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Rebuilding the Harm Principle: Using an Evolutionary Perspective to Provide a New Foundation for Justice

Ed Gibney
United Kingdom
Tanya Wyatt
Northumbria University, United Kingdom

Abstract

Following Mill's (1859) definition, the 'harm principle' came to dominate legal debates about crime and the appropriate response of the justice system, effectively replacing official talk of morality in modern secular societies. However, the harm principle has collapsed without an accepted definition of harm or a method to adjudicate between competing claims. To address this, we propose a definition of 'good' derived from evolutionary perspectives. From this, a universal goal for society can be recognised, specific objectives to reach that goal can be listed, and a new definition for harm can be used to repair the harm principle and restore its ability to underpin criminal law and the principles of justice in society.

Keywords

Harm principle; zemiology; political philosophy; evolutionary ethics; green criminology.

Introduction

After John Stuart Mill (1859) defined the 'harm principle', it quickly came to dominate legal debates about crime and the appropriate response of the justice system. This effectively replaced all official talk of *morality* in modern secular societies. However, every life causes harm to the lives of others. For example, all nourishment comes from either ending the life of another sentient creature or extracting resources from the environment that could have been used by another. Without an accepted definition of harm or a method to adjudicate between competing claims of harm, the harm principle as the underlying justification for criminal law in liberal democracies has effectively collapsed (Harcourt 1999).

The way that simple harms are normally justified, or traded off one for another, is by claiming that one harm is allowed when it is in service of a greater good. For example, the temporary emotional harm caused to a three-year-old boy who is stopped from freely running wherever he wants to go is justified by the fact that this restraint will keep him away from deadly harmful traffic. The problem with trying to use the harm principle to determine the laws for a society is that there is no philosophically justified *summum bonum* (i.e., 'highest good') that would enable one to choose from among complex and competing claims of harm. However, this paper will argue that an evolutionary perspective[1] can give us a pragmatic *summum bonum,* which leads to a new definition for harm that can stand the test of time without collapse. We begin with a brief description of the importance of the harm principle. This is followed by details about its collapse, the accompanying collapse of justice, and the consequences of each downfall. We then build a case for a new definition of 'good', from which we can derive what harm is in a way that repairs the harm principle and restores its ability to underpin criminal law and the principles of justice in society.

The Importance of the Harm Principle

The social effort to avoid harm is truly ancient. For example, the three dominant monotheistic religions in the West trace their governing rules back to the Ten Commandments, which prohibit several types of perceived harm, including murder, theft, adultery and blasphemy. Even these earliest written religious rules, however, are unlikely to mark the beginning of our concern with harm. Looking at the proto-norms and social habits of present-day non-human animals gives clues to our own evolutionary history, and these show efforts to avoid harm too. For example:

> female chimpanzees have been seen to drag reluctant males towards each other to make up after a fight, removing weapons from their hands, and high-ranking males regularly act as impartial arbiters to settle disputes in the community … [T]hese hints of *community concern* [are] another sign that the building blocks of morality are older than humanity, and that we do not need God to explain how we got where we are today. (De Waal 2010: para. 26)

These recent findings are the latest results of a process that began with the dawning of empiricism and the scientific method during the Renaissance and Enlightenment periods. That era marked a turning point in human history, in which previous religious justifications for social control were questioned and found wanting. In turn, this spurred revolutions against purportedly divine monarchies and ushered in the current modern age of liberalism and freedoms for individuals, as chosen by democracies. Such a broad movement required the ideas of many philosophers and political activists, but the work of three men can be highlighted for their particular importance. John Locke is considered the 'father of liberalism' (Korab-Karpowicz 2010; Sharma and Sharma 2006) and he argued for our freedom to pursue happiness (Locke 1689/2010); Jeremy Bentham (1789/1970) took this further by defining utilitarianism and asking whether non-human animals can suffer; and John Stuart Mill (1859: 6) in his essay *On Liberty* extended utilitarianism and articulated the harm principle, saying:

> the only purpose for which power can be rightfully exercised over any member of a civilized community, against his will, is to prevent harm to others … The only part of the conduct of anyone, for which he is amenable to society, is that which concerns others. In the part which

merely concerns himself, his independence is, of right, absolute. Over himself, over his own body and mind, the individual is sovereign.

As Feinberg (1984) noted, Mill argued throughout *On Liberty* that the harm principle is the *only* valid principle for determining legitimate invasions of liberty. Mill wrote that only conduct that breaches these terms can properly be made criminal. Crime itself has no ontological reality—it is a social construct that has varied across time and space (Hillyard and Tombs 2004)—so social agreement about harm is indeed necessary for the construction of criminal laws and the justice systems that result from those laws. As Harcourt (1999) further detailed, this principle of avoiding harm has, in fact, dominated subsequent legal debates about crime and the response of the justice system to such crime, effectively replacing all official talk of morality in modern secular societies.

