost half to three quarters of their children before the first year of life;”<sup>102</sup> that is, whereas deaths were ‘appalling’ to the authorities, they were a ‘normal’ part of life for Maltese mothers.

The supposed ‘normalcy’ of infant deaths is attested to by a number of Maltese expressions, including:

98. W. Ganado, "Infant Mortality in the Maltese Islands," *Acta Medica et Sociologica* 3, no.2/3 (1964): 240. This reference to “enlightened views” demonstrates that colonial attitudes – and derogations of the Maltese peasantry, as one can only presume they are the “public” whose opinion is being referred to – still prevailed into at least the 1960s.

99. Greaves, *supra* note 55, 38. Emphasis added.

100. Johnson, *supra* note 96.

101. G. Gulia, “On the Sanitary Condition of Malta, and Especially the Three Cities; and the Recent Increase in Mortality,” in *Preliminary Reports on the Mortality and Sanitary Condition of Valletta and the Three Cities*, eds. A. Ghio and G. Gulia (1875), 10, NAMR/GMR 195/1875.

102. J. Debono, "Present Ante-natal Services and Social Services," in *Survey (A) of Child Welfare Problems in Malta by Save the Children-Fund*, 1st ed., ed. G. Muscat (Malta: 1956), 215.

*Aħsbilhom għall-magħmudija u wara għat-TMIDDJA*: Prepare (the child) for christening and then for burial.

*Man-NEJBIET lesti l'kfejnet*: When children begin to cut the eyeteeth, get the shroud ready.

*M'isbaħ il-ġenna għal dik it-TARBIJA li tmut fil-fisqija*: What can be better than Paradise for the child who dies when still in its swaddling clothes!<sup>103</sup>

What these proverbs show is the common Maltese custom whereby one was expected to rejoice in the face of infant deaths, provided that the child had been baptized (and most baptisms occurred on the day of birth) as babies would then go straight to heaven.<sup>104</sup> However, in the minds of some British citizens, this was tantamount to “slipshod, happy-go-lucky fatalism,” and references were made to the average, poor Maltese peasant-woman’s faith in the “Bambino’s inscrutable will” (the will of God) and other ‘superstitious’ beliefs.<sup>105</sup>

### **Eugenics and Stratified Reproduction**

Turning to the question of infant mortality and natural selection, Morana, again in obvious response to circulating discourses of the times, argued that infant deaths:

[...] have no redeeming qualities, such as those claimed, with reference to the survival of the fittest and the elimination of the unfit. [...] Infant deaths do not eliminate the unfit, the congenitally weak succumb in the first months of life, these deaths occur after the fourth month and if not seldom happens, after a terrible battle between their stamina and the adverse conditions in their environment.<sup>106</sup>

That Morana felt compelled to argue this point indicates that infant mortality was thought of not only as a “safety valve” but also as a way of eliminating those individuals considered less fit. In the nineteenth and early twentieth century, Darwinist notions of the struggle for existence combined with Malthusian conceptions of the dangers of excessive population, and were used by advocates of eugenics “who wanted a selective limitation on population growth to prevent the

103. G. Aquilina, *A Comparative Dictionary of Maltese Proverbs* (Royal University of Malta: Giov. Muscat & Co. Ltd., 1972).

104. M. Galley, *Maria Calleja's Gozo: A Life History* (Logan: Utah State University Press, UNESCO Publishing, 1994).

105. Shepherd, *supra* note 37, 109.

106. Morana, *supra* note 94, 6.

‘deterioration of the race.’”<sup>107</sup> Thus, while depopulation, the need to ‘invest in’ infants and children, and the associated preoccupation with infant mortality, were major national and colonial concerns, it is important to draw attention to the fact that, as Davin argues, “short supply of the commodity was not the only problem: there was the question of quality as well as quantity.”<sup>108</sup> That is, the *right* people needed to have more babies. The *right* infants needed to survive: future workers and members of the imperial race.

This seems to be a clear case of “stratified reproduction,” a term employed by Ginsburg and Rapp to describe the power relations whereby some categories of people, and not others, are empowered to reproduce and nurture, and the ways in which “some reproductive futures are valued while others are despised.”<sup>109</sup> Thus, not only were Maltese mothers deemed “ignorant” and incapable of raising their own children without direction and advice from medical professionals, but – despite the rhetoric about “appalling” rates of infant mortality – their infants’ lives were also considered less valuable and not worth saving. If Maltese infants had been required as future labourers, or if Maltese men and women were deemed members of the imperial race, then perhaps the ‘problem’ of infant mortality would have been considered more serious than the ‘problem’ of over-population. Perhaps, if Maltese lives were valued in this way, the high birth rate and rapid growth of Malta’s population would have been portrayed as a sign of prosperity and potential rather than a threat to development, health, and wealth.

## Conclusion

In colonies such as Malta, poverty and its attendant health consequences were directly tied to the policies and priorities of colonial administrators; however, by focusing on the perils of population growth and elevated fertility levels on the island – posited as threats to the economy and the health of infant and adult populations – this relationship was obscured in the early twentieth century British colony.

107. Davin, *supra* note 12, 10. Malthus himself favoured “moral restraint” (including late marriage and sexual abstinence) as a check on population growth – but specifically for the working and poor classes.

108. *Ibid.*, 15.

109. F.D. Ginsburg and R. Rapp, *Conceiving the New World Order: The Global Politics of Reproduction*, ed. F. D. Ginsburg and R. Rapp (Berkeley: University of California Press, 1995), 3.



When the colonizers adopted a Malthusian perspective, excess population and fertility were seen to be the causal factors of poverty, morbidity, and mortality, and Malta's colonial status within the English, or world, capitalist system was neglected.<sup>110</sup> As Meek states:

An explanation of human misery in terms of an "eternal law of nature," such as Malthus's principle of population [...] diverts attention from the part played in the creation of this misery by class exploitation in general and by particular systems of class exploitation such as capitalism.<sup>111</sup>

That is, despite claims that Malta's population exceeded the means of *subsistence*, in effect, the pressure of population was really against the means of *employment*, and the size and rate of growth of Malta's population would not have been so great a concern to its colonial administrators had the means of employment and the need for labour been greater on the islands. Similarly, if the Maltese had been valued as members of the imperial race, as potential colonizers for the Commonwealth, their growing population may have been viewed in a positive light. Instead, the British colonial government's interests lay only in maintaining control over Malta's strategic location and excellent harbours, which led directly to the island's excessive reliance on imperial employment and expenditure, and its economic and social under-development.

Moreover, rather than improving sanitary conditions, ameliorating nutritional levels, and alleviating poverty – recall that infant mortality is *supposed* to be an index of general social conditions – *individuals* were charged with the task of becoming "better mothers." This focus on the responsibility of the individual mother (who, in early twentieth century Malta, and elsewhere, inevitably failed as a result of her ignorance and apathy) "obscured to an extent which now seems astonishing the effects on child health of poverty and environment,"<sup>112</sup>

110. See E. B. Ross, "Potatoes, Population, and the Irish Famine: The Political Economy of Demographic Change," in *Culture and Reproduction: An Anthropological Critique of Demographic Transition Theory*, ed. W. P. Handwerker (Boulder and London: Westview Press, 1986) for an examination of the effect of Ireland's colonial status on the Irish potato famine.

111. R.L. Meek, "Marx and Engels on Malthus," in *The Population Puzzle: Boom or Bust?*, eds. L.E. Huggins and H. Skandera (Stanford: Hoover Institution Press, 2004), 18.

112. Davin, *supra* note 12, 12.

as any observations about the role of conditions of poverty were overlaid by the rhetoric about motherhood. In combination with discourses surrounding the dangerous effects of over-population, emphasis on “mothercraft” served to conceal and obfuscate the effects of complex political, economic, and social relations on the resultant morbidity and mortality in the Maltese islands<sup>113</sup> – what Scheper-Hughes has labelled the “macroparasitism” of exploitation.<sup>114</sup>

Similarly, in response to ‘over-population,’ in lieu of expanding industry and supporting the development of alternate sources of employment (and thereby potentially raising the price of labour sorely needed by the government and imperial dockyards), *individuals* were encouraged to emigrate. Further, despite elevated rates of morbidity and mortality, given perceptions of Malta’s “redundant” population, the extension of sewerage, clean water, and refuse collection to the majority of the islands, and the provision of social services to the Maltese, were simply not a primary concern until after the Second World War.

Yet elevated rates of infant mortality were, nonetheless, seen as a source of professional embarrassment.<sup>115</sup> As Morana stated, somewhat poetically, “these deaths are clouds which darken our health horizon.”<sup>116</sup> Accordingly, although in some instances the rhetoric around infant mortality campaigns was closely related to guaranteeing a healthy labour force or to eugenic concerns about the “degeneration” of the imperial race, it was also frequently linked to debates over whether colonial rule was justified as “improvement.”<sup>117</sup> In addition, particularly in the colonies, the discovery of the child, the medicalization of infant death, the teaching of “scientific mothering,” and other interventions designed to curtail infant mortality, were part of a

113. P.J. Brown, *Understanding and Applying Medical Anthropology*, ed. P. J. Brown. (Mountain View: Mayfield Publishing Company, 1998); Moffat and Herring, *supra* note 30.

114. N. Scheper-Hughes, "Infant Mortality and Infant Care: Cultural and Economic Constraints on Nurturing in Northeast Brazil," *Social Science & Medicine* 19, no.5 (1984). The term “macroparasitism” refers to the ways in which larger or more powerful organisms or groups expropriate resources from those who are less powerful and/or are conquered.

115. Shepherd, *supra* note 37, 269.

116. Morana, *supra* note 94, 6.

117. McElhinny, *supra* note 24.

“means to establish the imposed political order as the legitimate power and authority.”<sup>118</sup>

Yeo states that “whatever their specific policies, nation states put population politics into the spotlight as part of establishing their legitimacy.”<sup>119</sup> Thus, in order to justify (or perhaps excuse) their presence in Malta and their exploitation of the island’s strategic location and natural harbours, the British government wanted to demonstrate a minimal dedication to the health and development of the Maltese people. Nevertheless, they were caught at the crossroads of two prominent and juxtaposed discourses: the importance of curtailing infant mortality and the perceived necessity of reducing population size and growth. Malta’s colonizers expressed their anxiety over elevated rates of infant mortality, but posited maternal ignorance and apathy as its primary causes – the latter of which, in part, resulted from crowding, large family size, and over-population. However, strategies of intervention were limited in scale and efficacy, and importantly, those interventions that were instituted were directed almost exclusively at improving “mothercraft.” Simultaneously, the government emphasized the perils of over-population and the contribution of crowding and an elevated birth rate to poverty and infant death. Given these intersecting and conflicting discourses and imperatives, one wonders if the colonial authorities’ references to the ignorance and apathy of the Maltese were really an example of projection: Was it the British who found themselves lacking the knowledge and the experience to successfully lower the infant mortality rate (ignorance)? And was it the British who remained indifferent and uncertain as to the merits of reducing infant deaths in the context of over-population (apathy)?

118. Manderson, *supra* note 19, 94.

119. Yeo, *supra* note 7, 5.

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# Mind Over Matter: Sherrington, Penfield, Eccles, Walshe and the Dualist Movement in Neuroscience

Delia Gavrus

If a man referred to his brother or his cat as ‘an ingenious mechanism’  
we should know that he was either a fool or a physiologist.

C. D. Broad, 1924

## Introduction

In his 1992 book *The Rediscovery of the Mind*, philosopher John R. Searle argues that the solution to the mind-body problem<sup>1</sup> “has been available to any educated person since serious work began on the brain.” According to Searle, as early as the turn of the twentieth century, science revealed the correct conclusion that “mental phenomena are caused by neurophysiological processes in the brain and are themselves features of the brain.”<sup>2</sup> If this solution were as evident as Searle imagines, one would expect it to have been embraced at once by at least one group of intellectuals – the physiologists, neurologists, and neurosurgeons who pioneered the study of this complex organ. Indeed, it appears that there was – and there still may be – a common misconception that these scientists subscribed to a rigid materialist perspective. The philosopher C. D. Broad, for instance, laboured under this erroneous belief when in the 1920s and 1930s he vocally criticized scientists, especially physiologists, for treating the world as “simply a physico-chemical system”

1. The mind-body problem refers to the relationship between the mind and the body. Is the mind simply the brain in action (materialism), or are the mind and the body two different entities that are linked in some way (dualism)?

2. J. R. Searle, *The Rediscovery of the Mind* (Cambridge: MIT Press, 1992), 1.

and for “ignor[ing] the existence of minds.”<sup>3</sup> This might have been true of a significant number of nineteenth-century enthusiasts of phrenology and believers in the localization of brain function, and it may indeed still be true of scientists working within contemporary mainstream science. However, in the first half of the twentieth century this reductive materialism (i.e., the belief that the mind is reducible to the brain) was certainly not accepted by an elite group of physiologists and medical practitioners who did not see a strict causal connection between the brain and the mind. Thus it appears that this “serious” research on the brain conducted at the turn of the twentieth century led some brain scientists to mind-brain dualism.<sup>4</sup>

This paper will explore the mind-brain dualism espoused by the British physiologist Charles Sherrington and three of his most eminent students, Wilder Penfield, Sir John Eccles, and Sir Francis Walshe. I will argue that there was a renaissance of dualism among brain scientists in the first part of the twentieth century and that this renaissance was precipitated by a multitude of social, intellectual, but also scientific factors. I will show that each of these men arrived at dualism in a slightly different way and, in turn, held somewhat different versions of dualism. I will argue also that these scientists were influenced by ideas and ideals of complexity and integration, by an emerging culture of holism in medicine, as well as by ambiguous scientific evidence that could be interpreted in support of mind-body dualism. Ultimately, however, this dualism failed to take root in the larger scientific community, partly because of the changing nature of scientific training, and partly because of the inability of these brain scientists to create and reach consensus on a unified dualist framework.

### **The Physical Basis of Mind, Midway Through the Twentieth Century**

In 1950, the BBC radio network *Third Programme* broadcast a series of

3. C. D. Broad, “Critical and Speculative Philosophy,” in *Contemporary British Philosophy: Personal Statements (First Series)*, ed. J. H. Muirhead (London: G. Allen and Unwin, 1924), 77–100.

4. *The Stanford Encyclopedia of Philosophy* identifies three different types of dualism: predicate, property, and substance dualism. In this paper, by dualism I mean substance dualism: the mind is a non-physical entity, while the brain is a physical entity. All the scientists described in this paper were substance dualists (H. Robinson, “Dualism,” in *The Stanford Encyclopedia of Philosophy*, 2003, ed. E.N. Zalta, <http://plato.stanford.edu/archives/fall2003/entries/dualism/>).

talks in which ten pre-eminent physiologists, physicians, and philosophers explored “the physical basis of mind.”<sup>5</sup> The speakers explained the changes that occur in the brain during perceptual, emotive, and cognitive events, and they reflected on the possible implications of these physical vectors in relation to the mind. By the end of the talks, it became evident that both the scientific and the philosophical communities were far from reaching consensus on this topic. There was an unbridgeable divide between those who believed that mind equalled matter (that is, that the mind was a product of the brain) and those who thought of the mind as a different entity, an entity that was certainly related to and dependent on the central nervous system, but that at the same time transcended the materiality of the brain. To buttress their arguments, both camps appealed to the scientific evidence available at the time and speculated on scientific discoveries that might be made in the future. Thus, what was in dispute here was not the scientific evidence per se, but rather the significance and interpretation of this evidence.

Proponents of the mind-as-distinct-from-the-brain theory (substance dualism) were found among both the scientists and philosophers who participated in the talks. Among the three philosophers present, only one, Viscount Samuel, took for granted the distinction between brain and mind, allowing at the same time for a complex interaction between the two: “[We] are bound to assume that, although the two are of different orders, they must have something in common, because there is a meeting-place; because the two interconnect and interact; because body (including brain) does in fact condition and influence mind, and mind does in fact condition and influence body.”<sup>6</sup> The other two philosophers, A. J. Ayer and Gilbert Ryle, however, took a staunch materialist position and devoted a large portion of their address to a scathing deconstruction of the other camp’s theory. Ryle went as far as to liken his intellectual opponents to the simple-minded peasants who despite being taught the inner-workings of the steam-engine, still maintained that there was a mystical “ghost-horse” in the machine that caused it to move.<sup>7</sup>

5. P. Laslett, ed., *The Physical Basis of Mind: A Series of Broadcast Talks* (Oxford: Basil Blackwell, [1950] 1968).

6. V. Samuel, “The Physical Basis of Mind: A Philosophers’ Symposium,” in *The Physical Basis of Mind*, ed. P. Laslett (Oxford: Basil Blackwell, [1950] 1968), 68.

7. G. Ryle, “The Physical Basis of Mind: A Philosophers’ Symposium,” in *The Physical Basis of Mind*, ed. P. Laslett (Oxford: Basil Blackwell, [1950] 1968), 75.

The scientists were equally divided. Three of them (but by far the most influential and well-known ones: Charles Sherrington, E. D. Adrian, and Wilder Penfield) argued for a dualist approach to the mind-body question; two others (S. Zuckerman and E. T. O. Slater) fell on the opposite side of the debate; one other (Russell Brain) did not make his position clear in his speech; and the seventh (W. E. Le Gros Clark) limited himself to a detailed description of visual perception, generally avoiding the mind-body question, but noting a few times the necessity for a holistic approach to brain functioning. Nevertheless, Le Gros Clark ended his talk with a subtle allusion to his conviction that the mind and the brain were different entities. Thus he expressed his belief that a “study of the structural organization of the brain” and an observation of “the effects of a local disturbance of this structure on the working of the mind” will shed some light on “the particular anatomical dispositions which appear to be necessary as a basis for mental activity, or perhaps I should say, for the manifestations of mental activity.”<sup>8</sup> The phrase “the manifestation of mental activity” probably implies Le Gros Clark’s uncertainty over whether brain activation directly created mental states and processes, or whether it was a mere intermediary, a “manifestation” of pre-existing mental activity.<sup>9</sup>

This BBC series of talks makes it clear that around mid-century there were several influential brain scientists who were sympathetic to a dualist explanation of the mind-body problem. It is interesting that this resurgence of dualism should happen in the first half of the twentieth century and that this philosophical position should be resurrected among physiologists and physicians who had been trained in the mechanist perspective of nineteenth-century brain science. But, as I will show below, a number of factors explain the appearance of this dualist movement.

### **A Brief History of Dualism**

Although dualism is generally associated with the French philosopher René Descartes (1596-1650), this philosophical position has a long history that extends to the ancient Greeks. Both Plato and Aristotle, in spite of occasional inconsistencies in their writings, generally

8. W. E. Le Gros Clark, “The Structure of the Brain and the Process of Thinking,” in *The Physical Basis of Mind*, ed. P. Laslett (Oxford: Basil Blackwell, [1950] 1968), 24.

9. My dualist interpretation of Clark’s BBC talk is also supported by J. Eccles, *The Neurophysiological Basis of Mind* (Oxford: Clarendon Press, 1953), 265.

favoured the view that the body and the soul were two different entities that influenced each other. Plato believed that there existed specific disorders of the body and specific ailments of the soul, and he even anticipated psychosomatic illness by describing ways in which diseases of the soul could beget diseases of the body.<sup>10</sup> Aristotle felt that notwithstanding the fundamental difference between soul and body, these two entities co-existed in a seamless and complementary fashion. The soul was comprised of a multitude of parts – nutrition, perception, locomotion, imagination, desire, intellect, etc. – and some of these parts (nutrition and reproduction, for instance) were shared by plants, animals, and humans alike.<sup>11</sup>

The very close connection between the body and the soul is evident in Aristotle's belief that physiology was uniquely fashioned to fulfill the various abilities of the soul. The eye was perfectly suited for vision, but could not "see" without the part of the soul that controlled the "psychic" power of vision. Likewise, physical constitution and conditions, such as drunkenness, impeded the proper functioning of certain parts of the soul – in the case of inebriation, that of the intellect, which possessed the unique ability to make decisions and to reason.

If judged only from his work *De Anima*, Aristotle's dualism can be interpreted as implying that the mind consisted of a different essence from the body, but that it was still an earthly form, mortal and not divine in origin. However, in other works, such as *Nicomachean Ethics*, Aristotle argued that the intellect was the only part of the soul that could actually achieve immortality. As I will show later in the paper, this differential way of appraising Aristotle's work, in which the intellect may or may not be considered a divine entity, allowed Charles Sherrington to identify his own type of dualism with that of Aristotle's in *De Anima*.

Some historians have argued that influenced perhaps by the difficulty of explaining the interaction between a physical body and an incor-

10. T. M. Robinson, "The Defining Features of Mind-Body Dualism in the Writings of Plato," in *Psyche and Soma: Physicians and Metaphysicians on the Mind-body Problem from Antiquity to Enlightenment*, eds. J. P. Wright and P. Potter (Oxford: Clarendon Press, 2000), 37–55.

11. P. J. Van der Eijk, "Aristotle's Psycho-physiological Account of the Soul-Body Relationship," in *Psyche and Soma: Physicians and Metaphysicians on the Mind-body Problem from Antiquity to Enlightenment*, eds. J. P. Wright and P. Potter (Oxford: Clarendon Press, 2000), 57–77.

poreal soul, as well as by new discoveries such as that of the presence of nerves by the Greek physicians Herophilus and Erasistratus, Hellenistic theories of the body and the soul generally tended to regard these two entities as equally rooted in physical matter, thus disagreeing with Plato and Aristotle. The Stoics, for instance, developed a number of different arguments to prove that the soul was but a property of the body. The tension between this position – a form of materialism – and dualism continued to be played out between individuals of different philosophical persuasions. Galen, although a great admirer of Plato, largely shied away from speculation on the nature of the soul, realizing perhaps the difficulty of investigating any such conjectures. Even though he admitted that he could not explain what the *psyche* was, Galen nonetheless treated the soul as a different entity from the body. The body and the soul interacted in various ways, but most importantly for Galen, this interaction could be described at the level of the brain.<sup>12</sup>

In the following centuries, a number of philosophers – Augustine, for example – rejected the Hellenistic materialist theories in favour of a stark dichotomy between body and soul. During the Renaissance, this dichotomy was tempered somewhat by the resurgence of the ancient Greek ideas of the distinctiveness yet interconnectedness of body and soul/mind in the work of philosophers such as Piccolomini and Pierre Charron. At this time, dualism came in many forms and flavours, most of them influenced by Aristotle's writings. Some philosophers were distinguishing between an organic soul (which was thought to be part of any living body and which controlled bodily functions) and an intellective one (which existed only in humans and which was immortal). The Thomists disagreed with this position, arguing that there existed only one soul that was responsible for both somatic functions and cognitive abilities.<sup>13</sup>

In this Renaissance tradition of proving the separateness of and the interconnectivity between body and soul/mind, the French philoso-

12. H. Von Staden, "Body, Soul, Nerves: Epicurus, Herophilus, Erasistratus, the Stoics, and Galen," in *Psyche and Soma: Physicians and Metaphysicians on the Mind-body Problem from Antiquity to Enlightenment*, eds. J. P. Wright and P. Potter (Oxford: Clarendon Press, 2000), 79–116.

13. E. Michael, "Renaissance Theories of Body, Soul, and Mind," in *Psyche and Soma: Physicians and Metaphysicians on the Mind-body Problem from Antiquity to Enlightenment*, eds. J. P. Wright and P. Potter (Oxford: Clarendon Press, 2000), 147–172.

pher René Descartes postulated an interactionist model in which the mind exerted its influence on the body through the brain's pineal gland. Descartes placed the body firmly in the external world and thought it to be similar to a machine governed by strict physical laws that science could uncover. In contrast, he envisioned the mind as a completely different substance, one that could only inhabit human beings. The mind's thoughts and will depended only on God, but the connection between mind and body allowed the mind to control the body, to heal it, or to harm it.<sup>14</sup>

Thus, the intellectual tradition of dualism waxed and waned from antiquity onward. The seventeenth century especially saw a rich repository of various types of dualist thinking that varied in particulars, but that fundamentally expressed a similar dichotomy between the body and the mind. However, competing philosophies did exist at the time: materialism, which like dualism had roots in Greek antiquity, began to gain in popularity in the eighteenth century.<sup>15</sup> By the second half of the nineteenth century and the beginning of the twentieth, dualism had lost much of its seventeenth-century dominance among philosophers and scientists alike. The rise of phrenology and the localization of brain functions in the nineteenth century gave psychologists and physiologists of the nervous system a strong materialist platform on which to stand. And yet surprisingly, toward the end of the century, several leading brain scientists and physicians who had been schooled in the sciences as well as in the arts, and who were discovering more complex and surprising facts about the brain, began to depart from the increasingly materialist philosophy of their peers.

