

Unknown Unknowns: A Comparison of the Stern Review on the Economics of Climate Change with the Eighth Chapter of Talmud Bava Kama.

By Rabbi Julian Sinclair

Introduction:

What sort of damages are environmental damages? What sort of restitution is necessary to put them right? This is a foundational question for environmental theory and practice. We will argue that Talmudic thought provides a very useful set of tools and concepts for thinking about the question.

The main means of compensation for environmental damage is money. Yet we instinctively feel that monetary compensation, though necessary, is not always sufficient.

Suppose a polluting factory causes a generally non-fatal variety of cancer in its vicinity. Imagine too that the factory owners are sued, and end up paying full financial compensation to the victims for their suffering, medical bills and unemployment. Have they thereby cleared their moral obligation? We would tend to think not. There is something about causing people to contract cancer that money alone cannot put right.

Or suppose that a rare species of butterfly lives in a nature reserve and that visitors pay to come and see this natural wonder. What if toxic emissions cause the butterfly to become extinct? Then what if the emitters fully compensate the reserve owners for loss of revenue? Have they made good the extinction of the butterflies? It's pretty clear that they haven't. There's a dimension of damage involved in destroying a unique species that is unquantifiable and cannot be made up for with money.

Policy discussions on global climate change, which has emerged as the most serious and urgent environmental threat, provide some striking examples of this issue. The Stern review was a major report commissioned by the UK government from Sir Nicholas Stern, Chief Economic Adviser to the Treasury, to assess the economic implications of climate change. It found that the global cost of unrestrained climate change in the 21st century would range between 5% and 20% of world GDP over the 21st century. Conversely, the Review estimated the cost of taking preventative action to mitigate the effects of climate change as 1% of global GDP over the same period. Stern proved that it is unequivocally cheaper to run the world than to wreck it.

This was welcome news to those who wish to see action on climate change. However, the basis of Stern's calculations is complex and problematic. Stern himself acknowledges the immense difficulties in estimating global costs of climate change impacts where the uncertainties are great, the time scale is long and the distribution of effects is highly unequal.

Chapter 2 of the Stern Review is a fascinating exploration of how this task runs up against some of the key unresolved questions in economic theory. The Chapter goes

on to describe and justify the positions which the Review decided to take on some of these issues.

To take three brief examples: firstly, the **distribution of impacts** from climate change is likely to be extremely unfair. The poorest countries in the world will suffer first and they will suffer most, both because they tended to be located in areas where weather changes will be most severe and which are already susceptible to droughts and floods, and because they have far fewer resources with which to take mitigating measures. Moreover a given dollar reduction in consumption for the rich is clearly far less serious for their well-being than the same loss would be for the poor. This runs into the well-know problem in welfare economics of aggregating social preferences.¹ Stern takes the enlightened view that the welfare of the world's poorest, many of whom are currently on the verge of subsistence, should be given greater weight in the calculation.²

Secondly assessing the long term impacts requires **welfare comparisons of present with future generations**. The worst effects of climate change will strike in the life time of our children and grandchildren. Mainstream economic theory makes an assumption of "pure time preference;" that rational, maximizing individuals would rather have a given utility today than the same utility tomorrow, next year or next century. This is the main principle that underlies the discounting of future wellbeing against the present by around 5% per year. Applying that discount rate to the effects of climate change would imply that impacts due to occur in fifty years are of negligible significance in present day decision making. The "pure time preference" assumption was severely criticized by some of the twentieth century's leading economists.³ Stern rejects the assumption as immoral and gives the same weight to the wellbeing of future generations as to our own.⁴

Thirdly, the assessment requires finding ways to incorporate **radical uncertainty**. The Intergovernmental Panel on Climate Change (IPCC) whose findings are the scientific basis for the Stern Review estimates that average global temperatures will rise by somewhere between 1.4 and 5.8 degrees centigrade over the 21st century. These figures span a range from the unpleasant but manageable to the unimaginably catastrophic. Outcomes towards the top end of that estimate would be way outside anything humans have ever experienced on Earth. This makes it very difficult to know what the real impacts of such a huge rise in temperatures would be and so to attach costs to those consequences. Here Stern invokes a distinction made by J.M.Keynes between risk and uncertainty.⁵ Risk is a measure of the uncertainty in decision making about the future in a case where we can assign probabilities and hence expected values to the different possible outcomes. Uncertainty is the corresponding situation in which it is impossible to

¹ For a classic discussion, see A.K. Sen, Collective Choice and Social Welfare San Francisco, 1970.