The Collapse of the Harm Principle

Almost from the beginning, however, it proved difficult to uphold such use of the harm principle. To Harcourt (1999: 129), 'the simplicity of the original harm principle would veil an intense struggle for the meaning of harm'. This struggle is evident within Mill's work itself. Although his treatise was called *On Liberty*, it contained two maxims that pulled in opposite directions and ended up promoting illiberal outcomes. The first maxim, the harm principle shown above, said individuals are free whenever they are doing no harm. The second maxim, however, focused on the case in which the opposite occurs. Mill (1859) noted that when individuals act in ways that are prejudicial to others, they *are* accountable for this and may be subjected to social or legal punishments. This has been called the 'social authority principle' (Menezes Oliveira 2012), which, for Mill:

> produced a blueprint for a highly regulated society: a society that regulated the sale of potential instruments of crime, that taxed the sale of alcohol and regulated the public consumption of alcohol, that regulated education and even procreation, and that prohibited public intoxication and indecency. (Harcourt 1999: 121–122)

Over the ensuing decades, a back-and-forth struggle between liberty and social authority occurred. Varying interest groups influenced what lawmakers deemed harmful, and this resulted in the alternating expansions and contractions of legal restrictions. In 1984, Feinberg published the first volume, *Harm to Others*, of his landmark four-volume work, *The Moral Limits of the Criminal Law*, which explored the contours that these differing interpretations of the harm principle produced. Like Mill, Feinberg's (1984: 214) confidence in the robustness of the original harm principle eroded somewhat over the course of his writings (Harcourt 1999), but even at the outset, he noted:

> insofar as our models for understanding harm are broken bones and stolen purses, we can preserve that illusion and think of harm as a simple, determinate, even purely empirical notion. The analysis proposed in this and the preceding chapters, however, reveals that harm is a very complex concept with hidden normative dimensions, and that partly because of this, the harm principle cannot be applied in a plausible way in large ranges of circumstance without supplementary criteria (or 'mediating maxims'), some of which are provided by independent moral principles.

As an example of these independent moral principles, Feinberg (1984, emphasis added) himself included several morally laden but undefined phrases in his mediating maxims, such as 'the consequence of *wrongful* acts', '*morally indefensible* conduct', '*malicious* interests' or '*patently wicked* or *morbid* interests', 'mere *transitory disappointments*', 'the *gravity* of a possible harm', 'that interest which is the *more important*', 'how *vital* they are' and 'their *inherent moral quality*'. Both the left and right wings of societies have since moved into this undefined ethical vacuum and attempted to apply their own definitions of morality in order to use the harm principle to support their own underlying moral convictions. As a result, liberalism is now the domain of both progressives and conservatives (Harcourt 1999). Perhaps more

obviously, progressives have invoked the harm principle to argue for the rights of minority groups of varying ethnicities, religions, and sexual preferences. However, conservatives have also used the harm principle to regulate pornography, prostitution, disorderly conduct, homosexual conduct, alcohol consumption, drug use, fornication and adultery (Harcourt 1999).

As a result, scholars have ended up with watered-down and relativistic definitions of harm. For example, harm has been described as:

- 'a *normative concept* that reflects *underlying social judgments* about the good and the bad' (Lin 2006: 901, emphasis added)
- 'a setback to human interests that *community norms* have deemed to be *significant*' (Lin 2006: 901, emphasis added)
- 'a *wide range of immoral, wrongful and injurious* acts that may or may not be deemed illegal' (McLaughlin and Muncie 2013: 430, emphasis added)
- 'a *normative concept*, [and so] *specific forms* of harm need to be analysed in ways that offer *specific facts* about their nature and extent' (White 2013: 19, emphasis added)
- 'a behaviour that produces *unnecessary* ecological harm' (Lynch et al. 2013: 1005).[2]

These are accurate descriptions of the way harm is currently defined, but they are effectively useless for anyone wishing to make decisions from among competing claims that invoke the harm principle for either liberty or social authority. Harcourt (199: 119–120) made this point repeatedly when stating:

> today, the issue is no longer whether a moral offense causes harm, but rather what type and what amount of harms the challenged conduct causes, and how the harms compare. On those issues, the harm principle is silent … As to these questions, the harm principle offers no guidance. It does not tell us how to compare harms … The debate is no longer structured. It is, instead, a harm free-for-all: a cacophony of competing harm arguments without any way to resolve them … The harm principle has exhausted its purpose. The triumph and universalization of harm has collapsed the very structure of the debate.

The Collapse Spreads

Diagnosis of the collapse of the harm principle came principally from the struggle to judge between competing claims of harm to *human* interests. Even among so-called environmental disputes, debates often remain anthropocentric, with little or no regard for justice for non-humans. For example, perpetrators labelled as green criminals have themselves claimed to be victims of harm due to economic pressures or threats to their traditions (Wyatt 2017). Some of these people are seen as more 'worthy' of sympathy than others, whereas states can be viewed as 'lesser' victims than individuals, and corrupt states as potentially not victims at all. This is what Wyatt (2013) has characterised as a 'hierarchy of victimisation', but any attempts to justify one hierarchy over another collapse right along with the harm principle.

Of course, there are also wider-than-mere-human concerns on which liberal secular governments have struggled to render judgements. Criminal law clearly prioritises the wellbeing and comfort of people over the interests of all other species (Halsey and White 1998; Washington et al. 2018; Wyatt 2017). Even within attempts to adhere to a non-human perspective, anthropocentric hierarchies creep in where the interests of non-human animals are prioritised according to human-centred values such as sentience, charisma or usefulness for biotechnology (Wyatt 2017). This has been characterised as speciesist—a prejudice or biased attitude favouring the interests of one's own species against those of other species (Beirne and Cazaux 2006; Ryder 2010). Out of these struggles to judge harms, competing lenses on justice have been proposed—both ecocentric holistic perspectives and biocentric atomist perspectives (Goyes and Sollund 2018). This leads to several varieties: there is 'social justice' for inter-human concerns, 'environmental justice' for ecological harm disproportionately affecting some human communities, 'species justice' for harm done to non-human animals, 'ecological justice' for harm done to nature in

general, and 'eco-justice' for an unspecified consideration of all of these concerns (White 2013). Whereas measuring and conceptualising harm is key to White's (2013) approaches to justice, nowhere does he explicitly define harm itself. As Washington et al. (2018) asked, how do we decide what is truly injustice from among these perspectives? How do we arbitrate hard cases where the interests of individual organisms, species and ecosystems do not align? As these questions point out, once our understanding of harm collapsed, our sense of justice collapsed too, wherever decisions needed to be made between unavoidable harms.