### **Wilder Penfield: Between the Science of Physiology and the Art of Medicine**

Wilder Penfield was born in the small frontier town of Spokane, Washington, in 1891, and studied at Princeton, Harvard, and Oxford. The two years he spent at Oxford on a Rhodes Scholarship had a profound impact on Penfield. There he met William Osler and Charles Sherrington, who would become his mentors and role models. Osler

14. S. Patterson, "How Cartesian was Descartes?" in *History of the Mind-Body Problem*, eds. T. Crane and S. Patterson (London: Routledge, 2000), 70–110.

15. T. M. Lennon, "Bayle and Late Seventeenth Century Thought," in *Psyche and Soma: Physicians and Metaphysicians on the Mind-body Problem from Antiquity to Enlightenment*, eds. J. P. Wright and P. Potter (Oxford: Clarendon Press, 1998), 197–215.

and Sherrington represented the two polarities in the field of medicine – the art of medical practice and the science of physiological research – and throughout his professional life Penfield vacillated between these two options, in the end achieving a balance between them. As the founder and director of the Montreal Neurological Institute in the 1930s, Penfield dedicated this institution “to the relief of sickness and pain and to the study of neurology,”<sup>16</sup> this twofold aim reflecting his ambition as a surgeon-scientist both to cure illness and to unlock the mysteries of the brain and of consciousness itself. In particular, his work with epileptic patients, whom he tried to cure by surgical means, also allowed him to map out the brain by observing the motor and sensory reactions of these patients to the gentle electrical stimulation of their cortex.

Penfield credits Sherrington with awakening his interest in the brain: “I looked through his eyes and came to realize that here in the nervous system was the great unexplored field – the undiscovered country in which the mystery of the mind of man might someday be explained.”<sup>17</sup> But perhaps more importantly, what Penfield admired in both Sherrington and Osler was the fact that these men enjoyed an intellectual life that extended beyond medicine to philosophy, literature, and history. These men’s intellectual reach spoke directly to Penfield’s own interest in the humanities, which dated from his undergraduate days at Princeton. In his autobiography, he wrote admiringly that “outside the laboratory, Sherrington was secretly a poet and, as he was later to show, a philosopher.”<sup>18</sup> For the same reasons Penfield was drawn to Osler, who was an eloquent and erudite writer. Penfield wanted to become like these two men – a meticulous experimentalist like Sherrington, a compassionate and beloved physician like Osler, and an eclectic but profound intellectual like them both.

As a result of this ambition, Penfield was never content to divorce his scientific brain research from its potential philosophical implications. Undoubtedly this is one of the reasons why he eagerly shared his dualist interpretation of the mind-body problem with the public at large through talks, lectures, and books. Ever the versatile intellectual, he

16. Dedication etched on a plaque, Montreal Neurological Institute.

17. W. Penfield, *No Man Alone: A Neurosurgeon’s Life* (Toronto: Little, Brown and Company, 1977), 36.

18. *Ibid.*



sought to place his work in the context of the history of medicine, as well as in the larger background of man's search for truth and meaning. These were lofty but not unusual ideals in his immediate circle of professional friends. Sherrington, John Eccles, and Francis Walshe, among others, were equally interested in communicating scientific knowledge – and the philosophical implications of this knowledge, which to them spelled dualism – to the general public.

### **Sherrington: Integration and Dualism**

As the mentor of this select group of brain scientists, Sherrington exerted significant influence both through his personal character and convictions, as well as through his scientific work. Although, as I will show shortly, Sherrington's dualism was somewhat different from that of his students, he was “a figurehead for scientific humanism,”<sup>19</sup> instilling in his students not only his meticulousness in physiological research, but also an awareness of the social responsibility and intellectual repercussions that came with scientific research. Sherrington did not divorce science from the humanities or from art, and he valued the integration of all human endeavours into a harmonized culture.

Charles Sherrington was trained as a physician in the 1870s at St. Thomas's Hospital in London, but he preferred physiology to the practice of medicine, and he subsequently enrolled in physiology courses at Cambridge. In the early 1880s, Sherrington became intrigued by David Ferrier's experiments on the localization of brain function, and from then on he devoted much of his career to the study of the nervous system. In his capacity as Waynfleet Professor of Physiology at Oxford (1913-1935), he examined spinal reflexes, the innervation of antagonistic muscles, synaptic transmission, and the pyramidal tract that connects the brain and the spinal cord, and for his contribution to physiology he received the Nobel Prize in 1932.

In the great tradition of nineteenth-century naturalists who sought to popularize science by writing books aimed at the general public,<sup>20</sup> Sherrington amassed the Gifford Lectures he delivered in Edinburgh between 1937 and 1938 into a book, which he published in 1940

19. R. Smith, “The Embodiment of Value: C. S. Sherrington and the Cultivation of Science,” *The British Journal for the History of Science* 33 (2000): 283–311.

20. For example, Charles Lyell, Thomas Huxley, Charles Darwin, George John Romanes, John Tyndall, and many others.

under the title *Man on His Nature*. The book is a meditation on what science can reveal about the nature of man and a celebration of the extraordinary complexity and beauty of the human mind and of 'Nature.' Sherrington tellingly ended his book with a chapter on altruism, which he considered to be the highest and most admirable value, one that our species was increasingly evolving toward. The evolution of values and ethics was for Sherrington the most significant and mysterious development of Darwinian evolution. While firmly affirming that Nature and evolution were neither benevolent nor immoral (but rather non-moral and non-directional), Sherrington considered the evolution of the human mind and its inherent morality, reason, and emotion to be the highest achievement of Nature.

Not many historians have taken note of Sherrington's dualism, and none of them has analyzed it in the context of his biological argument. Smith has argued that Sherrington's dualism was an abstraction, that it literally represented a defense of conservative cultural values.<sup>21</sup> Smith has also contended that *Man on His Nature* was not a philosophical, but rather an aesthetic text in which Sherrington "hoped to render his meaning in prose which utilized the allusive and evocative power of the connotations of words rather than to make truth claims dependent on the denotations of words."<sup>22</sup> A careful reading of *Man on his Nature* does not bear out this interpretation. It is possible that Sherrington's writing, which seems vague and impenetrable at times, was guided by his modesty and his tendency to be self-effacing and tentative rather than authoritative and definitive. However, his book should not be seen as simply an exercise in rhetoric. It seems to me that Sherrington's intention was to achieve a description of mind based partly on science and partly on centuries-old Western intellectual tradition. In fact, Sherrington ultimately appears to align himself closely to Aristotle's view on the mind, as it was sketched in *De Anima*. For example, in explaining new research on the nervous system that supported a close association between the acts of perception and motion and the mind itself, Sherrington noted that "Aristotle's old insistence on intellect as rooted in sense holds more demonstrably than before. What arises in the mind occurs with what is provoked from the motor individual."<sup>23</sup>

21. R. Smith, "Representations of Mind: C. S. Sherrington and Scientific Opinion, c.1930–1950," *Science in Context* 14 (2001): 511–539.

22. Smith, *supra* note 19, 302.

23. C. Sherrington, *Man on His Nature* (Cambridge: Cambridge University Press, [1940] 1951), 150.

The brain, in Sherrington's view, had the extraordinary ability to integrate all these sensory inputs and, in conjunction with the mind, to deliver motor responses.

These ideas stemmed from Sherrington's own scientific work. His most enduring legacy in physiology was the 1906 book *The Integrative Action of the Nervous System*.<sup>24</sup> By studying the nature of simple reflexes in cats, he was able to understand that reflexes were not isolated events, but rather represented the integrated effort of the nervous system. One piece of evidence that supported integration became known as Sherrington's law: when one muscle is excited, the nervous system commands a simultaneous inhibition of muscles opposing the action of the stimulated muscle. For any given motor response of the organism, sensory information was integrated with excitatory and inhibitory commands: the simplest of acts was in fact a complicated synthesis of physiological events that the nervous system coordinated with extraordinary reliability. Sherrington's results were proving the astounding complexity of the nervous system and the unitary way in which it worked. Around the turn of the twentieth century, these novel conclusions were in conflict with nineteenth-century views of the brain, which emphasized the simple, automaton-like nature of reflexes and the straightforward organization of the brain into areas of discrete functions.

The empirical study of cerebral localization was one of the driving forces of nineteenth-century science.<sup>25</sup> The notion of localization of function came from Franz Gall's phrenology, but soon found more empirical and theoretical precision in the work of Alexander Bain, Paul Broca, Herbert Spencer, Hughlings Jackson, and David Ferrier. This research agenda meant that the dominant model of the mind in nineteenth-century brain science was essentially mechanistic. The brain was often described as a machine whose function was to accumulate, sort, and analyze data according to strict natural laws, and the mind was simply the perceptible manifestation of the functioning brain. The German neurologist Carl Wernicke theorized in the 1870s that the brain stored sensory-motor information in specialized parts. According to Wernicke, the posterior part of the brain received sensory

24. C. Sherrington, *The Integrative Action of the Nervous System* (New York: Charles Scribner's Sons, 1906).

25. R. M. Young, *Mind, Brain and Adaptation in the Nineteenth Century* (Oxford: Clarendon Press, 1970).

inputs from the outside world and communicated through association fibres with the anterior part of the brain, which was responsible for motor output. This mechanistic brain was also endowed with some ‘association’ rules (e.g., of resemblance, contiguity, etc.) that operated on atomistic units of thought, the sum and function of which constituted the mind and consciousness. This simple mechanistic model became very popular, especially in German brain science, because it “provided a framework for the creation of multiple new clinical entities (the aphasias, the agnosias, the apraxias),” which were useful in neurology.<sup>26</sup>

Most of the nineteenth-century scientists who were interested in localizing brain functions were therefore opposed to mind-body dualism,<sup>27</sup> and Herbert Spencer in particular gave them an evolutionary-ary platform for their materialist beliefs. Thus, as Young notes:

[I]n the sixty years between the publication of Gall’s work on *The Functions of the Brain* and the appearance of Ferrier’s volume of the same name [...] the study of the brain and its functions had become an experimental science based on the theory of evolution. [As a result, by the end of the nineteenth century, the] mind had ceased to be viewed as an isolated substance, the role of which was representation of reality and the investigation of which was a branch of metaphysics. The study of mind had become a biological science concerned with an important function of the organism, and its role in adaptation to the environment was just beginning to be investigated.<sup>28</sup>

There was a shift in this tradition once Sherrington appeared on the scene. Sherrington introduced ideas of integration, plasticity, variability, and complexity. The focus was not so much on localization, on specific cerebral sites that could explain human thought and behaviour, but rather on the whole, on the interaction of the various parts of the organism and on the integrative action of the nervous system. Sherrington thus borrowed concepts stemming from his own scientific work and applied them to his philosophy of mind.

Throughout *Man on His Nature*, Sherrington alludes often to the work of the sixteenth-century French physician Jean Fernel and uses

26. A. Harrington, “Other ‘Ways of Knowing’: The Politics of Knowledge in Interwar German Brain Science,” in *So Human a Brain: Knowledge and Values in the Neurosciences*, ed. A. Harrington (Berlin: Dabner Institute Publications, 1991), 233.

27. This is true of the majority of these scientists. However, some – for instance Pierre Flourens – retained a belief in dualism.

28. Young, *supra* note 25, 7.

Fernel's work to convey his own interpretation of the mind-body problem. A century before Descartes, Fernel had argued for a similar sharp distinction between the mind and the brain, and he ascribed the mind, or the soul, to divine origins. As much as Sherrington admired this sixteenth-century physician-scientist who demonstrated a great aptitude for medicine,<sup>29</sup> the physiologist did not hesitate to argue that Fernel's dualism was not borne out by the facts. For one, Fernel's divine nature of the human mind stood in complete contrast to Sherrington's view of the mind as a product of biological evolution. "With [the] insertion into the human individual [of] an immortal soul," Sherrington writes, "[...] a trespass is committed."<sup>30</sup> Like Aristotle in *De Anima*, Sherrington viewed the mind as an entity non-corporeal in nature – mortal and thus not divine.

A second point of contention between Sherrington and Fernel was the lack of unity of mind and body in Fernel's dualism. "There is in Fernel no sign of any desire to bring mind and body together to a unity," Sherrington lamented.<sup>31</sup> "For Fernel there was duality, but that duality created a situation of no difficulty. Its members, matter and spirit, combined in perfectly satisfying cooperation. Matter was the servant. Spirit, mind was the master."<sup>32</sup> Not so for Sherrington: "While accepting duality we remember that Nature in instance after instance dealing with this duality treats it as a unity."<sup>33</sup> Fernel had failed to notice this unity, this holism, this strong interconnection between the mind and the brain. He had not been puzzled by this bond and by the difficulty of explaining the interaction. Descartes, by proposing the pineal gland as the place of interaction, had also failed, in Sherrington's opinion, to show how such unity could be explained by a small locus of interaction.

Where Fernel and Descartes had failed, Aristotle, on the other hand, had postulated the co-existence, in a seamless and complementary fashion, of the equally mortal mind and body. Having limited himself

29. Sherrington admired Fernel very much. Shortly after *Man on His Nature*, in 1946, he published an account of the life and work of Fernel, *The Endeavour of Jean Fernel* (Cambridge: Cambridge University Press, 1946).

30. Sherrington, *supra* note 23, 255.

31. *Ibid.*, 190.

32. *Ibid.*, 230.

33. *Ibid.*, 251.

to an interpretation of Aristotle based on *De Anima* alone,<sup>34</sup> Sherrington could confidently align his dualism with that of Aristotle: “Today’s opinion therefore is in this less removed from Aristotle than from Kant.”<sup>35</sup> Aristotle had stressed, in *De Anima*, the most important features of the dualism that Sherrington accepted: first, the notion of the existence of two separate entities, the mind and the body; second, the extraordinary unity and integration of these entities; and third, the mortality of the mind.

To these Aristotelian concepts, Sherrington added the idea that the cortex was the place where the mind made itself known: “The roof-brain component [i.e., the cortex] increases the finesse, skill, adaptability and specificity of the motor act.”<sup>36</sup> Intentional behaviour comes from the cortex, but it is not the direct product of the cortex, Sherrington argued, because electrical stimulation of the human brain produced motion that was not perceived as “willed” by the person whose brain was stimulated.<sup>37</sup> Sherrington borrowed this argument from his student Wilder Penfield, as I will show shortly.

Ultimately, Sherrington thought that although “the physical basis of mind encroaches more and more upon the study of mind, [...] there remain mental events which seem to lie beyond any physiology of the brain.”<sup>38</sup> He remained skeptical that we will ever understand the nature of mind. While “living is analyzable and describable by natural science, that associate of living, thought, escapes and remains refractory to natural science. In fact natural science repudiates it as something outside its ken. A radical distinction has therefore arisen between life and mind.”<sup>39</sup> The difficulty of understanding the mind lay in the fact that natural science had not yet found a way to approach this mysterious element. Yet Sherrington did speculate that the mind was an entirely different essence:

34. As I have argued in the section titled *A Brief History of Dualism*, Aristotle portrayed the soul as mortal in *De Anima*, but elsewhere he made an exception for the intellect. *De Anima* is the only Aristotelian work that Sherrington cites.

35. Sherrington, *supra* note 23, 254.

36. *Ibid.*, 182–183.

37. C. Sherrington, “Introductory,” in *The Physical Basis of Mind*, ed. P. Laslett (Oxford: Basil Blackwell, [1950] 1968), 2.

38. *Ibid.*, 3.

39. Sherrington, *supra* note 23, 230.

Mind, for anything perception can compass, goes therefore in our spatial world more ghostly than a ghost. Invisible, intangible, it is a thing not even of outline; it is not a 'thing'. It remains without sensual confirmation, and remains without it forever. [...] We live at a moment hitherto unmatched, for our planet has just evolved mind in us to the pitch that we can take in our local situation of this present as we walk her side.<sup>40</sup>

Thus Sherrington envisions mind as an entity that has evolved within man in the same fashion as other biological characteristics. Like Aristotle, he believed that the mind was mortal, and perished with the body. And yet at the same time, mind was not body – it was not a physical 'thing.' An interplay between, on the one hand, new research on the nervous system that emphasized complexity and integration, and on the other, Sherrington's humanist perspective and his belief in an integration of knowledge in all spheres of human understanding, created a unique and fascinating brand of dualism with strong Aristotelian flavour that would have a lasting impact on the next generation of brain scientists.

### **Penfield's Own Brand of Dualism – Following Sherrington in Spirit but Not in Details**

Penfield greatly admired Sherrington the brilliant experimenter and Sherrington the humanist philosopher, and of all Sherrington's students, Penfield tried to emulate his mentor the most by writing books that aspired to be philosophical in nature, as well as novels, a biography, and an autobiography.

Penfield's dualism was influenced both by Sherrington – whose philosophical writings he cited often – and by his own long career in brain research. Epilepsy was Penfield's principal interest in medicine, and he tried to divine both the origin of the illness and the means of curing it. Drawing on the work of the German physiologist Otfried Foerster, who used direct electrical stimulation of the brain, and the British physician Hughlings Jackson, who had surmised that epilepsy was caused by electrical discharges in the brain, Penfield tried to pinpoint and excise the scar tissue that was the source of his patients' epileptic attacks. As a means of avoiding damaging important parts of the cortex, he also created a map of the brain that showed the various sensory, motor, and speech areas of the cerebral cortex. His surgical

40. Ibid., 256.

solution, which had been advocated by Jackson but had never been undertaken on such a large scale, allowed Penfield to cure about half of his epileptic patients, by his own count. Penfield revered Jackson for his insights on epilepsy, but he vocally disagreed with him on the topic of the nature of the mind.

According to Penfield, Jackson's nineteenth-century conflation of mind and brain (i.e., his reductive materialism) was simply not supported by evidence. Penfield thought that clinical and physiological data showed that it was impossible for "the brain alone [to] carry out the work that the mind does."<sup>41</sup> The evidence suggested a doubling of awareness during electrical stimulation of the cortex. If a motor area was stimulated, the patient's arm might move, but the patient was aware that he or she did not "will" the movement. In fact, cortical stimulation never caused a patient to believe or to decide: it never activated the mind. In addition, stimulation of the temporal lobe sometimes caused the patient to re-experience old memories, but in this situation as well, the patient was fully aware that the memory was induced by the neurosurgeon's electrode. This suggested to Penfield that the cerebral cortex was not responsible for awareness, consciousness, or willed behaviour, particularly since "large removals of the cerebral cortex [could] be carried out without abolishing consciousness."<sup>42</sup>

If the cortex was not the source of consciousness, did it at least mediate between matter and mind? Penfield did not think so. He hypothesized that when the neurosurgeon stimulated the cortex, the electrical current temporarily interfered with the cortex and activated at the same time a distant but connected area of the brain. His speculation was based on the observation that the motor response that followed cortical stimulation consisted of crude movements (e.g., clutching), rather than delicate and specific movements, which the cortex made possible under normal circumstances. Furthermore, he thought that the cerebral cortex displayed less ability to integrate than the older parts of the brain, such as the brain stem. All this evidence, coupled with the fact that injury to the brain stem almost always resulted in unconsciousness, led Penfield to conclude that "the indispensable

41. W. Penfield, *The Mystery of the Mind* (Princeton: Princeton University Press, 1975), 114.

42. *Ibid.*, 18.



substratum of consciousness lies outside the cerebral cortex, probably in the diencephalon (the higher brain stem).<sup>43</sup> In particular, the central diencephalic section of the brain (the centrencephalic system) was a sub-cortical system well connected with both hemispheres and was able to carry out complex integration of sensory and motor information with consciousness itself. Penfield acknowledged that all of the brain contributed to a person's conscious experience, but he thought that this particular area, the centrencephalic system, was indispensable for this process. Penfield envisioned the brain as a "vastly complicated master organ within the body that makes thought and consciousness possible. In its integrative and coordinating action, it resembles in many ways an electrical computer."<sup>44</sup> His mechanistic metaphor for the brain – the brain as a computer – stood in sharp contrast to his metaphysical concept of the mind: "To be useful, any computer must be programmed and operated by an external agent."<sup>45</sup> The mind was this external agent, the 'switchboard operator' that acted upon 'the switchboard' located in the centrencephalic system.<sup>46</sup> The mind was thus a form of energy that somehow attached itself to the body. Penfield was not clear on the mechanism of the interaction between this non-corporeal form of energy and the brain. He did not dispute the Darwinian evolution of the brain, but it seemed to him that the mind "develops and matures independently throughout an individual's life as though it were a continuing element."<sup>47</sup> This continuing existence suggested to him that the mind might endure on some other plane of existence after the brain ceases to work.

Although his model appears to come close to Descartes' dualism, Penfield insisted that Descartes had been wrong to localize the mind in the pineal gland and to theorize such a sharp division between the rest of the brain and the mind. Furthermore, Penfield constructed a version of dualism that contrasted Sherrington's on several essential points. First, Penfield argued that the centrencephalic system, rather than the cortex, was the locus of interaction between the mind and the brain. Secondly, Penfield visualized the mind as a type of energy,

43. *Ibid.*, 18.

44. *Ibid.*, 11.

45. *Ibid.*, 60.

46. W. Penfield, "The Cerebral Cortex and the Mind of Man," in *The Physical Basis of Mind*, ed. P. Laslett (Oxford: Basil Blackwell, [1950] 1968), 64.

47. Penfield, *supra* note 41, 80.

whereas Sherrington believed the mind to be an entirely different essence from anything physical, an essence which had evolved alongside the body. And finally, Sherrington's dualism was not predicated on the immortality of the mind, as Penfield sometimes suggested.

Penfield's dualism was influenced not only by Sherrington and by his own clinical experiences, but also by the interwar movement within mainstream Western medicine that sought to resist the reductionism and extreme reliance on technology that was seen to ensue from laboratory medicine and from the increasing encroachment of science on the practice of medicine. Notions such as the healing power of nature and the effect of the mind on the body (psychosomatic illness) gained widespread acceptance among physicians in Europe and North America. This movement was also a reaction against the scientism and positivism of the nineteenth century, and part of its holistic agenda was the desire to understand the social, biological, and physical components of disease, rather than to reduce disease to one pathogen or to any single such cause. The diagnostic and therapeutic emphasis was on the entire organism, rather than on the diseased organ alone.<sup>48</sup> The integrative view of the human body that resulted from this emphasis was undoubtedly partly influenced by Sherrington's own insistence that the most important function of the organism was integration: integration of received information, of motor output, of the nervous system, and of the general functioning of the entire organism.

All branches of medicine registered this holistic sweep in the interwar years, even bacteriology, which was often criticized as the most reductionistic of all the biological sciences. Ludwick Hirschfeld, for instance, called for a reconceptualization of the relationship between bacteria and their hosts, emphasizing the importance of "the susceptible individual."<sup>49</sup> Immunology reacted to reductionism by emphasizing the interaction between the body and the pathogenic micro-organism.<sup>50</sup>

48. C. Lawrence and G. Weisz, eds., *Greater than the Parts: Holism in Biomedicine, 1920–1950* (Oxford: Oxford University Press, 1998).

49. P. Keating, "Holistic Bacteriology: Ludwick Hirschfeld's Doctrine of Serogenesis between the Two World Wars," in *Greater than the Parts: Holism in Biomedicine, 1920–1950*, eds. C. Lawrence and G. Weisz (Oxford: Oxford University Press, 1998), 283–302.

50. I. Lowy, "The Terrain is All': Metchnikoff's Heritage at the Pasteur Institute, from Besredka's 'Antivirus' to Bardach's 'Orthobiotic Serum,'" in *Greater than the Parts: Holism in Biomedicine, 1920–1950*, eds. C. Lawrence and G. Weisz, (Oxford: Oxford University Press, 1998), 257–282.