² Stern Review The Economics of Climate Change, HM. Treasury, London 2006, 30.

³ Roy Harrod criticized the assumption as "human infirmity" and "a polite expression of rapacity." Harrod Towards a Dynamic Economics, London 1948, quoted in Stern *ibid*.

⁴ Stern Review, 31-2

⁵ J.M.Keynes, A Treatise on Probability, London, 1921.

estimate probabilities and expected values. Based on recent theoretical work extending Keynes distinction by the French economist Claude Henry, Stern posits plausibly that decision makers are “uncertainty averse”. They will give greater weight in their deliberations to the worst foreseeable consequences even if precisely because of uncertainty, expected values cannot be placed on those outcomes.

Stern recognizes where his project bumps up against the limits of economic theory. He sees the serious problems involved in assigning monetary values to consequences that are unknowable and in comparing damages that are incommensurable. Yet, despite his understanding of the complexities and his humane instincts in addressing them, in the end he lumps together all of the costs into one monetary sum. The 5-20% figure includes economically quantifiable costs such as physical damage to property, together with estimated dollar costs for the destruction of eco-systems and human communities, death from hunger, thirst and disease. All these are combined in a figure that he calls “equivalent to a reduction in consumption.”⁶

Whatever its advantages in presenting Stern's findings to policy-makers, this reduction of non-monetary costs to cold numbers is ethically problematic. What if the calculations had come out differently? Would Stern then have proved that it is economically worthwhile to destroy a certain number of lives and ecosystems rather than to invest a lot of money in technologies that would help us avoid dangerous climate change? And does he mean to imply that death and destruction of irreplaceable species and ecosystems could, after the fact, be adequately compensated by money? Both conclusions would seem to miss an important distinction between monetary and non-monetary damage.

George Monbiot, a British political journalist, makes the same point.⁷ He wonders what exactly the British Department of Transport means when it suggests that the aviation industry should pay the (climate change) external costs its activities impose on society at large.

“This is an interesting proposal, but unfortunately, the department does not explain how it could be arranged. Should a steward be sacrificed every time someone in Ethiopia dies of hunger? As Bangladesh goes under water, will the government demand the drowning of a commensurate number of airline executives? The idea is strangely attractive. But the only suggestion it makes is that aviation fuel might be taxed.”

Monbiot humorously but incisively points out that while money is the main means we have of compensating for environmental damage, we often feel that it is wholly inadequate.

Perek Ha'hovel.

⁶ The Stern Review was published by HM Treasury, London, 2006. My critique in this paragraph is based on George Monbiot's discussion of the Stern Review in Heat, London, 2007. x-xii.

⁷ Ibid. 175.

Chapter Eight of Tractate Bava Kamma, *Ha'hovel*, deals with physical damages against the person. The central dilemma in the chapter is whether restitution for physical damage to people can be adequately expressed in monetary terms.

It is clear from the Mishnah⁸ that physical damage must be compensated with money. One who assaults his fellow is liable to pay five categories of compensation: physical damage, pain, medical expenses, unemployment and shame.

But our chapter is also concerned to articulate the difficulties, incongruities and failures involved in paying monetary compensation for physical damage. It opens with a discussion of whether monetary damage or capital punishment is the more appropriate paradigm for considering physical damage, continues by elucidating the problems of placing a price tag on a human limb, or on such irreducibly subjective experiences as pain and humiliation. The chapter concludes by specifying what an assailant must do to make restitution for his damage, even after he has made all of the requisite monetary payments.

The Talmud apparently wishes to impress upon us that although financial compensation is a necessary act of reparation for a physical attack, it is in no way sufficient. There are social, psychological and spiritual consequences of the assault that money cannot make good. The German word for reparations, *wiedergutmachen* is, to the *gemara*, a misnomer. Monetary payment must be made, but it does not “make good again.”⁹ Full reparation must also take place at a very different level.