The Consequences of These Collapses

Clearly, we are getting these decisions wrong and deep problems have arisen. The collapse of any guiding principles has resulted in widespread social and environmental harm, and deep existential risk for life. Many social harms have been noted (Raymen 2019) that are currently legal. These include the rise of far-right nationalist groups (Winlow et al. 2017); crises in housing and employment (Lloyd 2013; Madden and Marcuse 2016); resource wars (Parenti 2011); a libertarian financial elite, generating widening gaps of inequality (MacLean 2017); and a socially corrosive consumer culture generating harm, indebtedness, and significant mental health issues (Cederström and Spicer 2015; Raymen and Smith 2017).

Among the recognised environmental harms that are still permissible and go largely unchallenged (Wyatt 2017) are institutionalised harms such as using cyanide in mining (Halsey 1997); factory farming of non-human animals (Wyatt 2014); permissible amounts of air, soil and water pollution (Halsey and White 1998); and the problems of climate change (White 2013). In fact, there are relatively few environmentally destructive activities that are completely illegal, even though such environmental degradation has been claimed as a crime against humanity that causes severe and unnecessary human suffering that unquestionably degrades the quality of human life (Lennard and Parr 2016).

This is deeply problematic for the continuation of life on Earth. Human-caused extinctions began during the Late Pleistocene era, as Homo sapiens spread out of Africa into Eurasia and beyond (Harari 2015). Now, there is broad consensus that we have entered Earth's sixth mass extinction event (Ceballos et al. 2015), with one million species facing extinction due to human activity (Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services 2019). Rockstrom et al. (2009) theorise that there are nine Earth systems that must remain within certain levels to support human life. At least two of these 'planetary boundaries' have been crossed—concerning biodiversity loss and the nitrogen cycle—even though:

> transgressing one or more planetary boundaries may be deleterious or even catastrophic due to the risk of crossing thresholds that will trigger non-linear, abrupt environmental change within continental-to-planetary-scale systems. (Rockstrom et al. 2009: 32)

As of January 2018, the doomsday clock has been set to just two minutes to midnight—its smallest number to date—due to 'the looming threats of nuclear war and climate change' (Chan 2018: para. 3).

How to Rebuild the Harm Principle

These consequences cause deep regret, but like all regrettable actions they provide an opportunity to learn. The collapse of the harm principle—along with the wider collapses of justice—has forced us to recognise that there is harm in most human activities (Harcourt 1999), and this realisation may help a new moral structure to emerge. As Dworkin (1999) wrote, there is no principled distinction between *harmful* and *immoral* behaviour such that one and not the other can be used to justify criminalisation. Every moral choice brings harm to someone—that is precisely why it is a moral choice.

Which morals, however, are we to use to identify harms? As described in this article, zemiologists cite a persistent influence from liberal individualism on the current approaches to social harm (Pemberton 2015). According to Raymen (2019), this liberalism has:

> concentrated liberty and moral authority within the sovereign individual, leaving the individual free to pluralistically pursue his or her privately defined notion of the Good life. [However,] such individualism fundamentally precludes any consensus from ever being reached.

This is why liberty alone cannot be the paramount claim—it cannot resolve conflicts between multiple infringements on liberty. As Feinberg (1984: 10) said:

> a liberty-limiting principle does not state a *sufficient condition* because in a given case its purportedly relevant reason might not weigh heavily enough on the scales to outbalance the standing presumption in favor of liberty … Moreover, no liberty-limiting principle claims to put forth a *necessary condition* for the justification of criminal statutes either.

Badiou (2001) further suggested that liberalism is a negative basis for ethics that has it the wrong way around. The evil of harming another is noted first, and then society attempts (but fails) to derive a definition of good from that. For all these reasons, Raymen (2019) has argued that zemiologists and criminologists must abandon liberal individualism and instead form an idea of the *good*, from which harm can *then* be defined.

Pemberton (2015: 32) has begun such an effort by noting 'we gain an understanding of harm exactly because it represents the converse reality of an imagined desirable state'. His approach is rooted in theories of human need, and others in the field of zemiology have advocated this as well (Copson 2011; Hillyard and Tombs 2017). However, based on the widespread environmental and ecological harms listed in this article, we argue that any theories of the 'good' must go far beyond mere human need.

Evolutionary Ethics to Redefine Good

Current theories of the good traditionally fall into three camps: consequentialism, deontology and virtue ethics (Hursthouse and Pettigrove 2018). So far, none have managed to stand on their own to reach broad acceptance among professional philosophers (Bourget and Chalmers 2013). However, we believe that an evolutionary perspective can be used to modify each camp in such a way that they can be combined into a new and stronger position that provides a definition of 'good' that addresses all potential harms.

Consequentialism

First, when considering consequentialism, it helps to think about evolutionary consequences. The fundamental way that all evolutionary processes work is by the repetition of three steps—variation in a population, some selection mechanism, and then the retention of just a portion of the original population (Breslin 2010). There may be a few different selection processes—natural selection, sexual selection, multilevel group selection, and even rational selections of cultural memes—but after any one of them, there are only two possible outcomes in any evolutionary process: retention or extinction. Without proof of an afterlife, that is all we know with any degree of certainty.