Similarly, partly under the influence of Sherrington and his students, neurology discarded the nineteenth-century mechanistic model of the brain for a holism that stressed the global aspect of nervous function. And finally, many physicians still viewed the practice of medicine primarily as an art, and they embraced humanistic and holistic values in the treatment of patients. These physicians thought that medical training should aim at generalism rather than specialism and should instill broad cultural knowledge rather than technical know-how.<sup>51</sup> William Osler, who was Regius Professor of Medicine at Oxford between 1905 and 1919, represented the embodiment of such a well-cultured and sensitive practitioner of medicine.

Penfield studied medicine in this holistic climate, and it was his ambition to provide sophisticated care to his patients. At the institute that he founded, he worked to integrate various disciplines (biology, chemistry, neurology) and departments (medical imaging, laboratory testing) to address neurological illnesses in a complex manner. Similarly, the training he provided for his students concentrated on integrative, holistic issues rather than on reductionistic research problems. David H. Hubel, the 1981 Nobel Prize laureate in physiology who studied under Penfield, wrote that “in Montreal, the focus was on the entire nervous system, not on a subdivision of biological subject matter based on methods.”<sup>52</sup> Holism does not automatically imply dualism, but Penfield certainly took from holism the notion that the organism was a complex system and that not all of its parts and functions could be examined under the microscope in the laboratory. These notions probably contributed to Penfield’s embrace of mind-body dualism.

Finally, a distinction between the mind and the brain fits well with Penfield’s traditional values, and perhaps this is another reason why dualism appealed to him. Penfield was a conservative man, and he reacted rather emotionally when confronted with the liberalism of

51. C. Lawrence, “Incommunicable Knowledge: Science, Technology and the Clinical Art in Britain 1850–1914,” *Journal of Contemporary History* 20 (1985): 503–520.

52. D. H. Hubel, “Autobiography,” in *Les Prix Nobel. The Nobel Prizes 1981*, ed. W. Odelberg (Stockholm: Nobel Foundation, 1982). Also, <http://nobelprize.org/medicine/laureates/1981/hubel-autobio.html>.

the younger generation.<sup>53</sup> For instance, traditional values dictated that bodily desires dwelt below the lofty attributes of the mind, and a mind-body division satisfactorily explained such a distinction. Penfield wrote in his autobiography that “for a man – to fall in love is to find the companion he cannot bear to live without. Thus, primarily, it is not a thing of the body. It is, rather, a thing of the mind.”<sup>54</sup>

In the 1960s, Penfield became the first president of the Vanier Institute of the Family, a conservative foundation established by Governor-General Georges Vanier. In this position, he gave many lectures and wrote a monograph in which he decried the rise in drunkenness and promiscuity, and largely blamed women for a supposed breakdown in family values.<sup>55</sup> He also attempted to promote his version of mind-body dualism, and he argued that science did not “weaken the essential truths of faith and metaphysics.”<sup>56</sup>

Thus Penfield, influenced by Sherrington, by the professional climate which emphasized holism, and by his own conservative agenda, concluded that “it is easier to rationalize man’s being on the basis of two elements than on the basis of one.”<sup>57</sup> As I have shown, however, his dualism differed from that of his mentor, and it differed also from the dualism of some of his colleagues.

### **Eccles and Walshe: Other Shades of Dualism**

Several other of Sherrington’s students accepted mind-body dualism. The Australian physiologist Sir John Eccles and the British neurologist Sir Francis Walshe were vocal supporters of dualism and adapted their mentor’s philosophy to suit their own ideas. Eccles had been fascinated with the mind-body problem since his adolescence, and he pursued a career in the medical sciences partly to

53. In 1955 for instance, he attended a New York performance of Tennessee Williams’s *Cat on a Hot Tin Roof*, and was so outraged by the Pulitzer Prize-winning play that he could not sleep that night. He angrily wrote in his diary that “degradation is rising like a horrid river to wash away good things in our civilization. [...] Everything that is good is made of no account – the Church, family, children, affection, love, integrity: all laughed at...” [J. Lewis, *Something Hidden: A Biography of Wilder Penfield* (Toronto: Doubleday, 1981), 243.]

54. Penfield, *supra* note 17, 21.

55. W. Penfield, *Man and his Family* (Toronto: McClelland and Stewart Ltd, 1967).

56. Quoted in Lewis, *supra* note 53, 285.

57. Penfield, *supra* note 41, 114.

satisfy this interest.<sup>58</sup> His dualist model<sup>59</sup> relied heavily on science and mathematics.

Based on the exponential number of connections that each neuron establishes in the brain, Eccles calculated that the mind needed to come into direct contact with only four or five neurons in order to steer brain activation into various directions, as long as the general activation of the cortex exceeded a given threshold of background activation.<sup>60</sup> Eccles also borrowed the language of psychology and the concepts of neuronal networks and patterns of activation in the creation of his dualist model. He argued that the mind “modified the spatio-temporal ‘fields of influence’ that became effective through [the] unique detector function of the active cerebral cortex.”<sup>61</sup> In other words, the cortex had the property of detecting the mind, which in turn had the property of modifying the activation pattern of the cortex. Eccles thought that because this interaction between mind and brain occurred in a very short period of time (milliseconds) and involved a small number of neurons, it was virtually undetectable by the available technology.

Interestingly, Eccles’s model had features in common with both Sherrington’s and Penfield’s mind-body schemas. Like Penfield, Eccles believed that the mind was immortal and inhabited a different plane of existence (Eccles was Catholic and had a rich spiritual life). Like Sherrington, he believed that the mind was not energy, but a different essence altogether, and that the interaction with the brain happened in the cortex. Yet his model was quite different from Penfield’s, which he criticized on several occasions.<sup>62</sup> Eccles postulated the mind-brain interaction to take place in the cortex, and not, as Penfield was arguing, in the sub-cortical centrencephalic system.

58. J. Eccles, “Under the Spell of the Synapse,” in *The Neurosciences: Paths of Discovery*, eds. F. G. Worden, J. P. Swazey, and G. Adelman (Cambridge: MIT Press, 1975), 158–179.

59. Eccles was very involved in the mind-body problem, and throughout his long life (he died in 1997 at the age of 94) he constructed various models that he continued to update and modify. The model described here is limited to the time frame covered by this paper, roughly 1920 to 1975.

60. Eccles, *supra* note 9, 273–276.

61. *Ibid.*, 277.

62. J. Eccles and W. Feindel, *Wilder Graves Penfield*. N.p., n.d., 485–487 and 494–497.

Whereas Eccles emphasized scientific evidence, Sir Francis Walshe preferred to appeal to humanistic and holistic values and to clever logical arguments. In his elegant prose, he argued against what he perceived to be the absurdity of believing in the materialists' simplistic view of the mind. If "that simple country yokel, William Shakespeare" had lived in modern Chicago – Walshe reasoned sarcastically, taking a stab at American mechanists – and had been told that the emotions he was writing about were but "a simple matter of some feedback mechanisms in the cerebral cortex," then "what a deal of dreadfully unscientific poetry we might have been spared"!<sup>63</sup> Walshe affirmed the existence of a human soul that could not be interpreted in terms of neuronal networks, a soul which was immaterial, non-corporeal, and an integral part of a person's identity. Walshe, like Eccles, disputed Penfield's view of the mind, but for different reasons. Penfield's model came close to Cartesian dualism in its insistence of a specific part of the brain as a point of interaction between the mind and the brain. In 1957, Walshe wrote a scathing criticism of Penfield's centrencephalic hypothesis, and Penfield was once again forced to disclaim Descartes' dualism and to explain that in fact his theory of dualism gave the entire brain, including the cortex, a significant role to play in the expression of consciousness.<sup>64</sup>

Therefore, it is apparent that one of the reasons why dualism never became a dominant position among scientists in the second half of the twentieth century was the lack of consensus among the brain scientists who had followed in Sherrington's footsteps. Penfield, Eccles, and Walshe did not agree on a framework, but rather constructed their distinct brand of dualism, influenced by their mentor and by the climate of holism during the interwar years, but also by personal beliefs – religious, humanist, conservative. Since they squabbled over their respective dualist models, criticizing one another's positions, they presented a weak front against criticism from a younger generation of brain scientists who were schooled in the increasingly reductionist science of the second half of the twentieth century. In 1955, for instance, the American neuropsychologist Karl Lashley wrote that "there is a distressing revival of outmoded psychology among neurologists. Sir Fredric [sic] Walshe has come out for the *soul*, as did Sherrington in his senile days."<sup>65</sup>

63. F. Walshe, *Further Critical Studies in Neurology and other Essays* (London: E. & S. Livingstone Ltd, 1965), 167.

64. Eccles and Feindel, *supra* note 62, 486.

65. Quoted in Smith, *supra* note 19, 302.

## Conclusion

In a 1953 attack on the mechanist school of thought that was gaining increasing popularity among brain scientists in the second half of the twentieth century, Walshe wrote with his legendary caustic wit that “[the voice of the materialists] is the voice of the Peter Pan school of science, the exponents of which do not grow up, but are now always popping up before the footlights, beseeching us to believe in their electronic fairies, lest their naïve hypotheses die untimely.”<sup>66</sup> The materialists would have probably described Walshe and his fellow dualists in a similar manner – as dreamers under the spell of fairy tales. The scientific evidence used by the two camps was ambiguous enough – flexible enough – to support multiple interpretations, and thus the disagreement was purely ideological.

This essay has shown that as soon as important research on the brain began at the turn of the twentieth century, a group of leading brain scientists distanced itself from the nineteenth-century mechanistic approach to brain/mind function. Sherrington’s work on the integrative action of the nervous system, as well as his humanistic outlook, led him to a dualist philosophy of mind that emphasized the complexity of the mind-brain interaction. Situating his work in the greater narrative of the history of science and philosophy, he conceptualized the mind as an entity that was not physical in nature, but that had evolved alongside the body and was able to influence it at the level of the cerebral cortex.

Sherrington inspired several of his students. Penfield, Eccles, and Walshe, influenced also by their distinctive scientific and intellectual interests and values, articulated dualist theories of their own. The interwar period, during which ideas of holism had taken root in medicine, was an ideal, albeit brief, social and professional climate for these dualistic models. These brain scientists’ dualism did not have a lasting impact on their discipline, partly because their different forms of dualism precluded the raising of a unified front against materialism, and partly because the changing nature of scientific training led a younger generation of brain scientists to increased specialization and reductionism. But for several decades, between the mechanism of the nineteenth century and the reductionism of the second half of the twentieth, Sherrington, Penfield, Eccles, and Walshe appealed to the

66. Walshe, *supra* note 63, 175.

long tradition of dualist thinking going back to Aristotle, and they elevated the mind, once again, above matter.

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# The Case for Inclusive Education as a Social Determinant of Health

Kathryn Underwood

Inclusive education – the placement of students with disabilities<sup>1</sup> in regular education programs, in their home schools, with appropriate supports and accommodations<sup>2</sup> – is a growing practice in Canadian schools. Canadians have moved from totally segregated placements and institutionalization of people with disabilities to seeing the majority of students having primary placement in regular classrooms. Currently, the use of special education<sup>3</sup> placements for students with cognitive disabilities varies dramatically by province, from less than 15 per cent of students with cognitive disabilities on Prince Edward Island (PEI) to approximately 35 per cent in Ontario, and over 40 per cent in Newfoundland and Labrador<sup>4</sup>. Moreover, there are now dramatically fewer students in special programs than in the past. However, the nature of special education placements and programming remains the subject of much debate for education policy makers and legal experts. Some claim that support services outside the regular classroom are the only fair treatment for students with specific disabilities such as learning disabilities or deafness because these students cannot learn

1. The term disability in this paper refers to students who are accessing special education or who are getting additional support for learning difficulties. The cause of their learning difficulty could be biological or environmental. This broad interpretation of the term “disability” reflects the fact that within the school context many students experience barriers that they may not experience outside of school.

2. As outlined in UNESCO, *Salamanca Statement and Framework for Action* (1994).

3. “Special education programs” refers to special schools, special classes, or partial withdrawal from regular classes, i.e., any support program not taking place in the regular class.

4. Statistics Canada, *Youth in Transition Survey 2001*.

effectively in regular classes.<sup>5</sup> On the other hand, many claim that inclusive placement, or placement of all students in regular education classes regardless of disability or learning needs, is the only equitable treatment of students because segregation leads to social isolation and differential treatment, or even to a prejudice referred to as “ableism.” The term “inclusive education” has been widely interpreted and used to describe anything from students in special education placements in regular schools to placements in regular classes. True inclusion is more than just a placement. Students who feel socially isolated or who do not have appropriate accommodations in the classroom are not being included despite the fact that many school boards refer to placement in a regular class as “inclusive,” regardless of whether an appropriate program is in place for the student. The fact that inclusive policy is variable from one school jurisdiction to the next results in systemic inconsistencies with broad social implications for the status of students with disabilities and those identified as having disabling conditions.

I argue that including children with disabilities in regular classes with appropriate supports can lead to improved social and health outcomes for these students during their school years and beyond. I base this argument on three key points: first, education is a basic human right because of the benefits it affords, including access to the economic and social structures of society, as outlined in Article 26 of the Universal Declaration of Human Rights and Article 13 of the International Covenant on Social, Economic, and Cultural Rights; second, these benefits are best achieved in inclusive education systems that provide students with and without disabilities access to a wide range of quality teaching; and third, because inclusive education supports access to the benefits of education, it is likely to benefit the health status of people with disabilities both directly and indirectly. The arguments related to the practice of inclusive education fall broadly into two groups: the human rights arguments and the pedagogical arguments. I outline both as an introduction to the debates on inclusive education policy. I then highlight the links between the benefits of inclusive education and the social conditions known to affect health status, drawing evidence from

5. R. Barrow, “Inclusion vs. Fairness,” *Journal of Moral Education* 30, no.3 (2001): 235–242; J. M. Kauffman, “Commentary: Today’s Special Education and its Messages for Tomorrow,” *The Journal of Special Education* 32, no.4 (1999): 244–254; G. M. Sasso, “The Retreat from Inquiry and Knowledge in Special Education,” *The Journal of Special Education* 34, no.4, (2001): 178–193.

the literature on inclusive education and population health, as well as Canadian national survey data and anecdotal cases from my own research.

## **The Social Determinants of Health**

The theoretical framework I use to advance my argument is the social determinants of health, whereby the factors contributing to the health of groups of people rather than of individuals are explored. This research into population health has led to an understanding of the social and economic, rather than the biological, conditions that affect the health of individuals, communities, and nations – otherwise referred to as the social determinants of health.<sup>6</sup> Similar approaches are used in education research to understand the impact of social conditions of poverty, ethnicity, and linguistic minority status, but this approach has not been used to investigate the social outcomes experienced by students with disabilities in schools. A clinical approach to education practices for students with disabilities, with a focus on diagnostic assessment and rehabilitating student deficits, continues to dominate our education policy.

I argue that education, one of the social determinants of health, is most effective when it is designed to support the other social determinants. I will make a case that people who have had access to inclusive education in their childhood are more likely to experience improved social conditions, including better long-term health and access to health services through the associated benefits of reduced poverty, higher employment, and social inclusion. Evidence of the relationship between these variables will be determined through examining the literature on the health status of people with disabilities and on inclusive education. Definitions of disability in our schools vary by jurisdiction and I caution that any definition of disability is contextually specific, with a combination of pathological, social, and political causes. In this paper disability refers to the categories as defined by Canadian education systems.<sup>7</sup> In the

6. D. Raphael, ed., introduction to *Social Determinants of Health: Canadian Perspectives* (Toronto: Canadian Scholars Press, 2004).

7. For example, in Ontario there are 12 categories of disability identification known as “exceptionalities”. These are behaviour, giftedness, mild intellectual disability, developmental disability, physical disability, blindness and low vision, autism, deaf and hard-of-hearing, language impairment, learning disability, and multiple exceptionalities. (See S. Bennett and K. Wynne, “Special Education Transformation: Report of the Co-Chairs with the Recommendations of the Working Table on Special Education,” (2006), <http://www.edu.gov.on.ca/eng/document/reports/speced/transformation/transformation.pdf>.) Note that these categories/labels are not universally accepted.

next few sections I will outline accepted arguments in favour of inclusive education from a human rights perspective and from a pedagogical perspective.

### **Human Rights Arguments for Inclusion**

Canada is signatory to several international treaties and declarations that entrench and protect the right to non-discriminatory access to education for all children, including children with disabilities. First, the right to education is established in international human right law in the Universal Declaration of Human Rights, article 26, and in the International Covenant on Social, Economic, and Cultural Rights, article 13. In addition, the Convention on the Rights of the Child recognizes “the special needs of a disabled child, [...] to ensure that the disabled child has effective access to and receives education.”<sup>8</sup> In 1990, the World Declaration on Education for All was adopted at Jomtien, Thailand. This declaration states that “[t]he learning needs of the disabled demand special attention. Steps need to be taken to provide equal access to education to every category of disabled persons as an integral part of the education system.”<sup>9</sup> These treaties, ratified by Canada, have binding force in our courts. Moreover, in 1994, Canada, along with ninety-four other nations, signed UNESCO’s Salamanca Statement and Framework for Action, which states that “[e]ducational policies at all levels [...] should stipulate that children with disabilities should attend their neighbourhood school, that is, the school that they would attend if they did not have a disability.”<sup>10</sup>

There is, therefore, a clear international mandate to support inclusive education. Education is considered an inalienable right both because of its intrinsic value and because of its instrumental benefits in reducing poverty, increasing employment, and improving health. The human rights argument for inclusion holds that these benefits are more readily achieved in inclusive settings rather than in special education settings, as I will describe in detail in the next section.

The right to education is enshrined in Canadian law through the Canadian Charter on Rights and Freedoms (the Charter) and through

8. United Nations, *Convention on the Rights of the Child*, 1989 Article 23, <http://www.unhcr.ch/html/menu3/b/k2crc.htm>.

9. UNDP, UNESCO, UNICEF, World Bank (Inter-Agency Commission), *World Declaration on Education for All* (Jomtien, 1990), Article 3.

10. UNESCO, *supra* note 2, Article 18.

provincial human rights legislations. However, there are various interpretations of the educational rights of children with disabilities under these laws. First, the Charter guarantees that:

Every individual is equal before and under the law and has the right to the equal protection and benefit of the law without discrimination and, in particular, without discrimination based on race, national or ethnic origin, colour, religion, sex, age, or mental or physical disability. 15(1)

Although the Charter supports equal rights for people with disabilities, a major setback for inclusive education practice was incurred in the case of *Eaton v. Brant County Board of Education* (hereafter, *Eaton*).<sup>11</sup> In *Eaton* the parents of Emily Eaton, a student with multiple disabilities, fought a decision by a school board Special Education and Placement Review Committee, upheld by a provincial Special Education Tribunal, to remove Emily from an inclusive placement due to her increasing isolation from her peers. The Supreme Court of Canada acknowledged that inclusion should be the first choice of placement and that historically, people with disabilities have been treated unfairly and excluded from mainstream society. However, they ultimately found in favour of the school board, saying that it was in the “child’s best interest”<sup>12</sup> to be educated in a segregated environment. Ironically, during the course of the legal action Emily’s parents were able to secure an inclusive placement for her in a different school board.<sup>13</sup>

*Eaton*’s outcome was based on issues of location, but perhaps would have been decided differently had the case focused on the appropriateness of instructional practice and supports in place rather than on the location of the program. Whose responsibility is it if the inclusive placement is not working? The Ontario Human Rights Code<sup>14</sup> indicates that people with disabilities have a right to accommodation in

11. *Eaton v. Brant County Board of Education*, 1 S.C.R. 241 (1997).

12. *Eaton*, supra note 11, 79.

13. D. Lipofsky, “A Report Card on the Charter’s Guarantee of Equality Rights to Persons with Disabilities After 10 Years \_ What Progress? What Prospects?” *National Journal of Constitutional Law* 7, no.3 (1997): 263–431.

14. Ontario Human Rights Code, R.S.O. 1990, c.H.19.

public institutions and the Ontario Human Rights Commission has recently published several documents outlining what constitutes discrimination against students with disabilities in Ontario schools based on inadequate accommodation, and indicating the obligation for school staff to accommodate the needs of students with disabilities. Had these arguments been applied to *Eaton*, the family may have won on the basis that the school was not accommodating Emily in her regular class, accommodations deemed to be beneficial by a different school board.

Thus, international law supports inclusive education, as does Canada's Charter and the Supreme Court, despite the Court's specific holding in *Eaton* against inclusive placement for this particular student. It is critical to note that the Court explicitly acknowledged that inclusive education was a first priority, albeit not appropriate in this case. *Eaton* is therefore best understood in the light of the fact that 'the best interests of the child' (the basic principle for deciding children's rights) is always a contextual determination depending on the facts of each case, and that while this case didn't warrant it, the recognition of the principle is still valuable. Nonetheless, in spite of the *Eaton* case, the Ontario Human Rights Code may provide an interpretation of inclusiveness that will support the practice.

### **Pedagogical Arguments for Inclusion**

The human rights arguments for inclusive education are sometimes countered by arguments from a pedagogical perspective, which generally state that specialized support services in segregated placements are 'best practices,' resulting in better academic outcomes for students with disabilities and for other students, who are unencumbered by the presence of disabled students in regular classes.<sup>15</sup> Yet pedagogical research does support the human rights arguments for inclusive practice, illustrating that inclusion is good pedagogy for all students.

Over the past forty years, there has been a push in general education research to use indirect, discovery-oriented teaching that encourages constructivist learning. Briefly, this involves teachers using many

15. Kauffman, *supra* note 5, 244.

examples, frequent questioning, and dialogue, and encouraging students to integrate learning from one context into another. These strategies target higher-order thinking skills such as critical analysis and inferred meaning. On the other hand, special education researchers have focused on direct, intensive instruction using ‘transmissive’ teaching strategies that explicitly teach through rote memorization, repetition, and practice opportunities. One criticism of special education is its narrow scope of transmissive teaching, and research now indicates that a flexible combination of these two teaching strategies is important for both students with cognitive and learning disabilities<sup>16</sup> and for non-disabled students.<sup>17</sup> Thus, the best teachers for all students are flexible and opportunistic, and focus on students’ individual characteristics rather than on stereotypical characteristics such as disability labels.<sup>18</sup>

If the same teaching strategies are optimal for all students, then are these teaching strategies best implemented for disabled and non-disabled students at the same time, in the same classroom? One of the most frequently cited arguments against inclusion is that it reduces opportunities for non-disabled students to learn because a teacher’s time would be directed towards students with the most needs. However, research indicates this is not the case. The majority of studies that have looked at this issue have found that including students with disabilities either has no effect on the academic outcomes of non-disabled classmates<sup>19</sup> or has a slightly positive

16. B. Larivee, “Effective Teaching for Mainstreamed Students is Effective Teaching for All Students,” *TESE* 9, no.4 (1986): 173–179; L.S. Fuchs et al., “General Educators’ Specialized Adaptations for Students with Learning Disabilities,” *Exceptional Children* 61, no.5 (1995): 440–459.

17. L. Swanson and M. Hoskyn, “Experimental Intervention Research on Students with Learning Disabilities: A Meta-analysis of Treatment Outcomes,” *Review of Educational Research* 68, no.3 (1998): 277–321; S. Trent, A. Artiles, and C. Englert, “From Deficit Thinking to Social Constructivism: A Review of Theory, Research, and Practice in Special Education,” *Review of Educational Research* 23 (1998): 277–307.

18. J. Brophy, ed., introduction to *Social Constructivist Teaching: Affordances and Constraints*, 9 (Boston: JAI, 2002).

19. M.N. Sharpe, J.L. York, and J. Knight, “Effects of Inclusion on the Academic Performance of Classmates without Disabilities,” *Remedial and Special Education* 15, no.5 (1994): 281–287.



effect, such as improved social cohesion in the classroom.<sup>20</sup> Giangreco et al.<sup>21</sup> also found that parents of non-disabled students gave positive ratings to the effects on their children of having students with severe disabilities in their children's class.

Another argument against inclusion is that teachers do not have enough time to meet all the individual needs of students in their classes. My collaborative research suggests that teachers who can free up instructional time by reducing the time they spend on transitions, organization, and procedural activities are better at individualizing instruction for all students.<sup>22</sup> Thus, teachers who are good at accommodating students with disabilities are also the best teachers for other students. Similarly, Stanovich and Jordan<sup>23</sup> indicate that the presence of students with diverse learning needs in regular classes forces general education teachers to employ a wider set of teaching strategies, which also serves as professional development. The evidence thus suggests that diversity in learning ability in a classroom strengthens teachers' professional practice.