This chapter should be of particular interest to anyone interested in Jewish environmental ethics, because it contains the longest Talmud discussion of *Ba'al Taschit*¹⁰. Many writers on the subject have identified *Ba'al Taschit*, the prohibition on wanton destruction of property or natural resources, as a particularly promising source of Jewish environmental wisdom.¹¹ Others have expressed a certain disappointment with *ba'al taschit* as a source of usable environmental teaching, arguing that it is too human-centered a criterion.

We consider the discussion of *ba'al taschit* in its context of *Perek Ha'hovel*. Examining why *ba'al tashchit* is placed in this chapter of *Bava Kamma*, and how it partakes in the chapter's central problematic will give us a renewed understanding of the usefulness and potential relevance of the concept for environmentalists.

Methodological Aside:

⁸ *Bava Kamma* 8:1. The *gemara* in *Bava Kamma*, 84b states that these damages are not to be exacted by courts outside the Land of Israel, whose authority is limited according to the principle of *Shlichutayhu k'avdinan*. See also *Shulkah Aruch, Hoshen Mishpat*, 1:1.

⁹ This point was at issue during the bitter disputes in Israel in the early 1950's over whether to accept German reparation money after the Shoah.

¹⁰ *Bava Kamma*, 8:6. 91b-92a.

¹¹ “Is the Tree Human?” in *Trees, Earth and Torah*, Ari Elon, Naomi Mara Hyman and Arthur Waskow, eds. Philadelphia, 1999. 83-106.

The approach just outlined relies on certain assumptions about how to read *gemara*. It presupposes that there are common themes that run through whole chapters of the Talmud, which are instantiated in successive *sugyot*, and that these themes are engaged by both the halakhic and aggadic sections of the Talmud (as well as in the interplay between them.)

These assumptions may not appear obvious. They were certainly not self-evident in the traditional yeshivot that I attended. I learned them subsequently from teachers including Rav Shagar, z'l, Rav Dov Berkovitz and Rav Tzuriel Weiner whose approaches were, at the time, considered unconventional.

I have found these assumptions to be extremely fruitful. However, rather than arguing for them now, which would be far beyond the scope of this paper, we hope that their application here will serve as an example of the usefulness of these hermeneutical assumptions in practice.

A further methodological point concerns the difference between the approach taken in this article and many others about Judaism and the environment. Some of the best articles in the field infer a Jewish approach to a given environmental issue by taking a particular theme or halakhic problem and tracing its evolution from the classical biblical and Talmudic sources to present day *responsae*. An outstanding example of this genre is Eilon Schwartz's survey of the concept of *ba'al taschit*.¹² Schwartz penetratingly demonstrates the existence of different threads of understanding of the concept, which he calls "minimalist", meaning interpretations that focus on the (generally monetary) value of the natural world for human beings, and "maximalist", understandings that are willing to grant some intrinsic value to nature. As illuminating as this approach is, it doesn't capture the internal struggle between these interpretations, nor the sense that they may both be valid understandings that need to be held in dynamic balance to give a convincing reading of *ba'al taschit*.

This capacity to show competing concepts, values and understandings in dynamic balance is one of the most remarkable features of the Babylonian Talmud. This article focuses on how one chapter of the Talmud illustrates this capacity to hold conflicting values in creative tension.

Eye for an Eye: Money or *Mamash*?:

We encounter the questioning of the adequacy of monetary compensation for physical damage at the outset of the chapter. The opening discussion deals with *ayin tachat ayin*, an eye for an eye.¹³

Everybody knows that the Torah interprets "an eye for an eye," (Exodus 21:24) as referring to monetary compensation, and not to literal, physical retribution. Less widely known is how seriously the *gemara* treats the possibility that it might be otherwise.

¹² "Is the Tree Human?" in Trees, Earth and Torah, Ari Elon, Naomi Mara Hyman and Arthur Waskow, eds. Philadelphia, 1999. 83-106.

¹³ *BK*. 83b.

Although none of the authorities quoted believe that in the end the Torah is prescribing *lex talionis*,¹⁴ actual physical retribution, they seriously entertain the possibility that it might be.