But whose retention matters? Philosopher Peter Singer (1981) said it would be a logical error to look at the history of evolution and try to make the case that any one person, social group or even species was deserving of special interests; therefore, we ought to give *equal* consideration to all of these groups. Singer said that we could use reason and empathy to expand our circle of moral concern to include all sentient creatures. This is a step in the right direction, but by giving everyone equal consideration Singer provided no way to judge between competing interests—he left us still squabbling between various circles of insiders and outsiders.

However, looking at our evolutionary history shows that we are all inside the same circle. All of life is related and interrelated. This is something that evolutionary scientist E.O. Wilson (1998) talked about extensively when he attempted to unite all the different fields of biology, which he felt were becoming too siloed and separate from one another. Wilson proposed to do this by organising these fields into concentrically larger circles based on the magnitude of time and space. As Wilson (1998) said, biology starts with *biochemistry* at the smallest levels, which under certain conditions forms *molecular biology* and then *cellular biology*, before the creation of individuals who can be studied in various forms of *organismic biology*. Those individuals can then be examined in their different *social* groups, which live in different *ecosystems* and adapt slowly over *evolutionary* time frames. This comprehensive view yields Figure 1, which contains *all* of the major fields of biology and can, therefore, act as a guide for how to study—or morally consider—all of the life that has ever existed or ever will.
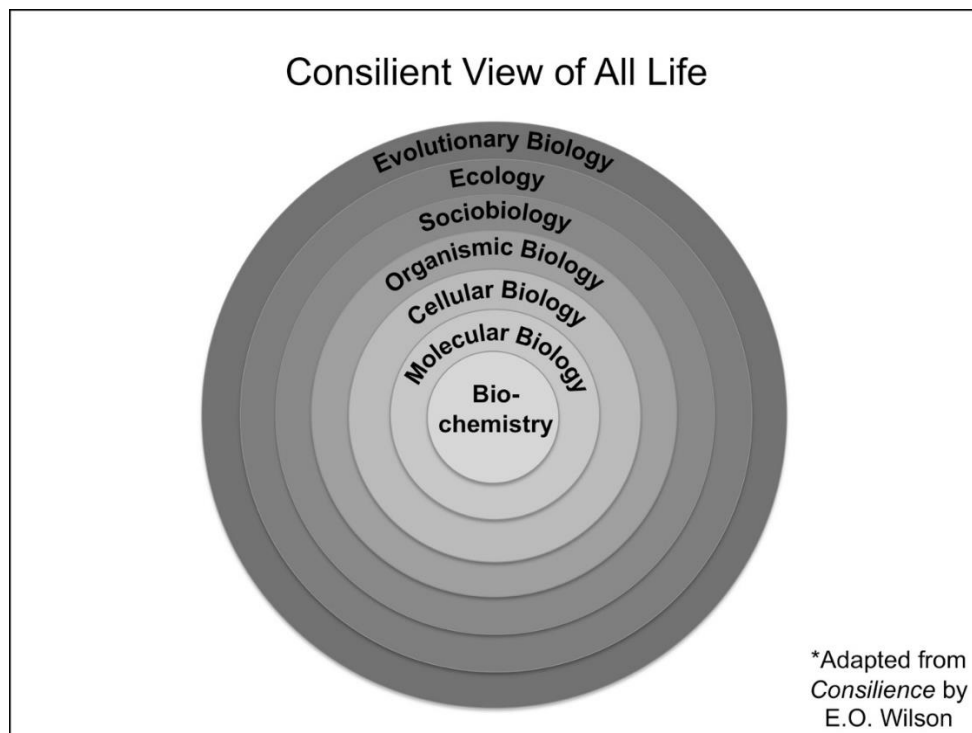

Figure 1: Seven Spheres of Biology (Adapted from Wilson [1998])

Figure 1 helps illustrate the ultimate evolutionary consequence that ethical systems need to consider. No matter what squabbles exist while trying to prioritise claims of harm within or between any one of these individual circles, the most important, overriding goal that rises above everything is that *all of this* ought to continue. Keeping *the entire project of life* going is a necessary and sufficient objective moral goal, since the failure to reach it would mean universal death and the end of all moral considerations. Once it is agreed that *that* consequence ought to be avoided, then these scientific fields can start to provide a list of what life needs to continue its journey.

What are some of those needs? Humanist psychologist Abraham Maslow (1943) famously developed his 'hierarchy of needs', which lists what it takes to satisfy a human's requirements for everything from basic, simple, physiological needs, all the way to complex and subjectively identified forms of self-actualisation. This kind of extensive list, one that builds up upon itself, is exactly what we would expect to see after long evolutionary timescales because the history of life is not a story about a simple on–off switch. The history of life has been an incredibly slow and painstaking series of tiny steps that finds as many ways as possible to make survival better and better and more and more secure. Faulty steps are eventually pruned away in favour of ones that last.

As important as Maslow's research has been, he—like most psychologists and philosophers—was only looking at one small slice of the entire picture of life. Maslow was focused on the needs of one individual species. We can now do better, though, using Figure 1 as a guide to help determine what *all* spheres of life need. Gibney (2017) offered precisely this type of list by describing how to replace Maslow with an *evolutionary hierarchy of needs*.