Finally, some argue that inclusion violates the rights of parents to choose the most appropriate education for their child. However, in Canadian national survey data of children with disabilities, three in ten parents report having difficulty accessing special education services for children with disabilities. Ironically, this difficulty seems to be less pronounced in provinces where the use of special education is lower (e.g., PEI). Moreover, parental perceptions of access to support for students with disabilities indicate that more specialized

20. A. Jordan and P. Stanovich, "The Beliefs and Practices of Canadian Teachers about Including Students with Special Needs in the Regular Elementary Classroom," *Exceptionality Education Canada* 14, no.2 and 3 (2004): 25–46.

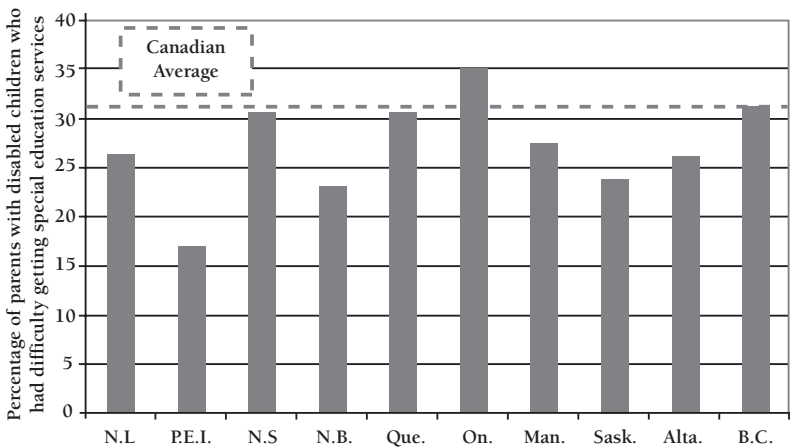
21. M.F. Giangreco et al., "My Child has a Classmate with Severe Disabilities: What Parents of Non-disabled Children Think about Full Inclusion," *Developmental Disabilities Bulletin* 21, no.1 (1993): 77–91.

22. D. McGhie-Richmond, K. Underwood, and A. Jordan, "The Acquisition of Effective Teaching in Inclusive Classrooms" (paper presented at the Inclusive and Supportive Education Congress, Glasgow, Scotland, August 2005).

23. P. Stanovich and A. Jordan, "Inclusion as Professional Development," *Exceptionality Education Canada* 14, no.2 and 3 (2004): 169–188.

services may not be serving students better (see Figure 1). I argue that these social and academic outcomes are reflective of the social indicators known as the social determinants of health.

*Figure 1: Difficulty accessing special education services as reported by parents (Figure compiled by Statistics Canada 2004, reproduced with permission. Source: Participation and Activity Limitation Survey, 2001).*



## **The Relationship Between Education and Health: Social Determinants**

Social circumstances are now a widely accepted determinant of population health. The Toronto Charter, developed for the Social Determinants of Health Across the Lifespan Conference at York University in December 2002 emphasizes several key determinants of health for Canadians: Aboriginal status, early life, education, employment and working conditions, food security, health care services, income and its distribution, social safety net, social exclusion, and unemployment and employment security.<sup>24</sup> These social determinants affect individuals across their lifespan as well as social groups through structural factors such as power, prestige, and access to resources, which determine health opportunities. Structural positions create specific determinants of individual health status through social and economic intermediaries such as housing, work, and psychosocial stress, and behavioural factors such as smoking. The indirect relationships

24. Raphael, *supra* note 6, 361–365.

between the social determinants are referred to as pathways to social determinants. There is also a feedback effect on the health system itself in which social determinants affect access to health care, which in turn affects the social determinants.<sup>25</sup>

Health and social status were selected as outcome variables for inclusive education in this paper because people with disabilities are more likely to live in poverty, be unemployed, have inadequate housing, experience social isolation, and experience poor health than non-disabled Canadians.<sup>26</sup> The reasons for health and social status inequities are complex but most researchers agree that education is one of the social determinants of health and social status.<sup>27</sup>

In addition, health and social status variables were used because people with disabilities are less likely to graduate from high school or post-secondary institutions or to be included in regular education systems, and are more likely to have low literacy skills, all of which are social determinants of health.<sup>28</sup> Disability status can be directly related to health status: for example, through chronic illness or genetic diversity that increases morbidity. However, disability may also have an indirect relationship to health status through social determinants (such as access to appropriate education, adequate employment, social supports, or housing), or the attitudes of health care professionals toward people with disabilities.

The influence of education and education policy is pervasive across the other social determinants of health, but as I illustrate below, education and health have a particularly strong influence on these other social determinants.<sup>29</sup> Education influences social status and position, which in turn influence health status through systemic mechanisms such as education and social pathways such as employment. There is potential here for a feedback effect for people with disabilities because

25. Raphael, *supra* note 6, 1–17; World Health Organization, “*Conceptual Framework on Social Determinants*.”

26. Statistics Canada, *supra* note 4.

27. Raphael, *supra* note 6; S.R. Leeder and A. Dominello, “Health Inequality and Intellectual Disability,” *Journal of Research in Intellectual Disability* 18 (2005): 97–100; World Health Organization, *supra* note 25.

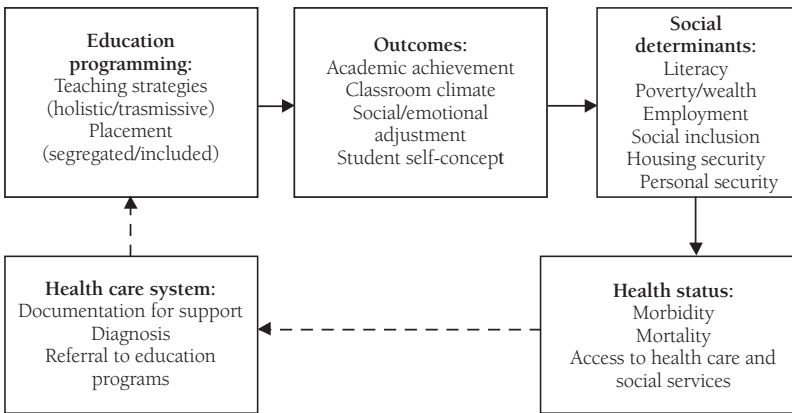
28. Statistics Canada, “Children with Special Needs in Canada” (presentation to the Canadian Education Statistics Council, March 2004).

29. A. Sen, *Development as Freedom* (New York: Knopf, 1999).

healthcare professionals influence the beliefs of parents and teachers, as well as the identification and placement of students in education programs. For example, medical documentation is often required by schools in order for students to get educational support. Thus, if health status changes during the school years, access to school programs may be affected. Further, across a lifespan, access to other programs such as training in the workplace or other social supports may be affected. Figure 2 illustrates these relationships.

Education is part of the life-course perspective of social determinants, whereby early life influences educational experiences, which in turn influence employment and social inclusion. The materialist approach to social determinants emphasizes socio-economic status (SES) as underlying all other social determinants,<sup>30</sup> and suggests that while individual educational attainment leads to higher SES, the relationship is cyclical because the SES of families and neighbourhoods influences the likelihood of individual educational attainment. For people with disabilities the type of education accessed (determined by education policy) affects the degree to which education impacts other social outcomes such as literacy and numeracy skill levels, social inclusion, and employment opportunities. Figure 2 shows a reductionist view of the complex social relationship between education and health. Solid lines in the figure indicate relationships established in the literature. Dotted lines indicate theoretical relationships evident in policy and anecdotal studies.

Figure 2: The relationship between education and health.



30. World Health Organization, supra note 25.

## The Social Determinants:

### Literacy

Inclusive education has a clear, beneficial impact on literacy levels. While educational attainment is often measured by grade levels, education as a social determinant of health is related to the quality and type of education received and the benefits that an appropriate and good quality education affords. According to Ronson and Rootman, “literacy skills predict health status more accurately than education level, income, ethnic background, or any other socio-demographic variable”.<sup>31</sup> They warn that this indicates the potential for serious error bias in measuring education levels alone as a social determinant. Thus, not only access to education but the benefit of education (such as literacy) is important in predicting educational outcomes throughout the course of life. Literacy skills directly affect access to employment and employability, as well as indirectly, social inclusion, housing/food security, and experiences of violence. Furthermore, literacy levels are associated with improved social, economic, educational, and health outcomes.<sup>32</sup> In addition, Murray states that essential skills such as literacy improve individuals’ adaptability and their ability to shape their environment. Data from Statistics Canada on literacy levels of fifteen-year-olds across the country show that the gap in literacy levels is highest between students with no disability and students with cognitive/emotional disabilities in provinces offering the most special education services.<sup>33</sup> The gaps are illustrated in Figure 3 and when compared to the data on provincial use of special education services, they suggest that provinces using the most special schools and classes have the biggest literacy gap between those with disabilities and those without. For example, in Newfoundland and Labrador, approximately 42 per cent of students with disabilities are in special education programs and this province has the largest gap in literacy between students with cognitive disabilities and those without, of any province in

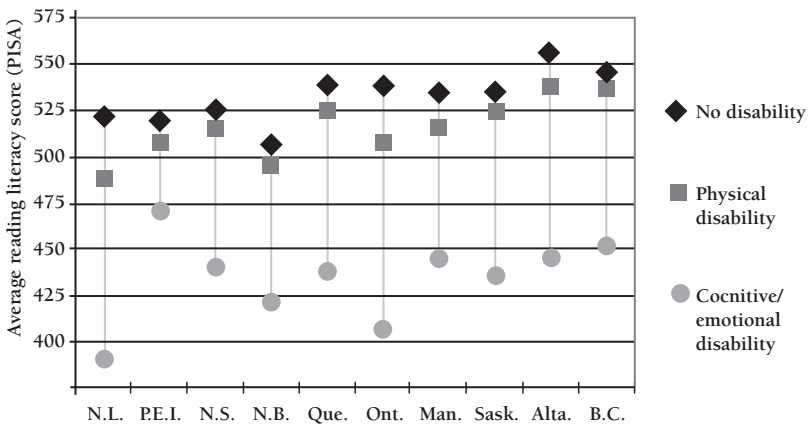
31. B. Ronson and I. Rootman, “Literacy: One of the Most Important Determinants of Health Today,” in *Social Determinants of Health: Canadian Perspectives*, ed. Dennis Raphael (Toronto: Canadian Scholars Press, 2004), 155.

32. S. T. Murray, “Literacy as a Key to Social and Economic Development: Findings from the International Adult Literacy Survey (IALS),” (presentation to Competitiveness-Innovation-Human Resources: CEI Countries in Global Perspectives, Prague, Czech Republic, April 2005), <http://www.nvf.cz/cei/murray.pdf>.

33. Statistics Canada, *supra* note 28.

the country. The second largest gap is found in Ontario, where approximately 35 per cent of students with disabilities are in special education programs. On the other hand, in PEI, where special education classes are used the least (for only 13 per cent of students with disabilities), there is the narrowest gap in literacy between students with disabilities and students without. It is interesting to note the variability amongst provinces is much less pronounced for students without disabilities than for those with disabilities. This evidence of increased gaps in literacy levels when non-inclusive educational practices are used is consistent with evidence found in small-scale comparative studies of inclusive and special education programs. These show that academic outcomes are better or equivalent in inclusive placements. Several of these studies are described below.

Figure 3: Literacy levels by province (Figure compiled by Statistics Canada 2004, reproduced with permission. Source: Youth in Transition Survey/Programme for International Student Assessment 2000).



What are the benefits of inclusive education for students with disabilities? Several studies across nations and across high schools and elementary schools indicate that students with disabilities do not do as well in school as their non-disabled counterparts.<sup>34</sup> However, there is ample evidence that indicates that students with disabilities in inclusive placements leave school with more marketable skills than their counterparts in special education programs. The reason for the

34. F. Armstrong and L. Barton, eds. *Disability, Human Rights and Education* (Buckingham: Open University Press, 1999).

disparity in skill levels between students in inclusive and segregated placements might be attributed to the ability level of the students, since it is reasonable to assume that higher-level students are more likely to be placed in regular classrooms. But controlled studies indicate that the discrepancy can also be accounted for by access to a combination of teaching strategies (both holistic and transmissive, as described earlier) in regular classrooms, and by instruction being less adapted to individual learning needs in special education classrooms. For example, Hunt et al.<sup>35</sup> found that regular classrooms are more peer-oriented, with more academic and engaged time for students with severe disabilities than special education classes. Centre and Curry<sup>36</sup> found better academic and social benefits for students with mild intellectual disability in inclusive placements. Eshel et al.<sup>37</sup> in an Israeli study, matched thirty-three special education students in elementary and secondary grades to thirty-four students in regular education by IQ scores. The study was controlled for socio-economic status and curriculum. The researchers found that students' self-concept of their own academic abilities as well as teachers' ratings for motivation and academic ability were better for included students in the elementary classes, and that there was better academic performance for included students in the secondary grades. Eshel et al. concluded that the main advantage of special education was an organizational one, serving the school administration more than the students. Finally, Vaughan, Moody, and Schumm<sup>38</sup> found that students with learning disabilities had greater skill in social functioning when included in regular classes. Thus, research indicates that with appropriate support, educational (and associated social) benefits are best achieved in inclusive classrooms.

35. P. Hunt et al., "Evaluating the Effects of Placement on Students with Severe Disabilities in General Education versus Special Education," *Journal of the Association of Persons with Severe Disabilities (JASH)* 19, no.3 (1994): 200–214.

36. Y. Centre and C. Curry, "A Feasibility Study of a Full Integration Model Developed for a Group of Students Classified as Moderately Intellectually Disabled," *International Journal of Disability, Development and Education* 40, no.3 (1993): 217–235.

37. Y. Eshel et al., "Mainstreamed or Self-contained Classes for Students with Mild Learning Disabilities: The Case of Israel," *International Journal of Disability, Development and Education* 41, no.3 (1994): 185–200.

38. S. Vaughan, S. Watson Moody, and J. Shay Schumm, "Broken Promises: Reading Instruction in the Resource Room," *Exceptional Children* 64, no.2 (1998): 211–225.

## Income Security and Employment

As noted, literacy levels affect employability and employment status. Education levels are widely accepted as predictors of income and employment rates, but as the literacy studies indicate, it is the skills actually learned in school that have the greatest impact on social status and inclusion in society. Studies from several industrialized countries indicate that students in special education programs leave school with fewer marketable qualifications and skills.<sup>39</sup> The magnitude of exclusion in the market force for adults with disabilities is staggering: approximately 50 per cent of disabled adults in Canada are unemployed. Some argue that this is because disabled adults are 'unable' to perform work, but sociological analysis reveals a much more complex set of causes including discrimination by employers, discrepancies in marketable skills coming out of school, and smaller social networks for finding employment. Support for these claims is described below.

Using data from the Survey of Labour and Income Dynamics (SLID), the Canadian Council on Social Development analyzed wage patterns and employment patterns for people with disabilities compared to non-disabled workers. Their analysis indicates that people with disabilities in Canada are less likely to have paid and stable employment than those without disabilities. Workers with disabilities are more affected by fluctuations in the economy and they are less economically mobile than those without disabilities. However, economic security for people with disabilities increases if they start in a higher wage bracket and if they have higher educational levels. So although people with disabilities are less likely to be employed and have less stability when they are employed than their non-disabled counterparts, this discrepancy is mitigated to some degree by their level of education.<sup>40</sup>

Thus, while education improves opportunities for employment, it also affects the type of employment and the security of that employment. While there is a wage gap between workers with and without disabilities across all age groups and all education levels, there is the narrowest gap where workers have post-secondary education. Further, the more education people have, the more likely they are to receive on-the-job training; this is particularly true for people with

39. Armstrong and Barton, *supra* note 34.

40. Canadian Council on Social Development, *Disability Information Sheet*, no.5 (2002).



disabilities.<sup>41</sup> This means that education has a greater impact on workers with disabilities than on those without. Indeed, most factors contributing to wage disparity were more influential for workers with disabilities: in addition to education levels, these include part-time or full-time employment, seasonal or contract employment, sex, and the stability of the economy overall. Workers with disabilities are also more likely to feel overqualified for their jobs. Unfortunately, even with a university education, workers with disabilities are not getting equal treatment in the workplace with regard to wages and access to training.<sup>42</sup> On the other hand, when asked whether or not they were affected (either positively or negatively) by technological change in the workplace, people with disabilities were slightly less likely (34 per cent) to report being affected than their non-disabled counterparts (37 per cent).<sup>43</sup> Therefore, even though the marketplace is less stable for people with disabilities than for those without, people with disabilities may provide increased stability to the marketplace.

Employment is particularly influential as a social determinant of health since it not only has obvious links to socio-economic status but also enables social integration. These factors have inter-related influence: for example, people with jobs are more likely to form good social networks, but people with good social networks are also more likely to access jobs, and the education system is one important place where people form social networks.

Many parents of students who are failing in school understand the tacit link between school failure and employment, and they are deeply concerned about whether their children will obtain paid, independent work when they leave school. The parent of a student with fetal alcohol syndrome described to me the future she saw for her adopted daughter if the school continued to allow her to pass without providing appropriate support. The student in this case was in a full-time special education placement.

How's she gonna go anywhere in life if they're gonna keep passing her to these grades. And when she gets to grade 12, and she doesn't know

41. Canadian Council on Social Development, *Disability Information Sheet*, no.4 (2002).

42. Canadian Council on Social Development, *Disability Information Sheet*, no.4 and 8 (2002).

43. Canadian Council on Social Development, *Disability Information Sheet*, no.8 (2002).

anything... That's why a lot of kids are found alone on welfare and getting pregnant, because they're not getting the proper education that they should be getting.<sup>44</sup>

Although holding the student back a grade may not achieve the outcome the mother was hoping for, if this student's learning difficulties continued to be unresolved, her mother felt she would not learn the skills she needed to find work. This student was being educated in a regular classroom but without appropriate supports, and she was therefore not being included in accessing the curriculum for her grade.

### **Social Exclusion**

Social inclusion during the school years is important for healthy development and for learning, but students with disabilities are more likely to be excluded from social networks in school and thus feel more isolated than their non-disabled peers.<sup>45</sup> Parents with disabled children indicate that one of their biggest reasons when deciding to put their child in a special education classroom is to encourage friendships with other students who are developmentally similar to their own children. In fact, social relationships and self-esteem were among the biggest concerns for parents in my study of parent and teacher beliefs about educational barriers for students with disabilities.<sup>46</sup> But several studies indicate that students in inclusive placements are more socially connected than those who are in special education classes. Meadows et al.<sup>47</sup> found that students with severe behavioural disorders were more aggressive, less self-controlled, and more withdrawn in special education classes. Vaughan et al.<sup>48</sup> found that social function for students with learning disabilities was better in inclusive classes compared to that of their counterparts in special education settings, and that there was little individualized instruction in special education

44. Interview by author, 6 March 2002.

45. Canadian Council on Social Development, *Disability Information Sheet*, no.11 (2003).

46. K. Underwood, "Teacher and Parent Beliefs about Barriers to Learning for Students with Disabilities: An Analysis of Theory and Practice," (Ph.D. diss., University of Toronto, 2006).

47. N. B. Meadows et al., "Academic Performance, Social Competence, and Mainstream Accommodations: A Look at Mainstreamed and Nonmainstreamed Students with Serious Behavioural Disorders," *Behavioural Disorders* 3, no.19 (1994): 170-180.

48. Vaughan et al., *supra* note 38.

classes for students with learning disabilities. The other important component of inclusion is the function it serves in breaking down discriminatory attitudes in our society as a whole. Giangreco et al.<sup>49</sup> found that parents of non-disabled students who had a disabled classmate reported this to be a positive experience that contributed to their child's growth and richness of experience. Disability advocates have long argued that inclusion is important for its academic benefit and is also a starting point for inclusion in all aspects of society.<sup>50</sup>

The importance of developing social relationships at school is evident. In one case I studied, the student's school experience illustrated the social benefits of inclusion not only for him but also for his peers. This student had autism and significant communication difficulties. Due to his difficulty communicating, his mother assumed he could not go to Junior Kindergarten at age four like his older siblings had done, and kept him in nursery school for an extra year because she did not know what to do with him. One day, while dropping her older children off at school, a teacher asked her when her youngest son would be coming to their school. She sent him the next year to Senior Kindergarten and she says about his peers:

[T]he kids have always been amazing. Amazing. They have, you know, been with him pretty much from day one, other than JK. I think not only is this a plus for him, it's a real plus for all the kids that he's grown up with, because I think they've learned a lot. And they've grown a lot through that too. They are fantastic.<sup>51</sup>

In Canada, people with disabilities are more likely to have smaller social networks. They report lower levels of social support, emotional and informational support, and affection.<sup>52</sup> Having a job mitigates this, and although social supports for workers with disabilities do not equal those for workers without disabilities, having a job increases the number of social supports available to people with disabilities. Forty per cent of people with disabilities who are working report having social support some of the time, while only 30 per cent of those not working report social supports most of the time. Fifty-three per cent

49. Giangreco et al., supra note 21.

50. Armstrong and Barton, supra note 34.

51. Interview by author, 22 April 2002.

52. Canadian Council on Social Development, *Disability Information Sheet*, no.9 (2003).

of people with disabilities who work feel affection all of the time, whereas only 44 per cent of people with disabilities who do not work feel the same level of affection.<sup>53</sup>

Special education has been deeply implicated in the oppression of people with disabilities by excluding them from the economic and social systems enjoyed by the majority. This is documented throughout the critical disability literature in qualitative studies and in first-person accounts of special education.<sup>54</sup> The data on social exclusion in Canadian schools show that students with disabilities feel more socially isolated and are bullied more than their peers.<sup>55</sup> However, work by Jordan and Stanovich indicates that teachers who believe disabled students have the right to be educated in regular classrooms and who take responsibility for their learning, tend to have classes with increased social closeness, and their students with disabilities have more friendships.<sup>56</sup>

The life-historical approach to understanding social exclusion indicates that the earlier students are excluded the more likely they are to remain excluded; it is a “deepening and cumulative process that begins early in childhood, when children are adopting the values, norms and particular forms of action with the help of which they will grow up and integrate into society”.<sup>57</sup> Thus, inclusive education policy supports social integration in school, which in turn supports social networks that can aid employment. Employment can improve social networks, which is a predictor of good health. The cyclical nature of inclusion across the lifespan is evident.

## Health

Finally, it is critical that we think about the social contributors to health outcomes for people with disabilities in Canada. To begin with, Canadians with disabilities are much less likely to report having

53. Ibid.

54. M. Oliver, *Understanding Disability: From Theory to Practice* (New York: St. Martin's Press, 1996); C. Barnes and G. Mercer, *Disability* (Cambridge: Polity Press, 2003).

55. Canadian Council on Social Development, *Disability Information Sheet*, no.10 (2003); Jordan and Stanovich, *supra* note 20.

56. Jordan and Stanovich, *supra* note 20.

57. M. Jahnukainen and T. Jarvinen, “Risk Factors and Survival Routes: Social Exclusion as a Life-Historical Phenomenon,” *Disability & Society* 20, no.6 (2005): 671, 669–682.

excellent or very good health, 30.6 per cent, compared to non-disabled Canadians, 76.2 per cent.<sup>58</sup> Moreover, people with disabilities have a harder time accessing health care services despite being less healthy than most Canadians: 14.6 per cent of people with disabilities report difficulty accessing health care services while only 3.9 per cent of non-disabled Canadians report difficulty accessing health care.<sup>59</sup> These findings are similar to the statistics on the health of people with disabilities in the United Kingdom, as reported by Ruddick and Oliver.<sup>60</sup>

Oulette-Kuntz<sup>61</sup> has documented disparities in access between people with disabilities and people without disabilities to such health care services as dental care, preventative care, and health promotion in Ontario. Disparities in the level of health promotion activities that individuals with disabilities engage in (such as dental hygiene, physical activity, vaccination, regular checkups, and hearing and vision tests) are indicators of the behavioural practices that may contribute to health disparities between people with intellectual disabilities and the rest of the population.<sup>62</sup> Oulette-Kuntz found that 25 per cent of Ontarians with intellectual disabilities have unmet dental care needs and significantly under-diagnosed medical conditions. She attributes this to the ability level of individuals (e.g., literacy), attitudes of health care practitioners, and the social context of economic and social inclusion. These factors have all been linked to inclusive education practices earlier in this paper.