At the heart of the *gemara*'s ambivalence is the question of whether inflicting physical damage on another person is more akin to damaging an animal, which incurs monetary compensation, or to murder. The *gemara* first locates this ambiguity in its attempt to demonstrate that “an eye for an eye” refer to monetary compensation from Leviticus 23:17-23.¹⁵ The Talmud is unable to derive an unequivocal proof from these verses. It finds that in this passage, the prohibition against damaging another human being physically is juxtaposed *both* with the injunction to pay monetary compensation for damaging an animal, *and* with the prescription of the death penalty for murder. Based on this proof text, the Talmud considers that destroying another's limb could incur with, equal plausibility, a monetary fine or the corresponding “death” of one of the assailant's limbs.¹⁶

This ambivalence is crystallized in the following debate:

“Why do you want to derive (the penalty for striking a person) from the penalty for striking an animal? They say, “deduce one case of damages (for striking a person) from another case of damages (for striking an animal), but don't derive the penalty for a case of damages (for striking a person) from a capital case.”

“On the contrary, judge one case concerning (striking) a human being from another case concerning (killing) a human being, and don't judge a case of (striking) a human being from a case of (striking) an animal.¹⁷

The Talmud recognizes here that one can make a powerful case for placing physical damage against another person in the same conceptual category as murder. Even though the Talmud brings further, ultimately decisive proofs for why physical assault should be punished by monetary compensation, it wishes to also preserve the alternative view.

A poignant story at the end of this opening discussion illustrates another aspect of the inadequacy of monetary compensation as restitution for physical damage.

“A donkey once chewed off a child's hand. The father came before Rav Pappa Bar Shmuel...who said to him, “go and assess how much the child would be worth in the slave market, (with and without the missing hand, so as to arrive at an estimate of the compensation that the donkey own should pay for the loss of the child's hand.¹⁸)

¹⁴ The *gemara* quotes a *baraita* in which Rabbi Eliezer states: “An eye for an eye means, literally, an “eye.” However, the *gemara* then interprets this statement as also referring to monetary compensation. *BK* 84b.

¹⁵ *BK* 83b.

¹⁶ *Likutei Halakhot* based on the teachings of Rabbi Nachman of Bratzlav makes this point explicitly. See *Hilkhot ahovel b'havero*.

¹⁷ *BK* 83b.

The father of the child said, “I won’t do that. It would be an insult (to my child – to treat him as a market commodity.”¹⁹)

The father forgoes the compensation that is legally owing to him for the loss of his son’s hand because he is unwilling to subject the child to the further indignity of estimating his value in the slave market. That would be, literally, adding insult to injury. In citing this story, the *gemara* acknowledges that while monetary payments are the only compensation that *halakhah* can grant for physical damage, they are, nevertheless, a problematic way of attempting to redress the loss of a living limb.

Ba’al Taschit Revisited.

Two striking features emerge from examining the major Talmudic *sugya* on *Ba’al Taschit* (Bava Kamma 91b-92a) in the context of *perek ha’hovel*..

1. There is a continuous interplay between the issues of physically damaging a person and damaging nature or property, (*ba’al taschit*).
2. Consequently, the *gemara* shows that *ba’al taschit* is subject to the same dilemma that we have identified above as applying to damages against a person: the unavoidable necessity of paying monetary compensation, coupled with a recognition that money cannot adequately do justice to the nature and extent of the damage.

The first issue is telegraphed by the Mishnah on 90b:

“One who damages himself, even though he is not allowed to do so, is exempt from paying damages, but others who damage him are obligated to pay; *and* one who cuts down his (own) saplings, even though he is not allowed to do so is exempt from paying, but others who cut them down are obligated.

The precise structural parallels between these two apparently disparate statements, together with the conjunctive “and” that links them, points to some conceptual similarity between the issues of self-damage and damaging one’s trees.

Another notable feature of the Mishnah is its use of “*Kotzet netiyotav*,” cutting the saplings, as the instantiation of *ba’al taschit*. This is a resonant phrase. It is used in *Hagigah* to describe Elisha ben Abuyah’s apostasy. In that context it refers to his cutting himself off from a relationship with the Source of all existence. It may be that using the same expression in our Mishnah is meant to suggest that one who wantonly destroys trees is similarly denying the Divine grounds of all life.²⁰

The Gemara develops our sense of what sort of connection there may be between self-damage and destroying one’s own property. It attempts to derive the prohibition

¹⁸ This method of estimating value in the slave market is prescribed by the Mishnah, *BK* 83b for assessing the compensation due for physical damage.