First, Maslow's categories were generalised so that they could be applied to any form of life. 'Physiological' needs of humans are merely the brute ingredients necessary for 'existence' that any form of life might have. For that existence to survive through time, the second-level needs for 'safety and security' can be understood as promoting 'durability' in living things. The third-tier requirements for 'love and belonging' are necessary outcomes from the unavoidable 'interactions' that take place in our deeply interconnected biome of Earth. The 'self-esteem' needs of individuals could be seen merely as ways for organisms to carve out a useful 'identity' within the chaos of competition and cooperation, characterising the struggle for survival. Finally, the 'self-actualisation' that Maslow had difficulty defining could be seen as the end, goal, or purpose that an individual takes on so that they may (consciously or unconsciously) have an ultimate arbiter for the choices that have to be made during their lifetime. This is what Aristotle called '*telos*'.

Second, Maslow's pyramid is better replaced by a tree—a common picture that is often used with discussions of the 'tree of life' in evolutionary studies. This symbol also provides a host of helpful metaphors. Base physiological needs of existence form the sturdy trunk that funnels nutrients from below and allows other aspirations to gradually stretch skyward. The second-level needs for durability form a protective canopy under which we might take shelter or nourish others. The middle layers could grow wildly or be cultivated in an infinite variety of shapes, and the highest level seeks energy from above to provide direction for the whole entity. Thus, Maslow's hierarchy of needs could be replaced and reconfigured to depict the wellbeing needs for any individual, as seen in Figure 2.
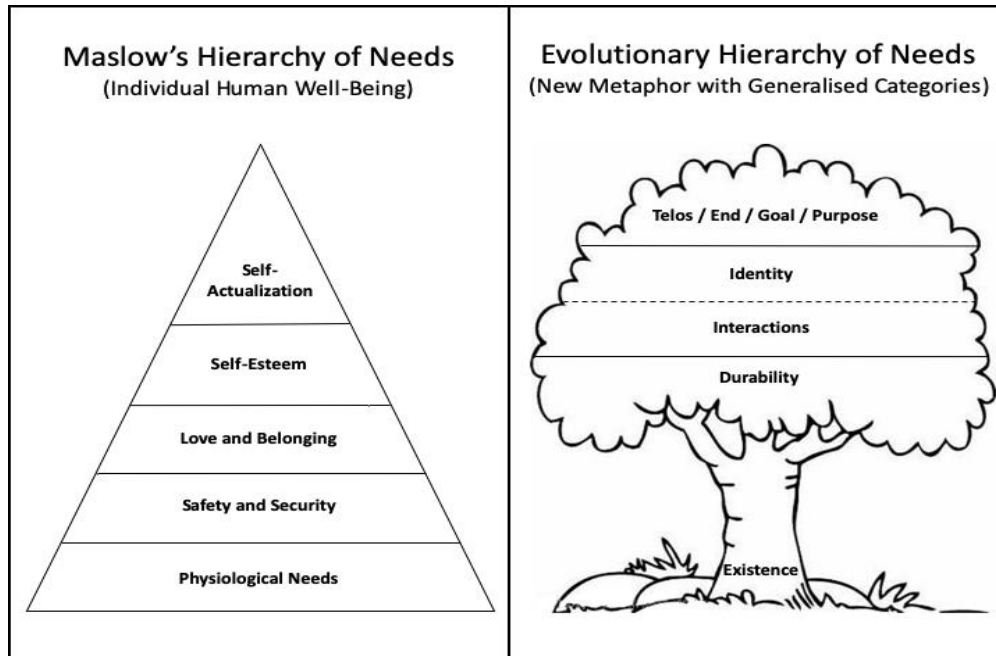

Figure 2: The Shift from Maslow's View to an Evolutionary View (Source: Gibney [2017])

This is now a metaphorical image that can be used to examine a much broader hierarchy of needs for human *and* non-human individuals. However, life is far more than just the separate interests of isolated individuals. There is interplay up and down the entire web of interconnected and interrelated life. Thus, a

hierarchy of needs could be developed for *all of life* by analysing each and every major level of biology using this revised image of evolutionary needs. It is beyond the scope of this paper to justify all of the details of such an effort (for more, see Gibney 2017), but the most important takeaway from an initial attempt at this is just how reliant each element of life is on the rest of life. For example, individual human needs can never be met without good societies, productive ecosystems, and enough time to adapt to any changing evolutionary conditions. And all of these are only possible if the biochemistry and other internal processes are healthy too.

In fact, since life is only as strong as its weakest link, the health and wellbeing of each and every level within all seven spheres of biology is vital. As Feinberg (1984: 37) wrote while summarising Rescher's work:

> deficiencies in one place are generally not to be compensated for by the superiority in another; there are few, if any trade-offs operative here—just as cardiovascular superiority does not make up for a deficient liver so added strengths in one sector of welfare cannot cancel out weaknesses in another.

Finding the right balance among *all of life's needs* is, therefore, the key to understanding how to continue to survive. In other words, no matter how much we focus on one seemingly individual tree, it is actually part of an interwoven forest of life. Taken together, such a forest of needs could provide the basis for a full and complete view of life. Hence, it is this view that forms and informs an evolutionary consequentialism that seeks to avoid extinction by maximising the survival of life. As Gibney (2015: 24) argued:

1. Life is.
2. Life wants to remain an is.
3. Therefore, life ought to act to remain alive.

Deontology

This modification of the first camp within ethics is only part of the redefinition of what good is. But it does lead to the second camp, which is deontology, or the search for moral rules and duties. All the evolutionary consequentialism laid out in the previous section points us to this rule: *act for the long-term survival of life*. This sounds simple enough, but its implementation is far from easy because it requires the balancing of many interests, across all forms of life, in both the present and the future.