Three other social determinants of health linked to education, employment, and social inclusion are housing security, food security, and personal security, all of which are disproportionately lower for people with disabilities than for non-disabled Canadians.<sup>63</sup> Both employment and income security are best achieved through inclusive programs for students with disabilities and have a documented and

58. Canadian Council on Social Development, *supra* note 52.

59. *Ibid.*

60. H. Oulette-Kuntz, "Understanding Health Disparities Faced by People with Intellectual Disabilities," *Journal of Applied Research in Intellectual Disability* 18 (2005): 113–121.

61. *Ibid.*

62. *Ibid.*

63. Canadian Council on Social Development, *supra* note 55.

direct relationship to housing and food security.<sup>64</sup> However, personal security, defined as living free of the threat of violence and/or abuse, is a more complex issue. Although personal security is not listed in the Toronto Charter as a key social determinant of health for Canadians, it is of particular concern for people with disabilities because violence and abuse can directly affect health through physical trauma as well as through stress. Ronson and Rootman<sup>65</sup> note that violence and abuse are “key threats to learning capacity,” thus creating barriers to academic attainment. It is estimated that people with disabilities in Canada are two to five times more likely than their non-disabled counterparts to be victims of rape or sexual abuse, physical violence, neglect, or unwanted care such as medication and institutionalization.<sup>66</sup> People with disabilities are often dependent on others for support, which leaves them more vulnerable to abuse and violence. Recommendations for prevention of violence and abuse include creating social networks and independent income for those at risk, both of which I have connected to inclusive education practice. Furthermore, high quality education itself can lead to a better understanding of appropriate sexual relationships and of relationships with power differentials.<sup>67</sup>

## Conclusion

I have illustrated the links between education programming for students with disabilities and the broader social determinants of health. There is preliminary empirical evidence that inclusive practice leads to higher achievement in literacy and better social integration. There are also compelling human rights arguments to support inclusive education practice, including international and domestic legal obligations that indicate we should be tracking the broad implications of inclusion policy. Understanding education policy from a population perspective that incorporates the theoretical framework of the social determinants of health helps us to understand the place of education policy amongst other social phenomena.

64. Raphael, *supra* note 6.

65. Raphael, *supra* note 6.

66. L'Institut Roehrer Institute, *Harm's Way* (Toronto: L'Institut Roehrer Institute, 1995); D. Sobsey, *Violence and Abuse in the Lives of People with Disabilities: The End of Silent Acceptance?* (Baltimore: Paul Brookes, 1994).

67. *Ibid.*

Education is a basic human right because of the benefits it affords, which include access to the economic and social resources of society. Inclusive practice assumes that people with disabilities are a part of the economy and the social network of a society rather than separate from society. Moreover, better academic and social outcomes in inclusive placements prepare both disabled and non-disabled students for their roles in a diverse society. Thus, the benefits of education are best achieved in inclusive systems that provide students with and without disabilities access to a wide range of quality teaching. Finally, inclusive education is likely to have both direct benefits on the health status of people with disabilities and indirect contributions to improved population health through positively influencing other social determinants such as literacy, employment, income stability, and social inclusion.

What does this mean for health policy? In addition to providing a more fine-grained analysis of education as a social determinant, this research gives some warning for health care professionals who are part of the service delivery model of identification of disabilities and referrals to educational programs. It is important for health care professionals to understand the implications of these types of programs and referrals for the educational outcomes of disabled children, as well as for population health, which they are professionally obliged to consider. This approach suggests that special education research should consider the broad social context of schooling, and therefore also has implications for education policy research in general.<sup>68</sup>

68. Raphael, *supra* note 6.

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# Theorizing Environmental Justice: Environment as a Social Determinant of Health

Kate Parizeau

## **Introduction**

All over the world, there are people who earn money by sorting through waste to find items that have resale value or that can be reused. It has been estimated that up to 2 per cent of the population of Asia and Latin America earn their living through waste picking.<sup>1</sup> These ‘waste pickers’ are highly vulnerable to a number of social and economic hazards. In many cases (and particularly in the developing world), waste pickers are socially marginalized because of their poverty, and denigrated because of their association with waste.<sup>2</sup> Furedy has commented that “it is very difficult for these workers to change their status[...]They suffer severe social stigma.”<sup>3</sup> Waste pickers' status as informal or illegal workers can also make them vulnerable to abuse and extortion from police and other authority figures.<sup>4</sup> Additionally, waste pickers are exposed to numerous health risks that they encounter in their work environments, including disease exposure,

1. C. Bartone, “The Value in Wastes,” *Decade Watch* September (1988): 3–4.

2. R. Assaad, “Formalizing the Informal? The Transformation of Cairo’s Refuse Collection System,” *Journal of Planning Education and Research* 16 (1996): 115–126; M.E. Kaseva and S.K. Gupta, “Recycling – An Environmentally Friendly and Income Generating Activity Towards Sustainable Solid Waste Management. Case Study – Dar es Salaam City, Tanzania,” *Resources, Conservation and Recycling* 17 (1996): 299–309.

3. C. Furedy, “Solid Wastes in the Waste Economy: Socio-Cultural Aspects,” *The Urban Waste Economy in Vietnam, Publication Series Report No.3*, University of Toronto (1994): 6.

4. J. Rouse and M. Ali, *Waste Pickers in Dhaka – Using the Sustainable Livelihoods Approach, Key Findings and Field Notes* (Loughborough: WEDC, 2001); C. Hunt, “Child Waste Pickers in India: The Occupation and its Health Risks,” *Environment and Urbanization* 8, no.2 (1996): 111–118.

chemical inhalation, infection, parasite contraction, physical injury, and animal bites.<sup>5</sup> The exposure to pollutants and disease agents in waste-picking is exacerbated because waste pickers rarely use protective equipment in their work.<sup>6</sup> In addition to the multiple exposures waste pickers face in their work environments, many are also exposed to a number of environmental health risks in their homes. Because of the high rates of poverty among waste pickers,<sup>7</sup> many live in poor quality housing where access to safe water supplies, wastewater systems, and solid waste disposal can be uncertain.<sup>8</sup>

Interestingly, much of the research conducted on waste pickers focuses on social and economic marginalization, but not on health-related issues. The health research that does exist is not very thorough, and often focuses on only one particular health outcome (for example, instances of intestinal parasites).<sup>9</sup> As Hunt has noted in her review of the literature on health threats facing child waste pickers, much of the existing research consists of grey literature and studies conducted with small samples; the results of this work may not be of the highest quality.<sup>10</sup> Furthermore, the existing research on waste pickers' health often does not address the social determinants of health. I plan to study waste pickers' vulnerability to environmental health risks in urban Argentina, with a view to answering how socio-economic factors affect waste pickers' exposure to, identification of, and practice of coping with environmental health risks.

5. H. Castillo Berthier, *La Sociedad de la Basura: Caciquismo Urbano en la Ciudad de Mexico*, 2nd ed. (Mexico: UNAM, 1990); S. Cointreau-Levine, "Solid Waste," in *International Occupational and Environmental Medicine*, ed. J. Herzstein, W. Burn, and L. Fleming (St. Louis: Mosby Inc., 1998); Hunt, *supra* note 4; N. Kungskulniti, "Case Study of a Solid Waste Scavenger Community with Respect to Health and Environment" (Ph.D. diss., University of Hawaii, 1991).

6. H. Nguyen et al., "Health & Social Needs of Waste Pickers in Vietnam" (Research paper, University of Toronto, 2003).

7. Nguyen et al., *supra* note 7; Rouse and Ali, *supra* note 4; C. Hunt, *supra* note 4.

8. E. Crane and A. Danieri, "Measuring Access to Basic Services in Global Cities: Descriptive and Behavioural Approaches," *Journal of the American Planning Association* 62, no.2 (1996): 203–221.

9. C. Auer, "Health Status of Children Living in a Squatter Area of Manila, Philippines, with Particular Emphasis on Intestinal Parasitoses," *Southeast Asian Journal of Tropical Medicine and Public Health* 21, no. 2 (1990): 289–300.

10. C. Hunt, "A Review of the Health Hazards Associated with the Occupation of Waste Picking for Children," *International Journal of Adolescent Medicine & Health* 13, no. 3 (2001): 177–189.

In this paper, I will discuss various literatures that inform my research question, including writings on environmental justice, environmental health, urban political ecology, and social capital. I will explore the potential for using urban political ecology to better theorize the concept of environmental justice, and for understanding how environmental issues can be understood as social determinants of health. These sections form my theoretical approach to investigating how socio-economic factors affect waste pickers' exposure to environmental health risks. This paper also reviews how social networks can affect environmental health. The literature suggests that social networks can influence health-related behaviours, provide access to a wide range of resources, and offer emotional support in difficult times. I suggest that waste pickers may also use social networks to identify and cope with environmental health threats (for example, by taking collective action to improve their situations). As an element of my analysis, I have constructed a schematic understanding of the dynamic factors affecting waste pickers' health and well-being, presented in figures throughout the paper.

### **Contributions to the Literature**

My research will observe interactions between social marginalization and environmental health; indeed, a number of authors have advocated increased data collection on the intersection of these topics in the developing world.<sup>11</sup> I hope to contribute to the literature in a range of fields, including the following: environmental health and health and place (discussed below); critical development studies; and emerging discussions on the intersections between justice and environment at different scales of interaction (i.e., from the micro-scales of one person's body or interpersonal relationships to the macro-scales of international relations, and the many levels of interaction in between. These concepts will be discussed further below).

11. K. Coit, "The Mismatch Between Politics, Aid and Environmental Health with Particular Reference to Cholera in Madagascar," *Environment and Urbanization* 14, no.1 (2002): 247–259; D. Lamba, "The Forgotten Half: Environmental Health in Nairobi's Poverty Areas," *Environment and Urbanization* 6, no.1 (1994): 164–173; E. Wasserman, "Environment, Health, and Gender in Latin America: Trends and Research Issues," *Environmental Research* 80 Section A (1999): 253–273.

I also hope that my work will contribute to a discussion of social capital and environmental risks. There is some literature on the theoretical connections between social capital and environmental awareness,<sup>12</sup> and there has been some empirical research into social capital and involvement in environmental management projects in the developing world.<sup>13</sup> However, there has been little research into the effects of social capital on environmental health in a situation of protracted poverty. My research will attempt to address this gap in the literature.

The concept of environmental justice is a central construct in my investigation of the differential environmental health threats experienced by waste pickers. I will begin with an exploration of this concept and its theoretical relevance to environmental health research.

### **Environmental Justice: Contributions and Limitations**

Numerous accounts have been written of the environmental justice movement that began in the United States in the 1980s.<sup>14</sup> In direct contrast to mainstream environmentalism, whose advocates are usually male, middle-class, and white, the environmental justice movement is primarily composed of women, the poor, and people of colour; questions of power and inequality are therefore important elements of this movement.<sup>15</sup> Although the environmental justice movement has

12. W. Pretty and H. Ward, "Social Capital and the Environment," *World Development* 29 (2001): 209–227; F. Magno, "Forest Devolution and Social Capital: State-civil Relations in the Philippines," *Environmental History* 6, no.2 (2001): 264–286; T. White, "The Emergence and Evolution of Collective Action: Lessons from Watershed Management in Haiti," *World Development* 23, no.10 (1995): 1683–1698.

13. A. Daniere, L. Takahashi, and A. NaRanong, "Social Capital, Networks and Community Environments in Bangkok, Thailand," *Growth and Change* 33, no.4 (2002): 453–484.

14. J. Agyeman, R. Bullard, and B. Evans, "Exploring the Nexus: Bringing Together Sustainability, Environmental Justice and Equity," *Space and Polity* 6 (2002): 77–90; A. Debanné and R. Keil, "Multiple Disconnections: Environmental Justice and Urban Water in Canada and South Africa," *Space and Polity* 8, no.2 (2004): 209–225; DiChiro, "Nature as Community: The Convergence of Environment and Social Justice," in *Uncommon Ground: Toward Reinventing Nature*, ed. W. Cronon (New York: W.W. Norton & Co., 1995); R. Holifield, "Defining Environmental Justice and Environmental Racism," *Urban Geography* 22 (2001): 78–90; J. Martínez-Alier, "Scale, Environmental Justice and Unsustainable Cities," *Capitalism, Nature, and Society* 14, no.4 (2003): 43–63; L. Pulido, "Environmental Justice," in *The Dictionary of Human Geography*, 4th ed., ed. R.J. Johnston, D. Gregory, G. Pratt, and M. Watts (Oxford: Blackwell Publishing, 2000).

15. DiChiro, supra note 14.

been concentrated in the United States, it is beginning now to grow around the world.<sup>16</sup>

A number of authors have observed that environmental issues tend to have a disproportionate impact on marginalized communities.<sup>17</sup> Di Chiro positions the environmental justice movement as a transformative reconceptualization of the environment as the place of human habitat.<sup>18</sup> This movement has shifted the focus of environmentalism from the power dynamics between people and nature to the dynamics that exist between different groups of people, as played out in the environments where we live and work. Pulido states, "...in effect, the environmental justice movement is an attempt to broaden the definition and scope of environmentalism to include the basic needs of poor and politically less powerful groups."<sup>19</sup>

One of the strengths of the environmental justice movement is its responsiveness to local conditions. Using case studies of water management in Canada and South Africa, Debbané and Keil demonstrate that environmental justice is not a universal concept, but that "injustice perceptions and justice demands are constructed through relative, scale-sensitive political and discursive processes."<sup>20</sup> Particular injustices arise from specific constellations of power. Similarly, Holifield notes that the terms environmental justice, environmental equity and environmental racism have different meanings depending on the "geographic, historical, political, and institutional contexts" of their use.<sup>21</sup> Di Chiro sees the contribution of environmental justice groups in the conceptualization of community as a place of connection between

16. Debanné and Keil, supra note 14; Pulido, supra note 14.

17. Agyeman, Bullard, and Evans, supra note 14; J.T. Boer et al., "Is There Environmental Racism? The Demographics of Hazardous Waste in Los Angeles County," *Social Science Quarterly* 78, no. 4 (1997): 793–810; R.D. Bullard, *Dumping in Dixie: Race, Class, and Environmental Quality* (Boulder: Westview, 1994); G. Daniels and S. Friedman, "Spatial Inequality and the Distribution of Industrial Toxic Releases: Evidence from the 1990 TRI," *Social Science Quarterly* 80, no.2 (1999): 244–262; A. Iles, "Mapping Environmental Justice in Technology Flows: Computer Waster Impacts in Asia," *Global Environmental Politics* 4, no.4 (2004): 76–107; J.L. Sadd et al., "Every Breath you Take...: The Demographics of Toxic Air Releases in Southern California," *Economic Development Quarterly* 13, no.2 (1999): 107–123.

18. DiChiro, supra note 14.

19. Pulido, supra note 14, 219.

20. Debanné and Keil, supra note 14, 209.

21. Holifield, supra note 14, 78.

groups of people, and people and places. Thus, environmental justice is place based, context dependent, and rooted in relationships.<sup>22</sup>

However, some authors view the geographic specificity of environmental justice as a limitation. Swyngedouw and Heynen feel that the context dependence of this movement limits its generalizability, although it does allow for empirically rich accounts of specific instances of environmental injustice. Furthermore, Swyngedouw and Heynen note that the environmental justice literature tends to be produced by advocates rather than by academics. This type of authorship has its benefits, as environmental justice writings tend to be praxis oriented, and so are concerned with the practical application of their findings.<sup>23</sup> However, Swyngedouw and Heynen argue that authors writing on environmental justice often do not situate environmental inequality as “integral to the functioning of a capitalist political-economic system.”<sup>24</sup> Indeed, as Pellow contends, “. . .in order to achieve greater theoretical sophistication and policy relevance, environmental justice research must move toward a deeper understanding of environmental inequality.”<sup>25</sup>

Another critique of the environmental justice literature is that most of it tends to be liberal in its orientation, and is therefore focused on a distributional perspective of justice, rather than on a more critical understanding of the structural causes of inequality.<sup>26</sup> This critique is important because the capitalist mode of production has been identified by a number of authors as one of the foremost causes of environmental injustice.<sup>27</sup> From this perspective, capitalist wealth accumulation goes hand in hand with rising income and environmental inequalities around the world. Without evaluating these structural causes of environmental inequality, the literature that supports the

22. DiChiro, *supra* note 14.

23. E. Swyngedouw and N. Heynen, “Urban Political Ecology, Justice and the Politics of Scale,” *Antipode* 34, no.4 (2003): 898–918.

24. Swyngedouw and Heynen, *supra* note 23, 910.

25. D. Pellow, “Environmental Inequality Formation: Toward a Theory of Environmental Justice,” *The American Behavioural Scientist* 43, no.4 (2000): 582–583.

26. Pellow, *supra* note 25.

27. N. Low and B. Gleeson, *Justice, Society, and Nature: An Exploration of Political Ecology* (London: Routledge, 1998).

M. Watts and R. Peet, “Liberating Political Ecology,” in *Liberation Ecologies*, 2nd ed., ed. R. Peet and M. Watts (London: Routledge, 2004).



environmental justice movement has a limited theoretical perspective, and is descriptive but not explanatory. This critique suggests that we should look elsewhere in order to theorize further the observations of the environmental justice movement.<sup>28</sup>

### **Urban Political Ecology: Conceptualizing Cities as Human Environments**

The emerging field of urban political ecology, which is concerned with cities as human environments, provides a promising perspective from which to theorize environmental justice. This field has emerged from the connections between cybernetics (the study of communication and control in biological and mechanical systems), ecology, anthropology, geography, and the hazards literature (which focuses on both natural and anthropogenic hazards). Essentially, political ecology is the “welding together of ecology and political economy.”<sup>29</sup> Far from being a cohesive field of study, political ecology has been applied to a number of topics of study, using multiple theoretical perspectives. Although it is difficult to discern what is unifying about this field, Watts and Peet suggest that political ecology is generally concerned with the ways in which political and economic forces come together in communities and institutions, and their relationships with the environment. Themes of study include knowledge, power, justice, governance, and representations of environment.<sup>30</sup> While a major focus of political ecology has been rural resource management in the developing world, the scope of this field has been growing since the 1990s.<sup>31</sup> However, there is generally still a lack of attention to the subject of resource control in urban areas of the developing world.<sup>32</sup>

There are still environmental justice concerns in rural parts of the developing world.<sup>33</sup> However, much of the world is either urban or urbanizing, and many of the political and economic forces that are

28. Swyngedouw and Heynen, *supra* note 23.

29. M. Watts, “Political Ecology,” in *A Companion to Economic Geography*, ed. E. Sheppard and T. Barnes (Oxford: Blackwell, 2000), 258.

30. Watts and Peet, *supra* note 27.

31. Watts, *supra* note 29.

32. T. Moffat and E. Finnis, “Considering Social and Material Resources: The Political Ecology of a Peri-urban Squatter Community in Nepal,” *Habitat International* 29 (2005): 453–468.

33. Iles, *supra* note 17.

driving people toward urban environments are the same forces that cause poverty and environmental inequalities. In *Planet of Slums*, Davis presents a thorough overview of the issues associated with urbanization in the developing world. He draws on the findings of the United Nations Human Settlements Programme (UN-Habitat) report entitled *The Challenge of the Slums*, published in 2003. Davis asserts that national and international economic interventions in the developing world (such as economic restructuring programs initiated by the International Monetary Fund) have been connected to urban migration, increased income inequality, and environmental destruction.<sup>34</sup> Davis presents a number of examples from across the developing world (particularly from Africa and Latin America) to support these claims. This type of analysis suggests that the intersection of environmental justice and the urban environment may be an appropriate place to examine the mechanisms and effects of social, economic, and environmental marginalization.

### **Environment as a Social Determinant of Health**

In their commentary on urban political ecology, Swyngedouw and Heynen describe urbanization as a material transformation of nature. The authors draw on the work of David Harvey and Henri Lefebvre in describing the forces that produce urban spaces<sup>35</sup> (as does Keil in his overview of urban political ecology<sup>36</sup>): urbanization is a process of social, political, cultural, and economic change that yields shifting and uneven spatial geographies. This understanding is consistent with “the need to redefine environmental inequality as a socio-historical process rather than simply viewing it as a discrete event.”<sup>37</sup> In these uneven urban environments, the spaces that are inhabited by marginalized people are more likely to be those areas that will be most burdened with negative environmental effects, while privileged urban areas will accrue environmental benefits.<sup>38</sup> Spatiality (place, geographical context, urban environments, etc.) is therefore integral to the concept of environmental justice and to explaining differential health outcomes within a population. Figure 1 depicts this relationship between

34. M. Davis, “Planet of Slums,” *New Left Review* 26 (2004): 5–34.

35. Swyngedouw and Heynen, *supra* note 23.

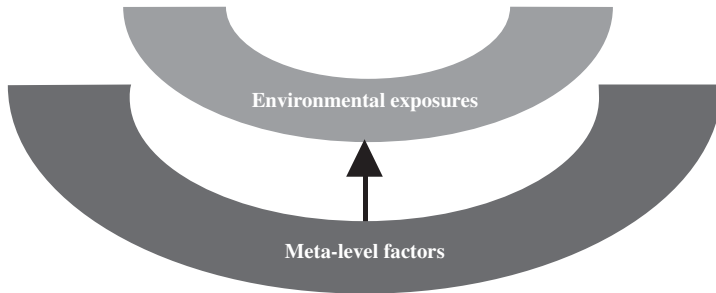
36. R. Keil, “Urban Political Ecology,” *Urban Geography* 24, no.8 (2003): 723–738.

37. Pellow, *supra* note 25, 588.

38. Swyngedouw and Heynen, *supra* note 23.

meta-level factors (social, political, cultural, and economic phenomena that occur through space – for example, poverty, racism, state retrenchment) and environmental exposures.

Figure 1. The relationship between meta-level factors and environmental exposures.



Sibley discusses the process of urban change as a projection of prejudice in space. By his account, nineteenth century attempts to reshape the urban environment in Europe were actually an attempt to rid the city of impure and polluted residents (in particular, people of lower classes, immigrants, and people of ethnic minority identities). Thus, the process of urban change can create a conflation of identity, social and spatial marginalization.<sup>39</sup> This process of marginalization is also evident in contemporary cities in the developing world. This process of marginalization is also evident in cities in the current developing world. Emmel and Souza describe the negative health effects that have resulted from the repeated evictions of slum dwellers from their homes in Mumbai, India, including widespread diarrhea, and respiratory and skin infections. These authors also describe the ways in which slum dwellers are socially and economically disadvantaged by these evictions, and are pushed to live in increasingly precarious environments.<sup>40</sup>

Urban political ecology also observes that relationships of scale (between the local and the global) are an element of the urban process.<sup>41</sup> Martínez-Alier gives an example of the differing scales of

39. D. Sibley, *Geographies of Exclusion: Society and Difference in the West* (London: Routledge, 1995).

40. N.D Emmel and L.D. Souza, "Health Effects of Forced Evictions in the Slums of Mumbai," *The Lancet* 354, no. 9184 (1999): 1118.

41. Agyeman, Bullard, and Evans, *supra* note 14; Keil, *supra* note 36; Swyngedouw and Heynen, *supra* note 23.

environmental justice: resources are imported from rural to urban areas, and wastes are then exported from the city to outlying areas. This is an illustration of an uneven relationship between geographical regions. Another level of injustice across scales is apparent in international practices: although all United States federal agencies are now required to protect low-income and minority groups from exposure to disproportionate levels of pollution within American borders, they can still pollute inequitably abroad.<sup>42</sup> While most authors focus on levels of scale between the local and the global (i.e., municipal, regional, national, international), Debbané and Keil also briefly mention the under-explored scales (within theories of environmental justice) of the household and the body.<sup>43</sup> They suggest that socio-economic forces do not just create material environments that are unjust, they also influence our individual lives and material selves in inequitable ways.