¹⁹ *BK* 84a.

²⁰ I heard this suggestion from R. Dov Berkowitz.

against self-harm from *ba'al taschit*. The argument given here in the name of Rabbi Elazar, is that one who tears his clothes excessively as a sign of mourning has violated *ba'al taschit*; so too, mutilating one's body as a mourning practice should be forbidden *a fortiori*.²¹

This reasoning relies on two interesting assumptions; first, that harm to one's body and harm to one's property (in this case clothes) are sufficiently similar that one can derive legal inferences from features that pertain in one case to the other, (which bears out observation 1 above) and second, that damage to one's body is a more serious offence. Clothes (and, perhaps by extension, other physical possessions) are not mere appurtenances. They become bound up with the dignity and personhood of the owner, so that the obligation to protect and respect them from damage is related to the prohibition on damaging the person himself.

The *gemara* then challenges the whole argument by undermining this second assumption. It does so in two ways, first by quoting Rabbi Yochanan, who referred to his clothes as "those that do me honor." The implicit argument here is that by conferring dignity on a person, clothes may be more deserving of respectful treatment than the man himself. Paradoxically, damage to a person's garments could be a greater affront to what makes him distinctively human than damage to his person.

The second way in which the *gemara* undermines our intuitive assumption that damaging one's own person is necessarily more serious than damaging one's property is by citing a story about Rav Hisda, who would lift up his robe while walking through a thistle field even though this allowed his legs to get scratched. Rav Hisda explained his action saying "this one (i.e. his leg) will heal itself, whereas the other one (his robe) will not."²² The body's powers of self-repair suggest to Rav Hisda that, given the choice, it may be less serious to damage oneself than one's property.

Note that the *gemara* is not making a positive claim to this effect. It is content to have undermined our natural sense that harming one's body is obviously worse than harming one's property. But its argument for doing so relies on there being an essential comparability between the two categories.

Paying for Loss of a Mitzvah.

Our theme of the adequacy of monetary compensation for non-monetary damage takes a fascinating twist just a few lines later. The *gemara* raises the case of someone who owns an ox, that must be slaughtered or a tree that is required to be cut down.²³ What if someone else comes and kills the ox or fells the tree before the owner can? The interloper is then liable to pay the owner monetary compensation *for taking away his mitzvah*; as the *gemara* continues,

²¹ BK 91b.

²² Ibid.

²³ BK 91b. The ox needs to be slaughtered because it has gored a person or another animal, and the tree must be cut down either because it is an *ashera* that has been worshipped idolatrously, or because it is in danger of falling over and killing someone. (See Rashi ad loc.)

“And he will spill it (the blood of the sacrifice) and cover the blood.” (Lev. 17:13.) The one who spills the blood shall cover it. It happened once that a man slaughtered an animal, someone else came and covered the blood, and Rabban Gamliel required the second man to pay the first ten gold coins.”²⁴

It is striking that the *gemara* interposes this instance of paying monetary compensation for taking another’s *mitzvah* - that is for causing his neighbour some kind of spiritual loss- in the middle of the discussion of *ba'al taschit* which deals with the destruction of property, with both issues being placed in a broader discussion of damage against the person. It seems that the *gemara* is suggesting an intrinsic connection between the three types of damage. It may also be that the case of paying compensation for taking someone’s *mitzvah* is meant as an extreme instance of the inadequacy of monetary reparation. How can gold compensate for loss of spiritual reward? By citing an instance where paying monetary compensation seems almost absurdly incommensurable with the harm done, the *gemara* highlights the problematic nature of financial payment in the cases of personal damage and *ba'al tashchit* as well.

Can Chopping Down a Tree be Fatal?

The continuation of the *gemara* is well known:

“Rav said: A palm tree producing one *kab* of fruit may not be cut down.

An objection was raised: What quantity must an olive tree produce so that it should be forbidden to chop it down? A quarter of a *kab*. (The contradiction was resolved as follows: Olives are different as they are more important.”)

With these statements, the *gemara* sets up economic criteria that limit the protection granted to fruit-bearing trees by “*ba'al taschit*.” In case you might think that a palm tree which has produced one or two dates in the past decade should be immune from destruction, the Talmud informs us that the minimum annual yield must be a *kab*. (2.197 litres.) Then in response to a challenge, a smaller yield is stipulated for olive trees, which are more valuable. In both cases human-centred, economic considerations decide when the prohibition on cutting down a fruit tree may be overridden.