This evolutionary rule stands in contrast to the utilitarian ideas that were developed by Bentham and Mill as they formed the original harm principle. They tried to simplify moral rules down to just one variable: *act so as to maximise total wellbeing in human society* (De Lazari-Radek and Singer 2017). However, when we graph the quantity of wellbeing against the quantity of people (see Figure 3), we demonstrate how that oversimplification led to what Parfit (1984) called 'the repugnant conclusion'. He noted that according to utilitarian rules, a world with 100 billion people in it might be considered better than having two billion people, simply because the *total* wellbeing would be higher. Considering *average* happiness, however, shows that it might be very high for those two billion people, whereas 100 billion might all be barely above suicidal misery. Unfortunately, the utilitarian rule does not provide any guidance on how to avoid that repugnant outcome.
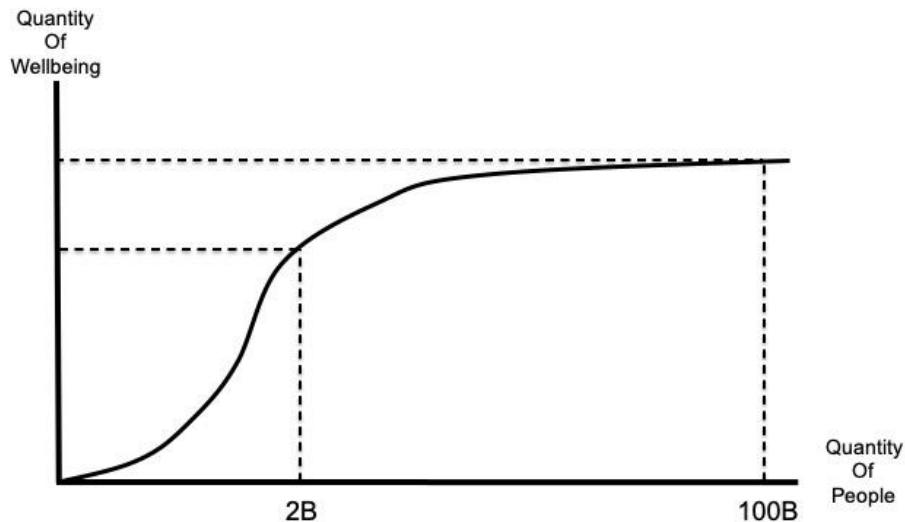
Figure 3: Repugnant View of Life

The problem with utilitarianism—and its current version of the harm principle—is that it fails to recognise the natural limits that are placed on biological creatures confined to a single planet. These utilitarian theories were developed before the weight of evolution was understood, before the science of ecology was developed, and before the consequences of the industrial revolution were felt—before overpopulation fears, ozone holes, climate change and other planetary boundaries became real harms that could no longer be avoided, as well as real barriers to any utility we could have hoped for.

While simple utilitarian thinking would drive the world towards 100 billion miserable humans, an evolutionary view of life recognises that they would be miserable precisely because they would be butting up against real constraints in the largest spheres of life—the ecological constraints that affect the continued evolution of all species. Thus, both the number of organisms and the quality of their lives ought to exist within some range that balances the progress needed to improve the robustness of life, against the fragility that comes from having too many needs that cannot all be met. In other words, there is a curve for population quantity and quality in which having too little life would be existentially fragile because life would barely be hanging on, but having too much life would also be existentially fragile because it would be at higher risk of collapse. In the middle, life could find comfortable ground on which survival may become more assured and more wellbeing could be gained. Such a curve would solve the repugnant problem and look like Figure 4.
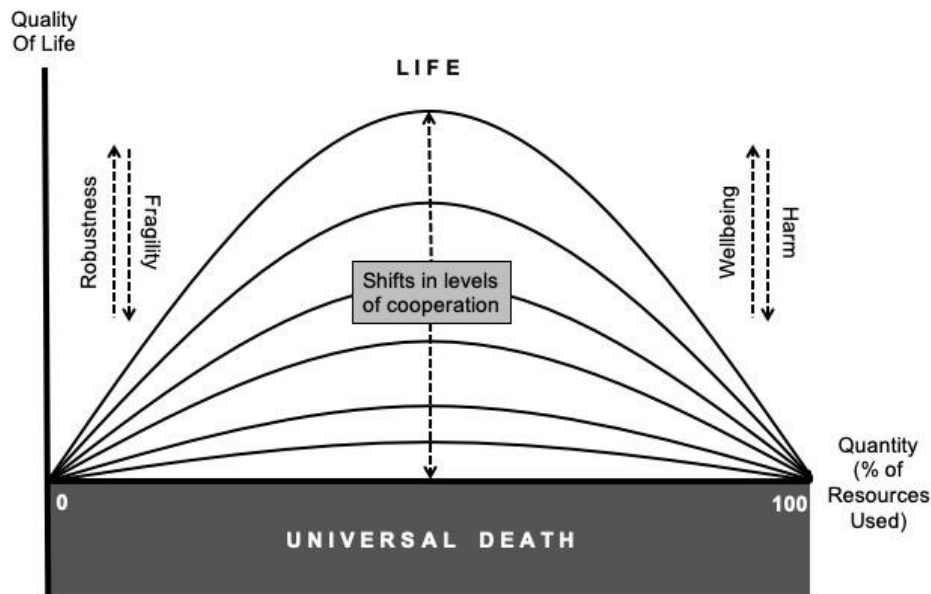
Figure 4: Evolutionary View of Life

Along the X-axis in Figure 4, it is currently unknown what percentage of resources being consumed would lead to the highest quality and most robust lives for organisms on Earth, but the two end points of 0% and 100% would certainly lead to the end of life. Attempting to increase the quantity of wellbeing in the world by simply consuming more and moving to the far-right end of Figure 4 risks slipping into universal death in the way that Leopold (1924/1991) described potato bugs—as eating all of the potatoes into extinction and, thus, extinguishing themselves. As reported by Washington et al. (2018: 370):

> Vitousek et al. (1986) estimated that about 40% of Net Primary Productivity (NPP) in terrestrial ecosystems was being co-opted by humans each year ... If it were to approach 100% of NPP, then natural ecosystems would collapse everywhere, as would our civilization which fully depends on nature.