### **Scaling Down: Environmental Health and the City**

We need to understand urban political ecology at the scale of both the body and social networks if we are to understand environmental justice. Health (and particularly environmental health) is an indicator of environmental justice; disproportionate exposure to environmental health hazards is one of the major struggles addressed by the environmental justice movement. Health is also manifested at these smaller scales of the body and social networks. The recent emergence of health and place literature has begun to explore some of the interactions between socio-economic forces and health in space/place.<sup>44</sup>

The health and place literature has observed inequality of health outcomes in certain deprived groups, and in certain deprived spaces.<sup>45</sup> In deciphering the mechanisms that connect health and place, the literature tends to focus on contextual effects (“the difference a place makes”) and compositional effects (“what is in a

42. Martinez-Alier, *supra* note 14.

43. Debbané and Keil, *supra* note 14.

44. For an in-depth discussion of these concepts, see R.A. Kearns and A.E. Joseph, “Space in its Place: Developing the Link in Medical Geography,” *Social Science and Medicine* 37, no.6 (1993): 711–717.

45. M.K. Benzeval, Judge and M. Whitehead, eds., *Tacking Inequalities in Health* (London: The King’s Fund, 1995); A. Gatrell, “Structures of Geographical and Social Space and Their Consequences for Human Health,” *Geografiska Annaler Series B* 79, no.3 (1997): 141–154; P. Townsend, N. Davidson, and M. Whitehead, *Inequalities in Health: The Black Report and the Health Divide* (London: Penguin Books, 1988).

place”).<sup>46</sup> Contextual effects of place on health are usually connected to absolute deprivation (a spatial assemblage of socially marginalized people who are all experiencing the effects of poverty on the body)<sup>47</sup> and relative deprivation (the effects of income disparity on the mind and the body).<sup>48</sup> Linking this work to urban political ecology reveals that place, as a function of socio-economic power dynamics, may be a mediating factor in producing health outcomes. In other words, place is not just a space where poverty and income disparity affect our bodies, but is also one of the ways that social, political, economic, and cultural forms of power bring together people of similar circumstances. For example, in *The Urban Experience*, Harvey discusses residential differentiation as an aspect of the reproduction of capitalist social relations and structures, and not as a result of individual choice.<sup>49</sup> This perspective explains the assemblage of people sharing the experience of absolute deprivation as a political result and demonstrates one way in which socio-economic forces can mediate health outcomes through place. This type of injustice also demonstrates the scale level of social networks and the body as they pertain to urban injustice.

The compositional effects of place are the things in our environments that can have a direct biological impact on our health, such as a waste incinerator, a rendering plant, a highway, or electrical towers. These compositional effects contribute to what is commonly called environmental health. Urban political ecology can help to explain why different people experience different compositional effects on their environmental health. Where we live and where we work are influenced by our social status. The urban process pushes marginalized groups to less healthy places. Privilege allows people to avoid more dangerous work and home environments in the urban realm. Again, we can see the relevance of the scale level of the body to environmental injustice.

46. J. Mohan, “Health and Health Care, Geography of,” in *The Dictionary of Human Geography*, 4th ed., ed. R.J. Johnston, D. Gregory, G. Pratt, and M. Watts (Oxford: Blackwell Publishing, 2000), 330.

47. S. MacIntyre, S. MacIver, and A. Sooman, “Area, Class and Health: Should We be Focusing on Places or People?” *Journal of Social Policy* 22 (1993): 213–234; A. Sooman and S. MacIntyre, “Health and Perceptions of the Local Environment in Socially Contrasting Neighbourhoods in Glasgow,” *Health and Place* 1 (1995): 15–26.

48. R. Wilkinson, *Unhealthy Societies: The Afflictions of Inequality* (London: Routledge, 1996).

49. D. Harvey, *The Urban Experience* (Baltimore: The John Hopkins University Press, 1989).

Traditionally, writers on environmental justice have focused on the ways in which environmental risks (such as those that constitute compositional health threats, as discussed above) are pulled toward marginalized communities. As stated by Agyeman et al., “companies usually locate their dirtiest businesses in areas that offer the path of least political resistance.”<sup>50</sup> A similar perspective emerges from the health and place literature: “Places within the city have contrasting abilities to attract salutary facilities and to repel noxious ones.”<sup>51</sup> The conceptual approach of urban political ecology adds another dimension to this understanding. In this view, environmental and health inequalities are not simply the result of certain parts of the city attracting or repelling either healthful or dangerous facilities. It is also the case that those who are more socially and economically vulnerable are more likely to be pushed to marginal spaces as the urban process unfolds, while those with privilege may claim and obtain those spaces that are the most healthful and environmentally benign. By addressing how socio-political and economic forces are made incarnate in the urban fabric, the urban political ecology approach can thus help us to understand how physical and social spaces can influence health (particularly the health of marginalized populations such as waste pickers).

There are a number of authors who have also observed the effects of socio-political and economic forces on environmental health outcomes. In their review of political ecology research, Greenberg and Park discuss some of the ways in which social and political factors (such as colonialism and capitalism) have been connected to health outcomes in the developing world. They describe the authors who first explored these connections in the 1970s as early political ecologists.<sup>52</sup> Similarly, Stock has taken a particularly political approach to medical geography in an article denoting the connections between capitalist under-development and ill-health in Africa.<sup>53</sup> Thomas et al. cite poverty as a determinant of environmental health in South Africa,

50. Agyeman, Bullard, and Evans, *supra* note 14, 79.

51. Kearns and Joseph, *supra* note 44, 713.

52. J.B. Greenberg and T.K. Park, “Political Ecology,” *Journal of Political Ecology* 1 (1994): 1–12.

53. R. Stock, “Disease and Development or the Underdevelopment of Health: A Critical Review of Geographical Perspectives on African Health Problems,” *Social Science and Medicine* 23, no.7 (1986): 689–700.

and describe housing provision as an environmental health service.<sup>54</sup> Carneiro et al. have studied infection due to fecal contamination in Brazil and have documented the relationship between socio-economic status and health threats.<sup>55</sup> Cifuentes et al. have conducted a study of water and sanitation facilities in Mexico City, finding that children in houses that are rented or have poor sanitation facilities have a higher risk of contracting diarrhea than do children living in owned homes or those with sewage access.<sup>56</sup> Additionally, Chukwuma has found that malnutrition is a complicating factor in mediating environmental health risks in Nigeria.<sup>57</sup> These studies indicate that socio-economic status can add an element of vulnerability to poor environmental health in the developing world. However, it is important to note that most of these authors do not use an urban political ecology framework for their analysis. For example, few of these authors have described how social, political, and economic forces are mediated through space, and those who do usually do not discuss how their observations can be generalized. For these reasons, urban political ecology can contribute to the study of environmental health and justice, and to our understanding of how relative deprivation can affect health in particular places through social networks (discussed below). As Gatrell has noted, “the structures of both geographical and social spaces shape and constrain human health.”<sup>58</sup>

### **Social Networks in Space**

Social networks play a role in mediating health outcomes in the urban environment. Wilkinson has asserted that community life influences health status. He suggests that we focus on healthy or unhealthy societies, and not on individuals.<sup>59</sup> But how do social networks interact

54. E. Thomas, J. Seager, and A. Mathee, “Environmental Health Challenges in South Africa: Policy Lessons from Case Studies,” *Health & Place* 8, no.4 (2002): 251–261.

55. F. Carneiro et al., “The Risk of *Ascaris Lumbricoides* Infection in Children as an Environmental Health Indicator to Guide Preventive Activities in Caparao and Alto Caparao, Brazil,” *Bulletin of The World Health Organization* 80, no. 1 (2002): 40–46.

56. E. Cifuentes et al., “The Risk of Enteric Diseases in Young Children and Environmental Indicators in Sentinel Areas of Mexico City,” *International Journal of Environmental Health Research* 12, no.1 (2002): 53–62.

57. C. Chukwuma, “Health Concepts, Issues, and Experience in the Abakaliki Area, Nigeria,” *Environmental Health Perspectives* 102, no. 10 (1994): 854–856.

58. Gatrell, *supra* note 45, 141.

59. Wilkinson, *supra* note 48.

with place? Moffat and Finnis observed that spatially marginalized communities in a squatter settlement in Nepal have restricted access not only to material resources (such as water, land, and sanitation options), but also to social resources such as education, health care, and social capital. The authors encourage other researchers of urban political ecology to make connections between material and social resources, because both can affect identity, self-perception, and social (and spatial) mobility.<sup>60</sup> Social resources are an element of social networks; for example, education and health care institutions create connections between people, and our social networks may influence which educational or health care services we choose to seek out.

Social networks play a particularly important role in promoting well-being in the developing world. For example, Moser has identified social capital, human capital (e.g., education and health status), household relations, and social and economic infrastructure as important assets that people in the developing world can mobilize to cope with adverse circumstances.<sup>61</sup> The centrality of social networks to health and well-being indicate the importance of considering this scale of impact when assessing the effects of urban processes on marginalized people. Yet there is very little research assessing the connections between environmental justice and social networks (a possible exception is Douglass and Zoghlin's work on community environmental management as an economic coping mechanism),<sup>62</sup> and even less work on the connections between environmental health and social networks. This area of study may be particularly ripe for the exploration of sites of resistance to the injustices (especially the environmental injustices) wrought by urban processes.

### **The Role of Social Networks in Mediating Health Threats**

In situations of extreme poverty, people are less likely to have the economic resources needed (for service fees, medicines, transportation, etc.) to access health services. For these reasons, non-economic resources (such as social networks and education) can become even

60. Moffat and Finnis, *supra* note 30.

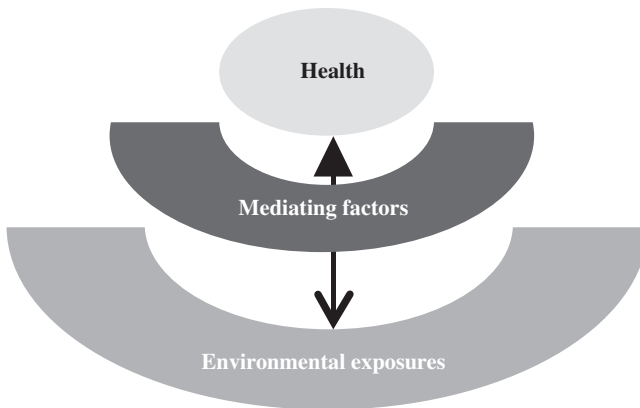
61. C. Moser, "The Asset Vulnerability Framework: Reassessing Urban Poverty Reduction Strategies," *World Development* 26, no.1 (1998): 1–19. Other assets identified by Moser (1998) include labour and housing.

62. M. Douglass and M. Zoghlin, "Sustaining Cities at the Grassroots: Livelihood Environment and Social Networks in Suan Phlu, Bangkok," *Third World Planning Review* 16, no.2 (1994): 171–200.



more important when people living in poverty must deal with threats to their health. I hypothesize that these non-economic resources (and particularly social networks) can mediate the effects of environmental exposures on health and well-being by either attenuating or exacerbating their impact. “Social capital” is a term used to describe the active potential of social networks, and is seminally defined by Coleman as a community’s capacity to take productive action based on internal relationships and social structures.<sup>63</sup> I argue that social capital plays a particularly important role in the lives of waste pickers, as illustrated in Figure 2. Figure 2 depicts the hypothesized mediating effect of social capital (and other non-economic resources, collectively termed “mediating factors”) on the relationship between environmental exposures and health. It suggests that the primary direction of influence is that of environmental exposures on health, although it is possible that one’s health status may also consequently affect one’s exposure to environmental health threats. The schematic is shaped as a series of concentric circles representing some of the factors that surround and contribute to health. However, many other elements of health (such as genetic pre-disposition) are not addressed in this schematic, which represents only one ‘slice’ of the determinants of health.

*Figure 2. Schematic of the hypothesized connections between environmental exposures, mediating factors, and health status.*



63. J. Coleman, “Social Capital in the Creation of Human Capital,” *American Journal of Sociology* 94, Supplement (1988): S95–S120.

There is a small amount of research on social capital and waste picking, although this information is highly context specific in terms of geography and culture. Generally, there are complex social hierarchies in waste picking communities involving many tiers of authority that can contribute to a picker's enduring state of poverty and vulnerability. Those who work at the lowest levels of waste picking often have no means of advancing within the structure of middlemen and buyers to escape the dangerous subsistence behaviours of picking in dumps or off the street. Often, a picker would require a certain amount of financial capital, storage space, and social connections if they were to advance to the higher ranks of the waste recovery system.<sup>64</sup>

The hierarchy within waste picking is also an excuse for exploitative and sometimes indenturing relationships. Waste pickers can be financially or physically exploited by those ensconced in the higher levels of waste-picking hierarchies.<sup>65</sup> For example, in Karachi, Pakistan, middlemen have been known to intentionally hire heroin addicts as waste pickers: addicts are motivated to do dangerous picking work because biomedical waste can be a fertile source for used syringes.<sup>66</sup> In addition to relationships within waste-picking hierarchies, waste pickers also have networks of families and friends that they may rely on inside or outside the work environment. These relationships may be exploitative, socially and economically beneficial, or both.<sup>67</sup> However, there is little research on how these complicated forms of social capital are used in these communities and how they are connected to health outcomes. There is even less information on how social capital mediates the environmental health threats experienced by waste pickers. For these reasons, it is necessary to turn to the broader literature on the relationships between social capital and health in order to contextualize the particular issues of waste pickers' social capital and environmental health.

64. Y. Hayami, A.K. Dikshit and S.N. Mishra, "Waste Pickers and Collectors in Delhi: Poverty and Environment in an Urban Informal Sector," *Journal of Development Studies* 42, no.1 (2006): 41–69.

65. Kaseva and Gupta, *supra* note 2.

66. S. Shariff, "Recycled Syringes: Fact or Fiction?" *Dawn Review* (May 8, 2003), <http://www.urckarachi.org/iswm.htm>.

67. J. Beall, "Policy Arena: Social Capital in Waste – A Solid Investment?" *Journal of International Development* 9, no. 7 (1997): 951–962.

## An Overview of Social Capital and Health

One of the first studies to identify the contribution of social and community ties to health was conducted in California in the 1970s, and it found that social ties were positively related to longevity, independent of initial health status, socio-economic status, and a number of health behaviours (including smoking, obesity, etc).<sup>68</sup> Because of its large sample size, the comprehensive nature of the variables observed, and the length of the observation period, this study has become a cornerstone of the literature on social capital and health. Since this seminal work, additional connections have been suggested between social capital and such diverse health outcomes as well-being, happiness, physical health, mental health, immunological resistance, child survival, and access to health care.<sup>69</sup> Despite these contributions, the study of social capital and health has remained contentious, and has been critiqued in terms of methodology and analysis.

### Limitations of the Concept of Social Capital in Health Research

Because it is a broad term, the use of social capital as an analytical device within health research does have limits. First, social capital is only one factor among many that can affect health outcomes, and therefore isolating its effects can be difficult (particularly in studies with a small sample size). Additionally, social capital is often measured and understood differently in the literature, thereby limiting the comparison of findings across studies.<sup>70</sup> Furthermore, the effects of social capital are particular

68. L.F. Berkman, and S.L. Syme, "Social Networks, Host Resistance, and Mortality: A Nine-Year Follow-up Study of Alameda County Residents," *American Journal of Epidemiology* 109 (1979): 186–204.

69. R. Putnam, "Social Capital: Measurement and Consequences," *ISUMA – Canadian Journal of Policy Research Spring* (2001): 41–51; D.R. Miller et al., *Social Capital and Health in Indonesia* (Santa Barbara: University of California Santa Barbara, 2002); M. Cullen and H. Whiteford, "The Interrelations of Social Capital with Health and Mental Health," Working paper, Mental Health and Special Programs Branch, Commonwealth Department of Health and Aged Care, Government of Australia, 2001; E. Grant, "Meeting on Social Capital and Health," (report sponsored by National Academy of Sciences, Committee on Population, Panel on Urban Population Dynamics, Washington, D.C., U.S.A., 2000); A. Adams, S. Madhavan, and D. Simon, "Women's Social Networks and Child Survival in Mali," *Social Science and Medicine* 54, no.2 (2002): 165–321; M.S. Hendryx et al., "Access to Health Care and Community Social Capital," *Health Services Research* 37, no.1 (2002): 85–101.

70. J. Macinko and B. Starfield, "The Utility of Social Capital in Research on Health Determinants," *The Milbank Quarterly* 79, no.3 (2001): 387–427.

to the aggregation of people who make up the community, and so must be situated both geographically and culturally.<sup>71</sup>

The dynamics of social capital in marginalized communities can be complex. The temptation in using social capital as an analytical construct is to focus on its capacity to buffer the effects of poverty; to this end, social capital is sometimes used to defend neo-liberal processes such as social service retrenchments.<sup>72</sup> Therefore, it is important to remain critical in an analysis of the effects of social capital. It is true that in some cases social inequality encourages the mobilization of social capital, such as when a disadvantaged community organizes to fight a common foe or danger. In other cases, social inequality within a community can undermine social capital because of the mistrust and isolation that can occur when people perceive differences between themselves and others.<sup>73</sup> Although social capital may enhance health and well-being, a lack of social capital can also compound negative health outcomes.<sup>74</sup> Despite the complexity inherent in using the term, social capital has proved to be a useful construct in understanding health outcomes, and can provide insight into some of the mechanisms people use in dealing with health threats.

### **Mechanisms of Social Capital's Effects on Health**

A number of mechanisms have been suggested to describe the ways in which social capital affects health and well-being. Berkman and Kawachi suggest that social capital can influence health-related behaviours, which in turn affect health outcomes. For example, social capital can accelerate the diffusion of information about which health behaviours are beneficial and which are not. Alternatively, social capital can encourage the social control of deviant behaviours such as teenage smoking or drinking.<sup>75</sup>

71. N. Pearce and G. Smith, "Is Social Capital the Key to Inequalities in Health?" *American Journal of Public Health* 93, no.1 (2003): 122–130.

72. M. Mayer and K. Rankin, "Social Capital and (Community) Development: A North/South Perspective," *Antipode* 34, no.4 (2002): 804–808.

73. V. Cattell, "Poor People, Poor Places, and Poor Health: The Mediating Role of Social Networks and Social Capital," *Social Science and Medicine* 52, no. 10 (2001): 1501–1516.

74. Wilkinson, *supra* note 48.

75. L. Berkman and I. Kawachi, "Social Cohesion, Social Capital, and Health," *Social Epidemiology*. Oxford: Oxford University Press, 2000.

Social capital can also mediate access to services and health amenities.<sup>76</sup> For example, if a physician has a waiting list, a potential patient who knows a nurse in the office may be more able to jump the queue than another patient who has no social connections in the office. A third mechanism may be the support and reciprocity that social networks can offer in difficult times. These types of connections can decrease psychological stress and improve one's ability to cope with adversity, thereby increasing the likelihood of good health.<sup>77</sup> Finally, in terms of institutions such as governments or service providers, social capital can build capacity for effective action and create healthy policies and places (as with the worldwide Healthy Cities project). These elements are important to effective health promotion practices.<sup>78</sup>

## **Social Capital and Environmental Health**

### **Mediating Access to Societal Resources**

Anderson et al. describe how societal resources (i.e., social capital) can affect a number of precursors to health, and particularly to environmental health. They indicate that social intermediaries to environmental health include:

- neighbourhood living conditions;
- opportunities for learning and developing capacity;
- community development and employment opportunities;
- prevailing community norms, customs, and processes;
- social cohesion, civic engagement, and collective efficacy;
- health promotion and disease and injury prevention; and
- healthcare opportunities.<sup>79</sup>

This description is reminiscent of the relationship between social capital and access to health resources that is described above by

76. MacIntyre, MacIver, and Sooman, *supra* note 47.

77. Wilkinson, *supra* note 48; Berkman and Kawachi, *supra* note 75.

78. P. Hawe and A. Shiell, "Social Capital and Health Promotion: A Review," *Social Science & Medicine* 51, no.6 (2000): 871–886.

79. L. M. Anderson et al., "The Community Guide's Model for Linking the Social Environment to Health," *American Journal of Preventive Medicine* 24, Supplement 3 (2003): 13.

MacIntyre et al.<sup>80</sup> This perspective recognizes a broad number of social conditions that can mediate health through environmental factors. We can see that understanding environmental health requires a different awareness of which factors constitute determinants of health.

### **Social Capital, Diffusion, and Social Control**

Delp et al. describe a youth leadership program that sought to address the disproportionate occupational and environmental health risks borne by people of colour in Los Angeles. A group of students were educated about these risks and encouraged to bring this knowledge to the wider community using such strategies as peer education and community organizing. The authors observed that youth leadership, empowerment, and education on workplace and environmental health threats can lead to increased community awareness, organization, and advocacy.<sup>81</sup> These findings resonate with Berkman and Kawachi's work (see above discussion), which indicates that social capital can affect health outcomes by diffusing pertinent information to the community and by exerting social pressure to change risky behaviours.<sup>82</sup>

### **Social Inequality**

Social capital can be complicated in marginalized communities and especially in communities where there is social inequality. This is particularly true with respect to environmental health threats. Schulz and Northbridge have observed that social inequality can increase both the burden of environmental health threats and the impact of these threats on overall health and well-being. With respect to social capital, these authors suggest that social integration and support can address both the burden and impact of environmental health threats, and so may be important in countering the effects of social inequality.<sup>83</sup>

### **Advocacy**

In some marginalized communities, the response to environmental health risks involves advocacy for change. Perhaps this is because

80. MacIntyre, MacIver, and Sooman, supra note 47.

81. L. Delp, M. Brown, and A. Domenzain, "Fostering Youth Leadership to Address Workplace and Community Environmental Health Issues: A University-School-Community Partnership," *Health Promotion Practice* 6, no.3 (2005): 270–285.

82. Berkman and Kawachi, supra note 75.

83. A. Schulz and M.E. Northridge, "Social Determinants of Health: Implications for Environmental Health Promotion," *Health Education & Behaviour* 31, no.4 (2004): 455–471.

poor environmental health is sometimes the result of disproportionate burdens of environmental risks. In these instances, social capital can be mobilized to encourage direct action to mediate environmental threats, or can be used to put pressure on governments and institutions to effect change. One particularly effective example described by Freudenberg is the case of the Mothers of East Los Angeles (MELA) organization. By engaging in community advocacy and lobbying governments and corporations, this group was able to effect a number of changes in their community that ultimately decreased local environmental health threats. For instance, they blocked construction of a municipal waste incinerator and an oil pipeline that would have passed beneath a school; stopped a chemical company from building a hazardous waste treatment facility across the street from a school; and opposed state pesticide spraying programs. They have also been involved in educational efforts concerning lead poisoning and childhood asthma.<sup>84</sup> This type of community advocacy is a crucial form of resistance to inequitable exposures to environmental risks.

### **The Contribution of Social Capital to an Investigation of Waste Pickers' Health**

I am interested to learn whether waste pickers' environmental exposures are a result of greater social vulnerability and marginalization. Therefore, understanding the role of social capital in waste pickers' health does not only serve a descriptive purpose, but also an analytical one. By learning how social capital and environmental health interact in my study community, I hope to gain insight into processes of social exclusion and potential sites of community resistance to disproportionate exposures.

For example, in 1975 in Juarez, Mexico, a group of waste pickers successfully established a cooperative that was able to reform exploitative hierarchical systems within the waste picking community, as well as provide training, education, and access to health-care services for its members.<sup>85</sup> This example demonstrates that social capital can be mobilized to promote environmental health by supporting vulnerable populations, addressing social inequities, improving access to health resources, encouraging advocacy, and effecting social change.

84. N. Freudenberg, "Community Capacity for Environmental Health Promotion: Determinants and Implications for Practice," *Health Education & Behaviour* 31, no.4 (2004): 472-490.