But then, in an extraordinary move, the *gemara* continues in an entirely different register:

“R. Hanina said, Shibhath, my son only died because he cut down an olive tree before its time.

²⁴ Ibid. David... pointed out to me that the case of someone “stealing” the *mitzvah* of covering the blood is suggestive of taking from someone the life force that may be devoted to both spiritual and physical ends.

Ravina said, if the value (of the wood for other purposes) excludes that of the tree, then it is permitted (to cut it down.)”²⁵

The editing here is remarkable. R. Hanina’s statement is inserted as an *interruption* to the *halakhic* discussion on when human use value outweighs *ba’al taschit*. For Ravina’s point refers back to our argument about the yield of palms and olive trees; it further limits the trees’ protection in a case where the use value of the wood is so great as to exceed that of the fruit. Ravina opens the door to far wider destruction of trees based on calculations of human benefit. It is as if the editor the *sugya* wants us to know, before telling us Ravina’s opinion, that cutting down trees can be mysteriously dangerous. R. Hanina’s son unaccountably died because he cut down a fig tree prematurely. One might say that by interrupting the halakhic discussion with the incident of R. Hanina’s son, the editor of the *gemara* enacts, or dramatizes the way in which natural processes beyond our understanding may suddenly disrupt the human-centered calculus on which so much of our interaction with nature is based.

We will speculate in the conclusion about the meaning of R. Hanina’s shocking report of his son’s death. At this point let us note two things: firstly, the *gemara* is balancing and encompassing in one discussion radically different aspects of *ba’al taschit*; the utilitarian plane on which it is a matter of measuring the costs and benefits to people, and the level beyond full human understanding on which it partakes in matters of life and death.

Secondly, the death of R. Hanina’s son continues to be a live consideration in *p’sak* almost to the present day. The *halakhah* deeply absorbs the idea that there is something potentially life-threatening in chopping down fruit-bearing trees. Already in *gemara Bava Batra*²⁶ Rav Yosef refuses to personally chop down a tree that is interfering with his neighbour’s land. He invites the neighbour to chop it down if he so wishes, citing the story of Shibhas’ death as justification for his own reluctance. In the modern era, R. Yaakov Emden,²⁷ R. Yair Bacherach,²⁸ and R. Moshe Sofer²⁹ each wrote *responsa* that limited the rights of property owners to build at the expense of cutting down fruit trees, citing the danger of so doing. R. Sofer’s answer is particularly interesting as he writes explicitly against the backdrop of nineteenth century urbanization in Hungary and the consequent shortage of housing. Yet he says that even if extra housing needs to be built where a fruit tree stands, the tree must, if at all possible, be saved and replanted elsewhere.

Full Reconciliation:

The final Mishnah of *Hahovel* makes most explicit the limitations of money in making good personal damage:

²⁵ *BK* 91b.

²⁶ 26a

²⁷ *Shel’elat Ya’avetz*, 1:76.

²⁸ *Havat Yair*, 175.

²⁹ *Hatam Sofer Y.D.* 2:10

“Even though he gives him (all these five categories of payment), he is not forgiven until he requests (forgiveness from him.)”³⁰

Paying monetary damages is a necessary but not sufficient condition for reparation. The assailant must also ask forgiveness of his victim. The proof text is from Avraham’s encounter with Avimelekh in Genesis 20. In the verses cited, full forgiveness is only achieved when Avraham, the victim is able to pray for Avimelekh and his court to recover from the plague of childlessness with which they were smitten.

Conclusions:

Our reading of *Perek Hahovel* illustrates the Talmud’s extended struggle between the monetary and non-monetary dimensions of personal damage. On the one hand, monetary compensation is necessary; on the other hand, the Talmud impresses on us that the nature of the damage, and hence too the nature of reparation goes far deeper than the merely financial.

We have seen too, how the *sugya* of *ba’al taschit* is an instantiation of this same tension. The *gemara* teaches us that although practical decisions about the limitations of *ba’al taschit* can only be made on a human centered, cost-benefit basis, we treat *ba’al taschit* as *merely* a matter of monetary costs and benefits at our peril. We need to know that deeper and unquantifiable forces are at work.