Along the Y-axis, the value for the quality of life increases from the absolute zero of universal death. This is analogous to the definition of temperature as existing above absolute zero degrees kelvin—there is only energy above this temperature, and there is only wellbeing above universal death. The heights reached on the Y-axis are so far undefined by any unit of measure, but they reflect higher levels of robustness (i.e., lower levels of fragility), which are gradually being understood by advances in the social, ecological and evolutionary sciences (Taleb 2010).

The various curves in Figure 4 are shown to represent 'shifts in levels of cooperation', which reflect the work of evolutionary biologists Maynard Smith and Szathmáry (1999). They described eight major transitions in the history of evolution that took life from its simplest origins of replicating molecules to its most advanced form of adaptability. Each of these transitions could be thought of as a new curve in Figure 4, with each arrangement yielding more robustness and enabling new and higher qualities of wellbeing. The biological details of these major transitions are complex and beyond the scope of this paper, but it is important to note that each of them occurred when formerly separate and competitive biological elements discovered new ways to join up and cooperate with one another and begin to evolve together. That provides a vital clue to the third and final camp of evolutionary ethics.

Virtue Ethics

Virtue ethics originated chiefly with Aristotle (Hursthouse and Pettigrove 2018), who tried to find character traits that were always virtuous in and of themselves. Other philosophers, however, always found exceptions when using these traits might not be virtuous. One famous example is that honesty may

not be virtuous if a Nazi comes to your door and asks you where you are hiding a Jewish child (Varden 2010). In other words, virtues need to be understood in context as helping one to act towards a consequence or a goal. In a similar way, the latest studies in evolutionary biology have uncovered many of the virtues that help life reach its own survival goals. These include suitability to an environment, adaptability, diversity, a balance between cooperation and competition, limited scales for trial and error, humility in the face of epistemic uncertainty, and growth in our learning and progress so we can predict changes in our environment and respond accordingly (Gibney 2015).

Note that this final camp is where the egregious problems of previous attempts at evolutionary ethics (e.g., eugenics and Social Darwinism) can now be thoroughly refuted. Proponents of those failed ideas may have grasped the consequences and some of the rules of evolution, but not the virtues that actually succeed. Nature is not always 'red in tooth and claw', as Tennyson (1849: sec. 56) described. Rather, the survival of the fittest is actually the survival of the most adaptive and cooperative. These virtues are our best guides wherever future consequences are most uncertain—as in questions of optimal human population, for example, or what the best distribution of resources ought to be. Until limited experiments of trial and error can illuminate a way forward, means that are consistent with end goals are to be preferred. Cooperative consensus should be sought over totalitarian dictates wherever possible. Without such consistency of principles, short-term gains are much more likely to lead to long-term losses, and evolutionary views always strive to include the longest views possible.

Redefining Harm

So, now that all three traditional camps of ethics have been modified by evolutionary thinking, they can be put together and summarised into the following three interlocking principles:

1. Evolutionary consequentialism: avoid extinction and maximise survival.
2. Evolutionary deontology: act for the long-term survival of life.
3. Evolutionary virtue ethics: study what works and balance the needs of all life.

This is a summary of our full position on evolutionary ethics and it illuminates our definition of the *summum bonum* as '*the survival of life*'. Note that this inversion of the greatest good—from striving towards some top-down goal into the guarding and extending of a bottom-up effort—is exactly analogous to the way Darwin flipped the design of the natural world from an intelligent creator on high to an enormous series of vanishingly small evolutionary steps up from the simplest of origins. This greatest good, then, leads to a revised definition of harm as '*that which makes the survival of life more fragile*'. This definition contains an objective outcome, which means potentially harmful actions can now be studied empirically within the biological sciences, and any harmful activities may be weighed against one another. This will not always be easy or even possible to do (in which case virtue ethics may guide us in limited trials and errors, as described above), but this ability to comparatively 'weigh' harms is precisely what is required to correct the currently collapsed state of the harm principle.

Discussion and Conclusion

John Stuart Mill's harm principle has collapsed after 150 years of use as the underlying philosophy for justice behind modern liberal democracies. To fix the concept, we proposed a new definition of good. From this, a broad universal goal can be recognised, specific objectives to reach that goal can be listed in detail, and recognition of the natural limits placed on the wellbeing of all living organisms on Earth can provide a clear picture of how to avoid the repugnant conclusion of utilitarian thinking. 'Good' is now defined as that which leads to the long-term survival of life over evolutionary timelines. Harm is not to be understood on mere individual, social or even ecological levels—it is that which makes the survival of life more fragile. Only the widest moral consideration of all possible living beings will lead to a revised evolutionary definition for harm that can support the harm principle. An evolutionary hierarchy of needs can be generated for each and every sphere of life, which, if met, will lead to higher levels of wellbeing for

whatever the natural limits of life on this planet are, depending on the amount of cooperation those forms of life achieve. The previous method of making social governance decisions based on a negatively defined avoidance of harm is no longer the best way to legally restrict human endeavours. Striving instead for the positive outcome of meeting the evolutionary needs of life in general will provide huge benefits for individuals, societies, ecosystems and all future generations of life.