85. M. Medina, "Scavenger Cooperatives in Developing Countries," *BioCycle* 39, no.6 (1998): 70-72.

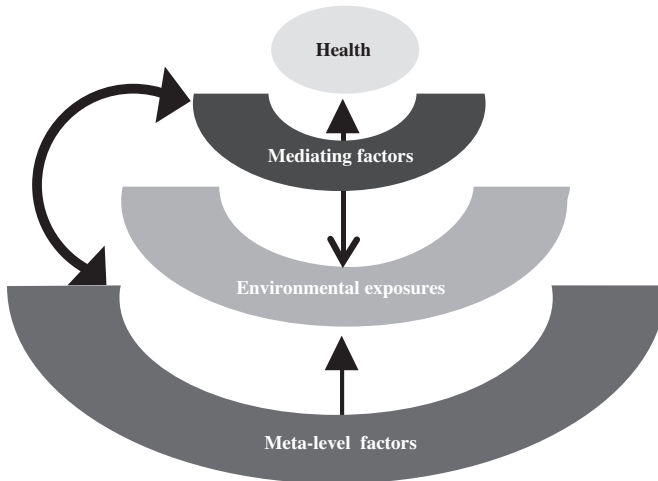
Wakefield and Poland argue that:

A construction of social capital which explicitly endorses the importance of transformative social engagement, while at the same time recognizing the potential negative consequences of social capital development, could help community organizers build communities in ways that truly promote health.<sup>86</sup>

Therefore, in order to build healthier communities, we must conduct critical analyses of the root causes of ill-health, which should include a discussion of justice. Social capital can support protests against injustice (such as in cases where communities come together and advocate for improved living conditions), and can also encourage resistance to injustice in the forms of education, awareness-raising, advocacy, and social support.

Figure 3 suggests that meta-level factors such as poverty and environmental injustice can interact with the resources used to mediate environmental health threats. I hypothesize that, in some situations, resources such as social capital or education can also influence the ways in which these meta-level factors play out; for example, when people use advocacy or social organizing in order to effect social change, or alternatively, when they are unable to oppose large-scale social forces.

*Figure 3. Schematic of the hypothesized interactions between meta-level factors, environmental exposures, mediating factors, and health.*



86. S. Wakefield and B. Poland, "Family, Friend or Foe? Critical Reflections on the Relevance and Role of Social Capital in Health Promotion and Community Development," *Social Science & Medicine* 60 (2005): 2819.



## Conclusion

The theoretical framework presented in Figure 3 represents my understanding of the ways in which the environmental health of waste pickers can be influenced, mediated, and managed. This figure indicates that in researching the environmental health of waste pickers, it is not sufficient to simply assess the environmental exposures that they face. Because health is not just a physical outcome, but also a social outcome, I believe it is important to critically investigate the social (political, cultural, economic, environmental, spatial, etc.) processes that can influence people's health.

This paper has shown that mediating factors (such as social relationships) and meta-level factors (such as political and economic trends) can interact with one another and can also affect environmental conditions and exposures. There are, therefore, many elements that can contribute to health outcomes, which requires us to have a broad understanding of health and its determinants. In particular, environmental effects on health are often the result of social, economic, political, and spatial processes. In this way, environment is not just a physical, but also a social, determinant of health.

This paper has also emphasized that inequalities can affect the ways in which determinants of health operate in space. It is therefore important to pursue research that can both describe and theorize these uneven geographies of health in marginalized communities in order to build healthier and more equitable societies.

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# Incentivizing Justice: Linking Human Rights, Trade and Access to Medicines

Lisa Forman

## **Introduction**

International and bilateral trade agreements on intellectual property restrict access to essential medicines in developing countries, and entrench and promote perverse corporate incentives to produce only profitable medicines and to protect profitable markets deemed even marginally profitable from perceived free-riding and competition. The legitimacy of this system is increasingly in question as the negative impacts of restrictive trade rules become apparent. Yet medicines are not ordinary commodities like bananas or coffee beans: they are critical components of health care systems, basic human needs, and fundamental human rights entitlements. In this light, the restrictions on access to medicines imposed by international trade rules should be justified to the fullest extent possible, and permitted only to the extent to which they can be justified. Given the potential loss of life that such restrictions cause, the legitimacy and justification for trade rules on medicines should not only be assessed in terms of intellectual property rules, but from the perspective of human rights standards.

This paper explores how trade rules restrict access to medicines through the optic of international human rights standards on health and life. In doing so, it first outlines access to medicines in poor countries and the potential impact of medicine on mortality rates. It also identifies factors that influence access to medicines. Second, it shows how international and bilateral trade rules influence access to essential medicines in developing countries. Third, it outlines international human rights law on health and explores the legal relationship between human rights and trade, especially arguments for the primacy of

human rights over trade. Fourth, it assesses the justifications offered for trade restrictions on medicine access from a human rights perspective, and what this analysis suggests for balancing competing trade and health interests. It concludes with thoughts about the implications of this analysis for mitigating the harsher impacts of current trade rules, and considers practical mechanisms to ensure greater linkages and integration between human rights and trade rules.

## 1. Global Access to Essential Medicines

The figures describing the limited access to essential medicines in developing countries are by now legion: almost two billion people, one-third of the global population, lack regular access to essential medicines.<sup>1</sup> In poorest Africa and Asia, this lack of regular access rises to half of the population.<sup>2</sup> Access to essential medicines that treat the most prevalent diseases in developing countries is similarly low. AIDS highlights the problem vividly: despite being the worst infectious pandemic in modern history, access to life-saving, anti-retroviral therapies is extremely low. Indeed, in sub-Saharan Africa, where over two-thirds of global HIV infections exist, only 17 per cent of infected people have access to anti-retroviral treatments.<sup>3</sup> The death toll in developing countries from HIV/AIDS, tuberculosis, and malaria is extremely high: two million people die from tuberculosis every year;<sup>4</sup> over one million people (mainly African children) died from malaria in 2002; and over three million people die each year from HIV/AIDS.<sup>5</sup> HIV/AIDS in particular is exacting a tremendous social and economic impact because its primary demographic is amongst young people who are economically and reproductively active. Their large-scale death is resulting in the orphaning of millions of children, and in Africa the epidemic is reversing the

1. World Health Organization, *WHO Medicines Strategy: Countries at the Core 2004–2007* (Geneva, 2004), 3.

2. Ibid.

3. UNAIDS and World Health Organization, *Progress on Global Access to HIV Antiretroviral Therapy: A Report on “3 by 5” and Beyond*, March 2006 (Geneva, 2006), 7.

4. World Health Organization, *Public Health Innovation and Intellectual Property Rights: Report of the Commission on Intellectual Property Rights, Innovation, and Public Health* (Geneva, 2006), 20.

5. UNAIDS and World Health Organization, *AIDS Epidemic Update December 2005*, UNAIDS/05.19E, 2.



developmental gains of the past fifty years, including hard-won increases in child survival and life expectancy.<sup>6</sup>

Yet the use of life-saving medicines could significantly mitigate these death tolls. It is estimated that in sub-Saharan Africa, anti-retroviral medicines, combined with effective prevention strategies, could save between 5.8 and 10.1 million lives over the next fifteen years.<sup>7</sup> The impact of essential medicines on death rates is not, however, limited to HIV/AIDS. Indeed, the World Health Organization estimates that expanding access to existing medicines, preventive technologies, and vaccines could save up to 10.5 million lives per year, and that expanding access to medicines for infectious diseases alone could save almost 9 million lives a year.<sup>8</sup>

### 1.1. Factors Influencing Access to Medicines

While the World Health Organization identifies both political and infrastructure-related factors such as the rational use<sup>9</sup> of medicines and the existence of reliable health systems as important factors in determining access to medicines, it indicates that economic factors such as affordability and sustainable financing are equally important.<sup>10</sup> Certainly, when assessing the impact of patents on medicine access, economic factors predominate. Indeed, economic factors disproportionately affect access to medicines in poor countries where the majority of drug expenditure is out-of-pocket,<sup>11</sup> and where drugs are one of the largest public expenditures.<sup>12</sup> While many of what the World Health Organization defines as essential medicines are off-patent and therefore more affordable, many priority health needs in developing

6. World Health Organization, *HIV/AIDS: Report by the Director-General*, Fifty-third World Health Assembly, A53/6, 22 March 2000, paragraph 3.

7. J. Salomon et al., “Integrating HIV Prevention and Treatment: From Slogans to Impact,” *Plos Medicine* 2, no.1 e16 (2005): 50 – 53.

8. World Health Organization, *supra* note 1, 13.

9. WHO defines rational use as occurring when “[p]atients receive medications appropriate to their clinical needs, in doses that meet their own individual requirements, for an adequate period of time, and at the lowest cost to them and their community.” World Health Organization, *supra* note 1, 111.

10. World Health Organization, *supra* note 1, 24.

11. G. Velásquez, Y. Madrid, and J. Quick, “Health Reform and Drug Financing, Selected Topics,” *Health Economics and Drugs*, DAP Series no.6. WHO/DAP/98.3 (Geneva: World Health Organization, 1998).

12. World Health Organization, *supra* note 1, 14.

countries require treatment with medicines that are very costly, and this has obvious consequences for access. This is true for artemisinin-based anti-malarial drugs,<sup>13</sup> tuberculosis treatments and reserve antibiotics,<sup>14</sup> and particularly for HIV/AIDS drugs, which were prohibitively expensive until public pressure forced their prices down (although in many places drug prices remain prohibitive, and second-line drugs remain particularly expensive).<sup>15</sup> However, drugs used to treat common medical conditions are similarly prohibitively priced, including those for hepatitis C, diabetes, and many cancers. For example, it costs U.S.\$30,000 per person per year to treat hepatitis C, an infectious liver disease affecting 170 million people worldwide.<sup>16</sup>

## **2. The World Trade Organization's Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS)**

Patents are a primary factor determining drug prices and are protected internationally under the World Trade Organization's (WTO) Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS), which all countries acceding to the WTO since its inception in 1994 must accept. TRIPS requires twenty-year patents for pharmaceuticals, which give exclusive rights to holders to prevent non-consensual use,<sup>17</sup> and which are subject to extensive domestic and international enforcement,<sup>18</sup> including the WTO's

13. Many African countries continue to rely on chloroquine, an outdated drug, to treat malaria because the newer, more effective artemisinin-based treatment costs as much as twenty times more. Médecins Sans Frontières, "Will the Lifeline of Affordable Medicines for Poor Countries be Cut? Consequences of Medicines Patenting in India," Briefing document, February 2005, 2.

14. R. Loewenson, "Essential Drugs in Southern Africa Need Protection from Public Health Safeguards under TRIPS," *Bridges* 4, no.7 (2000): 3.

15. On the global HIV/AIDS treatment access battle, generally. See E.F.M. 'T Hoen, "TRIPS, Pharmaceutical Patents and Access to Essential Medicines: A Long Way from Seattle to Doha," *Chicago Journal of International Law* 3, no.2 (2002): 27; and E. Cameron and A. Gupta, "Global Access to Treatment," *Canadian HIV/AIDS Policy and Law Review* 7, no.1 (2002),

[http://www.aidslaw.ca/Maincontent/otherdocs/Newsletter/vol7no12002/accessto\\_treatment.htm](http://www.aidslaw.ca/Maincontent/otherdocs/Newsletter/vol7no12002/accessto_treatment.htm).

16. Médecins Sans Frontières, *supra* note 13.

17. TRIPS, Article 28(1)(a) and (b). In a footnote, importing is stated to be subject to the provisions of Article 6, which deals with the exhaustion of rights, discussed below.

18. TRIPS, Article 1(1) indicates that "members may, but shall not be obliged to, implement in their law more extensive protection than is required by this Agreement, provided that such protection does not contravene the provisions of this agreement."

formal mechanism for settling disputes related to WTO agreements.<sup>19</sup>

While this patent protection is very strong, TRIPS does allow certain exceptions to patenting and limitations on exclusivity in the interests of public health and social welfare, including permitting parallel imports and compulsory licensing.<sup>20</sup> Parallel importing allows countries to import cheaper versions of patented medicines, and compulsory licensing allows governments to manufacture generic versions of patented medicines without corporate consent during national emergencies or other circumstances of extreme urgency, for public non-commercial use, or where usage is intended to remedy a practice determined after judicial or administrative processes to be anti-competitive.<sup>21</sup> Initially, TRIPS prohibited the export of medicines produced under compulsory licensing, creating a conflict for poor countries, since this effectively meant that poor countries that could not manufacture their own drugs also could not import generic versions of patented medicines. To solve this problem, TRIPS was amended to permit least-developed and other countries to import generic medicines made under compulsory licensing according to strict conditions.<sup>22</sup> Today, all WTO members except least-developing countries (who are not obliged to implement TRIPS until 1 January 2016) are bound by TRIPS.<sup>23</sup> However, within eleven years, this agreement will apply to all WTO members, including the poorest nations.

19. TRIPS, Article 64, referring to Article XXIII of GATT 1994. Article 64(2) states that the latter two circumstances shall not apply to the settlement of disputes under TRIPS for five years after the entry into force of the WTO agreement.

20. See TRIPS, Articles 6, 30, 31 and 41.

21. TRIPS, Articles 31(b) and (k).

22. For example, both importing and exporting countries must issue compulsory licenses; eligible importing members other than least developing countries must establish insufficient or no manufacturing capacities in the pharmaceutical sector for the products in question; such medicines are limited to the amount necessary to meet the needs of the importing country, which must be imported in their entirety to the member; they must be clearly identified as produced under this system through labelling, distinguished by packaging and shaping/colouring, and importing countries must take reasonable measures to prevent re-exportation of products. See World Trade Organization General Council, *Implementation of Paragraph 6 of the Doha Declaration on the TRIPS Agreement and Public Health: Decision of the General Council of 30 August 2003*, WT/L/540, 1 September 2003, paragraphs 2 (a) (ii), (iii), (b) (i) and (ii), and paragraphs 4 and 5.

23. Cptech, "Recent Health-Related Compulsory Licenses and Disputes," <http://www.cptech.org/ip/health/cl/recent-examples.html>.

TRIPS globalizes drug patents at a strong, and for many countries, unprecedented, level. For example, before TRIPS, more than forty countries did not patent medicines, many others (such as India) only patented drug processes, and others provided shorter patent terms.<sup>24</sup> Introducing patents where there were previously none drives up drug prices by enabling monopoly pricing and excluding cheaper generic alternatives. Given how price-sensitive drug access is in poor countries, higher drug prices can significantly limit drug access for the poor. For example, in 2005, India introduced drug product patents that are expected to significantly increase drug costs: a case study of the impact of introducing patents on antibiotics estimated that the total annual welfare losses to the Indian economy from patenting four domestic antibiotics would be around U.S.\$305 million, or about 50 per cent of the sales of the entire systemic anti-bacterial segment in 2000.<sup>25</sup>

The price impact of excluding access to generic medicines is particularly acute since generic competition is a critical factor in reducing drug prices. It is indicated, for instance, that pharmaceutical product prices fall sharply when generic entry occurs following the expiration of patents.<sup>26</sup> One study shows that “[o]ver time patents are a major factor in sustaining high drug prices; the appearance of generic competition results in prices of these drugs being much closer to the marginal production costs than those of brand name companies.”<sup>27</sup>

24. Before TRIPS, over forty countries did not patent drugs, many (like India) only patented processes and not products, and many others had patents for less than twenty years. See World Health Organization, *Globalization, TRIPS, and Access to Pharmaceuticals, Policy Perspectives on Medicines Series No.3* March 2001 (Geneva, 2001), 2. Bartelt suggests that this number was closer to forty-nine countries. See S. Bartelt, “Compulsory Licenses Pursuant to TRIPS Article 31 in the Light of the Doha Declaration on the TRIPS Agreement and Public Health,” *Journal of World Intellectual Property* 6, no.2 (2003): 281, 285.

25. S. Chaudhuri, P.K. Goldberg, and P. Jia, “The Effects of Extending Intellectual Property Rights Protection to Developing Countries: A Case Study of the Indian Pharmaceutical Market,” *National Bureau of Economic Research Working Paper Series, Working Paper 10159* (Cambridge, December 2003), <http://www.nber.org/papers/W10159>.

26. F.M. Scherer, “The Pharmaceutical Industry,” in *Handbook of Health Economics*, Vol. 1, ed. A.L. Culyer and J.P. Newhouse (New York: Elsevier Science B.V, 2000), 1322–1324.

27. R.E. Caves, M.D. Whinston, and M.A. Hurwitz, “Patent Expiration, Entry, and Competition in the U.S. Pharmaceutical Industry,” *Brookings Papers on Economic Activity Special Issue* (1991): 1–62.

Yet introducing global drug patents also has a systemic impact on the manufacture and export of generic medicines globally. As TRIPS is implemented, it will eventually phase out generic manufacture of patented medicines in totality, unless this is done under compulsory licensing. This will affect domestic manufacture of those drugs, particularly in India, which has been a primary source of generic anti-retroviral drugs for other developing countries.<sup>28</sup> The full implementation of TRIPS by 2016 will especially affect countries that depend on importing generic versions of currently patented medicines.<sup>29</sup>

While growing numbers of countries (including Malaysia, Indonesia, Zambia, Zimbabwe, and Mozambique) have recently successfully issued compulsory licenses for anti-retroviral medicines,<sup>30</sup> to date not a single country, including Canada, has exported medicines produced under compulsory license. Thus, despite its TRIPS legality, the generic manufacture and export of patented medicines to poor countries is simply not occurring. In the absence of generic versions of patented medicines, drug prices remain at patent monopoly levels, and this influences access in resource-constrained settings.

### **2.1. Bilateral Free Trade Agreements: The Emergence of a TRIPS-PLUS World**

Yet the intellectual property standards in TRIPS are considerably more lenient than the patent rules that developing countries are increasingly adopting in free trade agreements with the United States and other Western governments, which place greater restrictions on the use of TRIPS flexibilities like compulsory licensing and parallel importing. For example, many free trade agreements make it much more difficult for generic drugs to enter the market upon patent expiration and extend patent periods beyond twenty years.<sup>31</sup> What

28. Médecins Sans Frontières, *supra* note 13, 3.

29. F.M. Scherer and J. Watal, "Post-TRIPS Options for Access to Patented Medicines in Developing Countries," *Commission on Macroeconomics and Health working paper WG 4*, no.1 (June 2001): 13.

30. Cptech, "Recent Health-Related Compulsory Licenses and Disputes," <http://www.cptech.org/ip/health/cl/recent-examples.html>.

31. L. Forman, "Trading Health for Profit: Bilateral and Regional Free Trade Agreements Affecting Domestic Property Rules on Intellectual Property Rules on Pharmaceuticals," in *The Power of Pills: Social, Ethical, and Legal Issues in Drug Development, Marketing, and Pricing*, eds. J.C. Cohen, U. Schuklenk, and P. Illingsworth (London: Pluto Press, in press).

they also do, crucially, is limit compulsory licensing and prohibit parallel imports.<sup>32</sup> Indeed, the U.S. has concluded bilateral and regional trade agreements containing TRIPS-plus standards with over sixty countries, many of which are developing countries with extremely high disease burdens, including HIV/AIDS.

## 2.2. Corporate Litigation and Trade Sanctions

At the same time, countries that try to use flexibilities like compulsory licensing and parallel importing often face immense opposition from both pharmaceutical companies and Western governments through trade sanctions or corporate litigation (which often come as a single combined assault). This has been the case for countries such as Thailand, Mexico, Chile, Brazil, Indonesia, Bolivia, Columbia, Ecuador, Peru, Venezuela, South Korea, and South Africa. Despite the confirmation of the legality of compulsory licensing and parallel imports in the WTO's Doha Declaration on Public Health, corporate and governmental challenges continue.<sup>33</sup> For example, in 2002, the U.S. government pressured South Korea to refuse a compulsory license for Gleevec, a leukemia drug that costs around U.S.\$27,000 per annum per person. In 2006 Pfizer sued a Philippine company and government officials in their private capacity to prevent parallel importing of a generic version of Norvasc, a hypertension drug.<sup>34</sup>

Free trade agreements and corporate and governmental challenges effectively turn TRIPS rights into powerful corporate entitlements that can be only rarely limited. This not only perpetuates the existing inaccessibility of medicines but also excludes poor people from the benefits of existing medicines and of new therapeutic advances for diseases such as HIV/AIDS that are ravaging the African continent. Since the global imposition and enforcement of stringent patent rights play a direct role in the high loss of life from inaccessible medicines, such a system should not be justifiable simply from the perspective of intellectual property rules, but from the perspective of human rights laws as well. Indeed, the justifica-

32. *Ibid.*

33. World Trade Organization, Ministerial Conference, Fourth Session, *Declaration on the TRIPS Agreement and Public Health* (Doha, November 9–14, 2001).

34. J.R. Sanjuan, "Pfizer is Suing Philippine's Government Officials in their Personal Capacity in Order to Stop Parallel Trade," *IP-health Mailing List* 31 March 2006.

tion for any economic and political system that results in the loss of millions of lives should be scrutinized according to human rights standards.

### 3. International Human Rights on Health

Access to medicines is a fundamental human rights claim. International human rights law is founded upon the protection and promotion of its core values of inherent human dignity and equal worth, which require that a variety of civil and social rights be protected and which create individual entitlements and corresponding obligations on governments for their realization. The inability of millions of people to access essential medicines invokes claims based on equal dignity and worth, and on the value that human rights place on individual life. It also calls on specific rights to liberty and security of the person, to equality and to the benefits of scientific progress.<sup>35</sup> Access to a medical treatment is, however, primarily a claim under the right to health, which, like other social and economic rights, has often had limited domestic legal and political recognition. Nonetheless, there is an extensive web of international<sup>36</sup> and regional<sup>37</sup> instruments containing health rights and growing domestic constitutional entrenchment of such rights. For example, a recent study suggests that over two-thirds of all domestic constitutions have provisions regard-

35. For a thorough discussion of the normative framework and associated state obligations, see A.E. Yamin, "Not Just a Tragedy: Access to Medications as a Right under International Law," *Boston University International Law Journal* 21 (2003): 325.

36. See, for instance, United Nations, *Universal Declaration of Human Rights*, G.A. Res. 217 A (III), UN Doc. A/810 (1948): Article 25; World Health Organization, *Constitution of the World Health Organization*, 22 July 1946, 62 Stat. 2679, 14 U.N.T.S. 186; United Nations, *International Covenant on Economic, Social, and Cultural Rights*, 16 December 1966, 993 U.N.T.S. 3, Article 12; United Nations, *International Convention on the Rights of the Child*, 20 November 1989, U.K.T.S. 1992 No. 44, 28 I.L.M. 1448 1989, Article 24(1); United Nations, *International Convention on the Elimination of Racial Discrimination*, 21 December 1965, 660 U.N.T.S. 195, 5 I.L.M. 352 1966, Article 5(e)(iv); United Nations, *Convention on the Elimination of All Forms of Discrimination Against Women*, 18 December 1979, U.K.T.S. 1989 No. 2, 19 I.L.M. 33 1980, Articles 11(1)(f) and 12; and United Nations, *International Convention on the Protection of the Rights of All Migrant Workers and Members of Their Families*, 18 December 1990, Article 28.

37. Council of Europe, *The European Social Charter*, 18 October 1961, 529 U.N.T.S. 89, Article 11; the *African Charter on Human and People's Rights*, 27 June 1981, O.A.U. Doc. CAB/LEG/67/3 rev. 5, 21 I.L.M. 58 (1982), Article 16; and *Additional Protocol to the American Convention on Human Rights in the Area of Economic, Social, and Cultural Rights (Protocol of San Salvador)* (1988), Article 10.

ing health and health care.<sup>38</sup> Moreover, these rights are increasingly being enforced at the domestic level.<sup>39</sup>

The most authoritative international legal formulation of the right to health is in Article 12 of the International Covenant on Economic, Social, and Cultural Rights (ICESCR), whereby state parties recognize everyone's right to enjoy the highest attainable standard of health, and agree to take steps to achieve this, including preventing, treating, and controlling disease, and creating conditions to assure medical service and attention to all who are sick. However, this treaty's article on implementation seems to create a paradox by limiting state obligations to taking steps to the maximum of available resources to progressively achieve the full realization of Covenant rights.<sup>40</sup>

Certainly, telling poor countries to give what they can when they can hardly sounds like an effective guarantee of health care, and seems to suggest that any limitation on health would be permissible. For many decades, the lack of clarity about what this meant created considerable and often, wilful, confusion regarding the implementation and enforcement of this right. However, international interpretation has significantly advanced conceptual clarity, particularly in a general

38. E.D. Kinney and B.A. Clark, "Provisions for Health and Health-Care in the Constitutions of the Countries of the World," *Cornell International Law Journal* 37 (2004): 285, 287.