We noted the implicit and explicit connections in the *mishnah* and *gemara* between damage done to the human and natural worlds made. The two worlds are linked in a way that is at the same time most shocking and most obscure in the story of Shibhat, son of R. Hanina. We will suggest two speculative explanations for the meaning of this connection.

The first is suggested by comparison with another tradition. Vansh Pradip Singh ruled the kingdom of Sawar in Northern India from 1914-47. He embodied certain strong conservationist values that were rooted in Hindu teachings.³¹ If one of his subjects would ever cut a branch from the jungle he would say, “It is just as if my finger were cut.” The prince’s identification with the trees was apparently based on Hindu ideas of a homological relationship between the human and natural orders, implying a correspondence between events in those orders. May we speculate that traces of such a view about the profound interdependence of humans and trees existed in *Hazal’s* world view and found expression in this *sugya*? And that this residual awareness persisted in the *responsa* literature 1800 years later?

The second explanation is suggested by our discussion of the Stern Review. I would like to posit that when the Talmud and poskim express wariness of cutting down trees “because of danger”, they are expressing a sense of the radical uncertainty that must

³⁰ BK 92a.

³¹ See “If you cut a Branch in the Forest You Cut My Finger: Court, Forest and Environmental Ethics in Rajasthan.” Ann Grodzins Gold. In *Hinduism and Ecology*, Christopher Key Chapple and Mary Evelyn Tucker, eds. Cambridge, 2000, 317-336.

accompany profound tampering with natural ecosystems. Natural systems are a web of myriad interconnections. Damaging one part can affect others in unpredictable ways. Today we have become acutely aware of the unforeseen consequences of cutting down trees. Logging rainforests has destroyed the habitat and hence led to the extinction of hundreds of unique species that made their homes in the forests. These extinctions have untold ecological consequences.³² Deforestation has also been a large contributor to global climate change, removing efficient “sinks” that absorbed large consequences of CO₂ from the atmosphere. We have only become aware of the importance of these functions after we have gone a long way down the road of disrupting them. True, the Talmud and halakhah are often discussing the danger of cutting down a single tree. Nevertheless, I suggest that they are expressing humility in the face of the unknowably complex ecological functions of a tree; an intuitive “uncertainty aversion” in the presence of incalculable risks.

Methodologically, focusing on one chapter of *gemara* has its own costs and benefits. On the one hand, it foregoes the chronological perspective gained by surveying the whole historical development of the sources. Such a survey of the application of a concept up to the present enables us to gain a more practical sense of how the concept should be applied today, allowing us to say with greater confidence “the Jewish view of x today is y.” On the other hand, participating in the *gemara*’s struggles to balance different, legitimate understandings of an idea enables us to absorb the *gemara*’s way of thinking about a problem in all its complexity. Internalizing that perspective gives a different, and arguably a deeper “Jewish view of...”

One obvious implication of our discussion for environmental policy is that willingness to pay compensation after the fact does not permit one to cause environmental damage that will harm human beings. The damage goes beyond money, and so is not adequately repaired by money. Climate change is an environmental damage that is predicted to cause massive damage to people, through drought, disease, displacement of populations, etc. Returning to the Stern Review on climate change policy, even if his calculations of the costs and benefits had come out differently, we would still be ethically required to take action to avert the likely human damage of impending climate change. This seems to have implications for the policy discussion of whether the best regulatory regime for limiting global carbon emissions is a carbon tax, or a cap and trade regime that will place absolute limits on emissions. A carbon tax implies that polluters internalize the economic costs of their actions. But as we have seen, a willingness to pay damages does not confer a license to commit damage.

The Stern Review confronts the limits of economics, and endeavours to find tools with which to quantify injustices and uncertainties that it acknowledges are all but unquantifiable. But these ethical and methodological struggles are buried in the main body of the 700 page long report. The summary for decision makers presents a stark cost-benefit analysis which aggregates all of those factors into a single dollar sum. The Talmud, on the other hand, while acknowledging that sometimes money is the only way of making up for damage to persons, property or nature continually reminds us that in

³² For an authoritative discussion, see E.O.Wilson, *The Future of Life* New York, 2002.

cases of human or environmental damages, money is incommensurable with the damage done.

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