These recognitions lead to profound consequences for ethics, law and criminology. As Halsey (1997: 217) made clear, criminologists have 'failed to explicate the many theoretical and practical implications arising from the continued existence of so many legal yet ecologically damaging practices'. The law is intended to prevent and limit harmful behaviours. Thus, even if such harms currently fall outside of legal codes, they are not only a legitimate topic of examination but also a necessary one (Wyatt 2017). Schwendinger and Schwendinger (1975) have acknowledged that research like this inevitably engages with value judgements and moral questions; if done openly, this is not a reason to avoid complex and controversial topics. Leopold's (1949/1970) land ethic, Naess's (1973) deep ecology, Singer's (1981) expanded circle of moral concern, and many other efforts (for a survey of the origins of modern environmentalism, see Pepper 1996) have all made strong philosophical cases for the moral consideration of non-human needs, but all have so far failed to resolve the tension between competing claims of harm and priorities. Perhaps now further progress can be made.

Some countries have already taken steps that align with the evolutionary ethics and hierarchies of needs outlined in this paper, although they have not used these definitions for their justification and the merit of their implementations has surely been debatable. For example, Bolivia has changed its constitution to recognise the rights of Mother Earth or 'Pachamama' (Vidal 2011). In 2008, the people of Ecuador voted by a 63% majority for a new constitution, the first in the world to comprehensively recognise ecosystem rights and nature rights (Walters 2011). Ecuador's constitution now gives nature 'the right to exist, persist, maintain and regenerate its vital cycles, structure, functions and its processes in evolution' (Vidal 2011: para. 13). Further, Gross National Happiness was instituted as a goal in Bhutan's *Constitution of the Kingdom of Bhutan 2008*. In the business world, companies use a 'balanced scorecard' (Kaplan and Norton 1992) to examine *all* the processes in their organisations that lead towards a single goal: profitability. The authors of this paper look forward to hopefully seeing a country soon acknowledge that meeting an evolutionary hierarchy of needs (i.e., a balanced scorecard for *all* life) should be the primary goal of *their* government, since it will lead towards a single, universal and objective moral goal—the survival of life.

Such a goal may sound anti-human to some, as it will surely lead to short-term or narrow harms to some human interests. However, to reiterate, every moral choice harms someone—that is precisely why it is a moral choice. Three-year-olds do need to be restricted; they need to be stopped from blundering into traffic. As Washington et al. (2018: 370) state:

> given that ecological integrity is an indispensable prerequisite for human existence, let alone flourishing, true eco-centrism cannot be misanthropic or anti-human, even if, in some situations, ecojustice may need to be paramount.

In the words of Rowe (1994: para. 13):

> ecocentrism is not an argument that all organisms have equivalent value. It is not an anti-human argument nor a put-down of those seeking social justice. It does not deny that myriad important homocentric problems exist. But it stands aside from these smaller, short-term issues in order to consider Ecological Reality. Reflecting on the ecological status of all organisms, it comprehends the Ecosphere as a Being that transcends in importance any one single species, even the self-named sapient one.

Correspondence:

Mr Ed Gibney, Author (whose works can be seen at evphil.com) Email: edgibney@gmail.com

Professor Tanya Wyatt, Social Sciences, Lipman Building, Office 304C, Northumbria University, Newcastle, NE1 8ST, United Kingdom. Email: tanya.wyatt@northumbria.ac.uk

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[1] Use of an *evolutionary perspective* can be derived from Smith (2016: 2), who described *biophilosophy* as 'a biologically informed *approach* to doing philosophy', which stands in contrast to the *philosophy of biology*, which philosophises *about* biology. In the same way, an evolutionary perspective uses the latest findings from the study of evolution—a process that can be generalised to more than just biology—to inform its approach to philosophy/ethics.

[2] Lynch (2014a) uses what he calls a 'specialised approach' that is especially problematic for the field of green criminology, given its widespread use and unearned criticisms of other green criminologists. Lynch et al. (2013), Lynch (2014b) and Long, Stretesky and Lynch (2014) use the term 'treadmill of production' (ToP) to simplistically blame capitalism for environmental degradation, both ignoring the roles that communism, democratic socialism, absolute monarchies, science, technology and international relations have played, and simultaneously excluding the possibility or fact that proper regulations can or have channelled capitalist economies in better directions. See McAfee (2019) for a recent defence of capitalism along these lines. See Elkan (1982) for further criticism of Schnaiberg's (1980) original ToP idea. Lynch et al. (2013), Lynch (2014a) and Long, Stretesky and Lynch (2014) have also used the term 'ecological disorganisation' to argue that humans are a negative external force on the natural order, which they consider to be good and stable. This ignores the facts that humans are part of the natural world and the evolutionary history of Earth has included several (unstable) mass extinction events. It also blatantly commits a *naturalistic fallacy* (see Curry 2006 for details of this term from moral philosophy). Lynch et al. (2013) claim that their definitions of environmental harm are objective because they are scientific, but science can only measure changes in environments; science cannot define which changes are harmful or not. Only a philosophical argument can define harm, but Lynch, Long and Stretesky have not made such a case. See Gibney (2015) for more on the is–ought divide.

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