39. See, for example, *Minister of Health and Another v. Treatment Action Campaign and Others* (2002) 5 South African Law Report 721 (South African Constitutional Court) (South African Constitutional Court ordered government to implement a national program to prevent mother to child transmission of HIV/AIDS under the constitutional right to health); *Viceconti v. Ministry of Health and Social Welfare* (Argentina, Poder Judicial de la Nación, Causa no. 31.777/96, 2 June 1998) (recognizing international human rights treaties on health and confirming government's positive obligations to provide health care); *Cruz Bermudez et al v. Ministerio de Sanidad y Asistencia Social* (Supreme Court of Justice of Venezuela, Case No. 15.789, Decision No. 916 15 July 1999) (court held that constitutional rights to health and life required the Ministry of Health to provide anti-retroviral medicines; develop national treatment policies and programs; and reallocate budget necessary to carry out the Court's decision). Health has also been indirectly protected through other civil rights; see, for example, *Paschim Banga Khet Mazdoor Samity v. State of West Bengal* (1996) 4 S.C.C. 37 (the denial of emergency medical treatment for serious head injuries was deemed a breach of the constitutional right to life); and *Eldridge v. British Columbia (Attorney General)* 1997 3 S.C.R. 624, (the Canadian Supreme Court ordered the provision of health care under the constitutional right to equality and non-discrimination).

40. United Nations, *International Covenant on Economic, Social, and Cultural Rights*, 16 December 1966, 993 U.N.T.S. 3, Article 2.



comment on the right to health released by the United Nations Committee on Economic, Social, and Cultural Rights in 2000, which identified non-derogable (i.e., cannot be limited under any circumstances) minimum core obligations not subject to progressive realization, and the floor below which states are not permitted to drop.<sup>41</sup> One such standard is that states must provide essential drugs as defined by the WHO, a comparably important obligation is that states must take measures to prevent, treat, and control epidemic disease.<sup>42</sup> The minimum core concept is important because it illustrates which elements of an effective public health care system cannot be sacrificed to other social, political, or economic goals and priorities. Indeed, the United Nations Committee on Economic, Social, and Cultural Rights has indicated very clearly that right to health obligations must extend outside the health arena, including when states enter into international agreements,<sup>43</sup> and that states have international obligations not to obstruct this right in other countries, to prevent corporations from violating it elsewhere, and to ensure that international agreements do not adversely impact the right to health.<sup>44</sup>

### 3.1. Conflicts between International Human Rights and TRIPS

The provisions of TRIPS that require all WTO members to provide twenty-year patents for medicines appear to create a prima facie restriction of national capacities to realize core obligations to provide medicines. While it could be argued that there need not be such a conflict between TRIPS and right to health obligations if countries use TRIPS flexibilities, as I have indicated above, these flexibilities are being eroded in free trade agreements and challenged by corporate and U.S. conduct. As a result, in many countries, TRIPS rights have become virtually non-derogable for the duration of patents. This does pose prima facie conflicts with the right to health, raising important questions about how they should be resolved by domestic policy makers and national judiciaries.

41. United Nations Committee on Economic, Social and Cultural Rights, *General Comment No. 14 (2000): The Right to the Highest Attainable Standard of Health (Article 12 of the International Covenant on Economic, Social, and Cultural Rights)*, E/C.12/2000/4, 11 August 2000.

42. *Ibid.*, paragraphs 43 and 44.

43. *Ibid.*, paragraph 50.

44. *Ibid.*, paragraph 39.

To some extent, resolving this question relies on the nature of the relationship between human rights and TRIPS in international law. As of early 2006, 99 per cent of all countries (192) have ratified the Children's Rights Convention (CRC); 93 per cent (180), the Convention on the Elimination of Discrimination Against Women (CEDAW); 88 per cent (170), the Convention on the Elimination of Racial Discrimination (CERD); and 78 per cent (152), the Covenant on Economic, Social, and Cultural Rights (CESCR).<sup>45</sup> On the other hand, 77 per cent of all countries (149) are members of the WTO.<sup>46</sup> These figures indicate that more countries are bound by health rights than by TRIPS. Indeed, the vast majority of WTO members hold concurrent right to health obligations: 81 per cent of current WTO members (122 out of 149 countries) have ratified the ICESCR,<sup>47</sup> and 97 per cent (145 out of 149 countries) have ratified at least one human rights treaty containing a health right (such as the CRC, CERD, or CEDAW).<sup>48</sup> Thus, the vast majority of countries are bound by both international human rights treaties and by WTO agreements.

There is also textual support in international law for the argument that human rights should hold legal primacy over trade. Section 103 of the Charter of the United Nations states that in conflicts between charter obligations and obligations under other international agreements, charter obligations will prevail, and the charter specifically places human rights obligations on states in Articles 55 and 56.<sup>49</sup> Certainly, there appears to be state consensus regarding the primacy of human

45. United Nations, Office of the High Commissioner for Human Rights, *Status of Ratifications of the Principal International Human Rights Treaties as of 9 March 2006*.

46. World Trade Organization, *Understanding the WTO: The Organization: Members and Observers*, [http://www.wto.org/English/thewto\\_e/whatis\\_e/tif\\_e/org6\\_e.htm](http://www.wto.org/English/thewto_e/whatis_e/tif_e/org6_e.htm).

47. Another twenty-five countries are WTO observers, which means that they are required to initiate the WTO accession process within five years of becoming an observer. Of these, twenty-one are ICESCR members, meaning that within five years or less, the total amount of countries that have ratified the ICESCR and are WTO members will increase to 143 countries in total, or 82 per cent of all WTO members. See WTO, *supra* note 46.

48. It is notable that of the four WTO members that are not parties to a human rights treaty, one is the European Communities, whose individual member states have all ratified relevant human rights treaties. The other three are countries under Chinese control [Hong Kong, Chinese Taipei (Taiwan), and Macau].

49. United Nations, *The Charter of the United Nations*, 26 June 1945, Can. T.S. 1945 No. 7 (entered into force on 24 October 1945).

rights over other obligations, reflected in the declaration of 171 countries in the 1993 Vienna Conference on Human Rights that human rights are the first responsibility of states.<sup>50</sup>

There is merit in the primacy argument, which promotes the general idea that the human rights of the most vulnerable and poor should be prioritized rather than automatically subjugated to trade and intellectual property interests, for example, through enforcing stringent standards for the patent protection of essential medicines. However, the primacy argument also raises an important question: for instance, should primacy be understood to require that human rights should always trump trade and intellectual property rights? While the seriousness of the human rights claims at stake may well suggest that this is the case, most human rights can be justifiably limited to protect collective interests such as national security, public health, or the rights of others.<sup>51</sup> These restrictions must, however, be both necessary and proportional, meaning that restrictions should be the least restrictive alternative for achieving a particular aim.<sup>52</sup> However, a conceptual challenge is posed in restricting rights to life and essential medicines, which are held in international law to be non-derogable and which cannot be limited by other interests at all. Despite this designation, in certain situations rights to life can be lawfully limited: for example, individuals can take human life in self-defence, and government agents may do so for a range of reasons, including under police power or in war. These restrictions of otherwise non-derogable rights suggest that similarly compelling public interests may justify restricting other non-derogable human rights, such as access to essential medicines. Indeed, the arguments in support of international trade rules on intellectual property, which effectively limit access to essential medicines in service of patents, make precisely this claim.

50. World Conference on Human Rights, *Vienna Declaration and Program of Action*, June 14–25, 1993, A/Conf.157/23, 12 July 1993.

51. For example, the ICCPR allows the restriction of certain rights (e.g., free movement, religion, peaceful assembly, association and press freedom) to protect collective interests (such as national security, public order, public health or morals, the rights and freedoms of others, or public emergency). The ICCPR also enables countries to derogate from human rights in the event of public emergencies that threaten the life of the nation (and that are officially proclaimed) although public emergencies cannot justify derogations from rights to life, freedom from torture, and slavery.

52. United Nations, *Siracusa Principles on the Limitation and Derogation of Provisions in the International Covenant on Civil and Political Rights*, 1984.

### 3.2. Does the Innovation Argument Justify Limiting Access to Medicines?

The pharmaceutical industry argues that strict, global patent protection is critical in order to recoup the massive resources drug companies invest on research and development (R&D), which they claim is around U.S.\$800 million per medicine, and to provide them with the incentive to spend more on R&D to produce new medical innovations.<sup>53</sup> The industry claims that exceptions such as compulsory licensing and parallel imports threaten the viability of the medical innovation system. For example, the International Federation of Pharmaceutical Manufacturers Association contends that “compulsory licensing is a threat to good public health by denying patients around the world the future benefits of R&D capabilities of the research-based industry from which new therapies come.”<sup>54</sup> Proponents of strict intellectual property rules maintain that by producing new medicines, the patent system serves a vital public health function, and that this justifies the short-term welfare loss that patent rights will inevitably cause through increased medicine costs.

Yet evidence suggests that pharmaceutical companies spend considerably less than U.S.\$800 million to develop each new drug. Studies have shown, for instance, that this amount includes not just actual expenditure, but opportunity costs, which are not actual expenditure but what the money could have earned elsewhere if not spent on R&D.<sup>55</sup> The vast majority of the global pharmaceutical industry is located in the U.S. and to a lesser extent, in Western Europe.<sup>56</sup> In the U.S., companies receive extensive tax breaks on R&D, sometimes recouping up to 50 per cent of the cost of clinical trials. Moreover, many therapeutic drugs sold by private companies were actually researched and developed by government-funded public institutions.

53. See, for instance, H. Grabowski, “Patents, Innovation, and Access to New Pharmaceuticals,” *Journal of International Economic Law* 5, no.4 (2002): 849–853, and Pharmaceutical Research and Manufacturers of America (PhRMA), *Pharmaceutical Industry Profile 2003* (Washington, DC: PhRMA, 2003): 6.

54. International Federation of Pharmaceutical Manufacturers Association, “Access to Medicines: The Right Policy Prescription,” paper distributed at the WTO in 2001, quoted in E.F.M ‘T Hoen, *supra* note 15, 27 and 43.

55. “How Much does it Really Cost to Manufacture a Drug?” *Guardian* Special Report: AIDS, 18 February 2003.

56. A. Gambardella, L. Orsenigo, and F. Pammoli, “Global Competitiveness in Pharmaceuticals – A European Perspective,” report prepared for the Enterprise Directorate-General of the European Commission, November 2000, 27.

For example, studies indicate that in the U.S., “between 60 and 75 per cent of innovative new drugs developed in the last few decades would not have been developed, or would have been delayed significantly, absent public sector research.”<sup>57</sup> In light of these factors, it is estimated that the real cost of R&D for new drugs is closer to U.S.\$100 million, 75 per cent less than what industry claims.<sup>58</sup> While public funding may not account for all private investment in R&D, it certainly significantly undercuts its extent, raising valid questions about whether limited exceptions to reduce anti-retroviral prices in developing countries would in fact prevent companies from recouping R&D costs. Certainly, if pharmaceuticals are a high-cost and high-risk industry, this is not reflected in the industry’s profits: from 1995 through 2002, the pharmaceutical industry was the most profitable industry in the U.S. In 2004, while drug companies ranked as the third most profitable industry in the U.S., they were nonetheless three times more profitable than the median for all Fortune 500 companies in 2004 (15.8 percent compared to 5.2 percent).<sup>59</sup>

Nor is the industry’s high-cost and high-risk status reflected in its spending on marketing, which far outstrips what it spends on R&D.<sup>60</sup> These figures raise serious questions about the necessity of high prices to recoup R&D as opposed to maintaining the industry’s incredible profit margins. Indeed, industry’s R&D costs are the basis on which industry justifies its pricing structures in all markets. It is, however, notable that to date, the private industry refuses to provide the data on which its projections are based. Thus, while none could dispute industry’s legitimate commercial interests, there are, however, valid questions about the extent to which this industry seeks to maximize profitability at the expense of its social function as a producer of critical health products.

57. A.D. So, A.K. Rai and R.M. Cook-Deegan, “Intellectual Property Rights and Technology Transfer: Enabling Access for Developing Countries,” Commission on Intellectual Property Rights, Innovation, and Health Study.

58. *Guardian*, supra note 55.

59. Henry J. Kaiser Family Foundation, Trends and Indicators in the Changing Health Care Marketplace, Pub. no.7031, Section 1, Exhibit 1.21, 8 February 2006, <http://www.kff.org/insurance/7031/index.cfm>.

60. N. Pattison and L. Warren, “2002 Drug Industry Profits: Hefty Pharmaceutical Company Margins Dwarf Other Industries,” Public Citizen, Congress Watch (June 2003), [http://www.citizen.org/documents/Pharma\\_Report.pdf](http://www.citizen.org/documents/Pharma_Report.pdf).

Leaving aside the question of industry outlays on R&D, there are also serious questions about the necessity of patents in poor countries to recoup R&D and incentivize further R&D. The global pharmaceutical market is telling in this regard, since over 86 per cent of the global drug market lies in North America, Europe, and Japan.<sup>61</sup> The remainder is spread over the rest of the world, including Asia, Africa, Latin America, and Eastern Europe, with each of these vast regions consuming a tiny percentage of patented medicines. For instance, in 2005, Africa accounted for just over 1 per cent of the global market for pharmaceuticals.<sup>62</sup> It is notable that both the majority of the world's population and the majority of the global disease burden lie in these regions, and certainly the drug consumption in these markets largely reflects use by elites and not by the poor. Indeed, to get a relative sense of the profits that sales in these regions generate, it has been estimated that poor countries purchase patented medicines in such comparably minute amounts that twenty-year patents in poor countries would be equivalent to extending patents in developed countries by two weeks.<sup>63</sup>

While there is certainly some profit to be made in poor countries, these profits simply do not incentivize innovation for the primary disease burden in developing countries. This is reflected most egregiously in the "10/90 gap," which articulates the fact that an estimated 90 per cent of global health R&D is spent on conditions that affect only 10 per cent the world's population, with priority conditional upon ability to pay.<sup>64</sup> Indeed, a recent study showed that between 1975 and 1999, only 0.1 per cent (16 out of 1393) of new chemical entities produced were for tropical diseases and tuberculosis.<sup>65</sup>

61. World Health Organization, *Public Health Innovation and Intellectual Property Rights: Report of the Commission on Intellectual Property Rights, Innovation, and Public Health* (Geneva, 2006), 28.

62. *Ibid.*

63. J.O. Lanjouw and W. Jack, "Trading Up: How Much Should Poor Countries Pay to Support Pharmaceutical Innovation?" *Center for Global Development Brief 4*, no.3 (2004): 1, 6.

64. Médecins Sans Frontières, *Doha Derailed: A Progress Report on TRIPS and Access to Medicines* (2003), 6, <http://www.accessmed-msf.org/documents/cancunbriefing.pdf>. The Global Forum for Health Research focuses on methods of correcting the 10/90 gap: see Global Forum for Health Research, *The 10/90 Report on Health Research 2001–2002* (Geneva, 2002), and <http://www.globalforumhealth.org> for other annual reports on this topic.

65. P. Trouiller et al., "Drug Development for Neglected Diseases: A Deficient Market and a Public Health Policy Failure," *The Lancet* 359 (2002): 2188.

Given concerns about the efficacy and ethics of the current incentive system, in 2003, the World Health Organization appointed a Commission on Intellectual Property Rights, Innovation, and Public Health (CIPIH) to review evidence on how effective this system is for diseases that are prevalent in developing countries and that predominantly affect poor people.<sup>66</sup> The CIPIH released its final report in April 2006, which held that “where the market has very limited purchasing power, as is the case for diseases affecting millions of poor people in developing countries, patents are not a relevant factor or effective in stimulating R&D and bringing new products to market.”<sup>67</sup>

If patents in poor countries do not serve valid public health purposes or contribute to pharmaceutical innovation, they cannot be seen as justifiable limitations of core rights to life and medicines, and should in fact be seen as serious violations of human rights. How else should manifestly unjustifiable restrictions of both human life and health that result in the deaths of millions be viewed?

There is important support for this idea from Thomas Pogge, a philosopher at Columbia University, who argues that social rules such as trade and economic policies can violate human rights when they “foreseeably and avoidably deprive human beings of secure access to the objects of their human rights.”<sup>68</sup> If people participating in upholding social rules that actually violate human rights “are sincerely and on the basis of the best available evidence convinced that the social rules they are upholding do not violate human rights,” then they are not human rights violators.<sup>69</sup> However, when there is foreseeability and the imposers of rules know of their human rights impact, and of “feasible and practicable reforms of these rules through which a substantial portion of existing deprivations could be avoided,” then their participation should be viewed as a human rights violation.<sup>70</sup> Pogge argues that the present international patent system fulfils these conditions.<sup>71</sup>

66. World Health Organization Commission on Intellectual Property Rights, Innovation, and Public Health, *Framework Paper July 2004*, 1, <http://www.who.int/intellectualproperty/documents/en/Framework.paper.pdf>.

67. World Health Organization, *supra* note 61, 34.

68. T.W. Pogge, “Human Rights and Global Health: A Research Program,” *Metaphilosophy* 36, no.1 and 2 (2005): 182, 194.

69. *Ibid.*, 195.

70. *Ibid.*

71. *Ibid.*, 199.

The strong evidence and growing consensus that pharmaceutical patents in poor countries serve no public interest or innovative function suggest fundamental flaws in the justifications for the current global patent system, particularly considering the disproportionate regional loss of life that results from the stringent enforcement of patents for essential medicines. At a minimum, the TRIPS agreement's restrictions on access to medicines should be scaled back to the extent necessary to ensure that such limitations do not violate the right to health. Any alternative that does not assure this allows the current system to turn the human right to life and health into a vigorously policed, limited, and contested exception to an inviolable property right.

It is argued at the UN Commission on Human Rights and by the World Health Organization that the solution to these restrictions on medicine access lies in ensuring that the greatest flexibility possible is exercised in TRIPS. However, the use of TRIPS flexibilities may not adequately address the systemic restrictions that TRIPS is imposing on access to medicines in poor countries, given that licensing is not enabling imports, the limited use of compulsory licenses for manufacture, and the agreement's broader restrictions on generic manufacture. This may well suggest that the TRIPS agreement should be amended to exclude its operation in developing countries, or even be revoked in toto.

#### **4. Practical Approaches to Limiting Restrictions on Medicine Access**

Recognizing that TRIPS and associated rules and agency potentially violate human rights also gives powerful support to practical approaches that would ensure better integration of trade and human rights concerns by governmental policy makers in all sectors and by judicial decision makers. Ensuring that WTO dispute settlement panels interpret TRIPS in accordance with human rights standards would be an important access point for human rights standards, particularly since existing WTO jurisprudence has a poor record when it comes to balancing public policy and public health imperatives with WTO obligations, including TRIPS.<sup>72</sup> Ensuring that WTO panels interpret TRIPS in accordance with human rights standards could lead to a more

72. For example, see World Trade Organization Secretariat, *Canada-Patent Protection of Pharmaceutical Products Case*, WT/DS114/R, 17 March 2000.



appropriate balancing of health needs and trade and intellectual property interests in the dispute settlement process.

Another strategy to ensure that trade does not negatively affect health is to work toward greater coherence in government policies on health and trade. For example, it has been proposed that trade negotiations and implementation not take place without addressing the health impacts of proposed trade policies. The UN Special Rapporteur on the Right to Health recommends that governments use right to health impact assessment mechanisms to evaluate the potential and actual impact of trade rules on medicine access. While this is largely still an idea, practical examples show its potential utility. For example, Peru recently assessed the potential impact on access to medicine of a free trade agreement (FTA) it was negotiating with the U.S., and found that the agreement would exclude 700,000 to 900,000 people from having access to medicines without an increase in the budget of the Minister of Health or an increase in household income for the poor.<sup>73</sup> It recommended a medicine fund from sectors benefiting from an FTA to ensure that this restriction in access would not occur.

Civil society's enforcement of human rights standards against governments and corporations is probably the most powerful locus of action for enforcing human rights claims, irrespective of the legal or political nature of the country in question. Indeed, this is evident in experiences in South Africa both before and after the demise of apartheid. For example, domestic and international mobilization using human rights standards was a primary factor that forced the demise of the apartheid state itself.<sup>74</sup> South Africa's post-apartheid constitutional democracy provides powerful illustrations of how to challenge corporations and governments using human rights arguments and public opinion to great effect. For example, between 1997 and 2001, the U.S. government and forty pharmaceutical companies banded together to challenge legislation that enables parallel imports and generic substitution of medicines in South Africa, which has the worst HIV

73. United Nations Office, *Expert on Right to Health Reminds United States and Peru of Human Rights Obligation in Context of Trade Agreement*, 13 July 2005.

74. See D. Black, "The Long and Winding Road: International Norms and Domestic Political Change in South Africa," in T. Risse, S.C. Ropp, and K. Sikkink, *The Power of Human Rights: International Norms and Domestic Change* (Cambridge: Cambridge University Press, 1999), 78; and A. Klotz, Norms in *International Relations: The Struggle Against Apartheid* (Ithaca: Cornell University Press, 1995), 6.

epidemic in the world. Human rights advocates joined the case bringing strong human rights arguments and extensive civil society protests, which attracted global media attention and in the process provoked an international outrage so great that the U.S. withdrew its diplomatic and trade pressures and the pharmaceutical companies withdrew their legal action.

This example illustrates how public opinion can enable powerful reputational impacts that can create economic incentives for companies to alter their conduct. It suggests that linking corporate restrictions on medicines with growing consumer preferences for more socially just corporate practices may offer a powerful practical way of pushing drug companies in the direction of more human rights protective conduct when it comes to medicines.<sup>75</sup> The effectiveness of organized public opinion in forcing the U.S. to withdraw its trade pressures against South Africa illustrates a similar utility when it comes to governments. It also brings to mind what Jagdish Bhagwati terms the “Dracula effect:” namely, that if you expose evil to sunlight it will shrivel up and die.<sup>76</sup> Certainly, in this area, transparency and visibility alone can offer strong incentives for behaviour modification, all the more so when combined with negative public opinion.

There is also considerable scope for direct legal enforcement of human rights norms against governments and companies with regard to medicines. For example, in South Africa, a national advocacy group sued Glaxo Wellcome and Boeringer Ingelheim using national competition law, arguing that their pricing of anti-retroviral drugs was anti-competitive and violated constitutional and international rights to life and health. After the case cleared the first hurdle at the Competition Commission, the companies settled out of court and issued voluntary licenses on the drugs in question to generic manufacturers, at vastly reduced prices.<sup>77</sup>

75. See, for example, R. Howse, “Conference: Linking Trade and Sustainable Development: Roundtable Discussion,” *American University International Law Review* 18 (2003): 1303, 1324.

76. J. Bhagwati, “Free Trade: What Now?” keynote address delivered at the University of St. Gallen, St. Gallen, Switzerland, 25 May 1998, [http://www.columbia.edu/~jb38/freedom\\_speech.pdf](http://www.columbia.edu/~jb38/freedom_speech.pdf).

77. *Hazel Tau & Others v. GlaxoSmithKline and Boeringer Ingelheim*, Competition Commission of South Africa.

## Conclusion

The CIPIH report states that “[t]he economic problem is the lack of effective demand for health products needed by developing countries.”<sup>78</sup> This is an astounding statement considering the global scale of the need for medicines, and effectively illustrates the fatal flaw in the current global patent system, where medical needs, unmatched by money, simply do not constitute economic demands. While this may reflect standard economic thinking, it provides an excellent illustration of why using purely economic criteria to allocate medicines globally is inappropriate, and why the present system is so blind to the needs of the global poor. Human rights provide a critical corrective by transforming human needs into legal entitlements and by placing a non-material value on them that social institutions and agents cannot so easily ignore. Certainly, the force of human rights in this respect also arises from the fact that law, irrespective of the extent to which it is complied with by states, is intimately linked to the use and authority of power. To this extent law can be seen as an important terrain of struggle for a more humane trade system. We should, therefore, view human rights not only as holding the potential to modify the behavioural incentives currently driving the system, but as law intimately linked to social design, as providing a mechanism potentially capable of reforming the system itself.

78. World Health Organization, *Public Health Innovation and Intellectual Property Rights: Report of the Commission on Intellectual Property Rights, Innovation, and Public Health* (Geneva, 2006), 32.

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