

## *Chapter 10*

# **Making Reparation: Offset Your Life**

If, as I have just suggested, owning disaster is also to own the demand for reparation, even where reparation is impossible, then our way of surviving the slow horror of our time does not relieve us of the task of practicing justice in everyday life. On the contrary, given the enormity of the disaster we now take to our own account, the task becomes enormous as well. All our pragmatic actions in consequence thus become small indications of a reparation we will never and can never complete, a task as incalculable as the disaster it is meant to repair.

But if we commit ourselves to doing justice in our daily lives, we immediately face a series of skeptical responses from ourselves or others. What can we do as individuals in the face of such an enormous crisis? Individual action can do very little in comparison to concerted national and international measures to address the key causes of climate change. But this is not in fact an objection to a renewed ethics; it is rather a description of our first, overriding, and most pressing task: fighting hard for an ecological revolution. All other actions we might take pale in comparison. When our political institutions pose obstacles to the necessary transformation, we should become more creative, change tactics, and try new angles on the problem. If we fail again, we should persist with still further efforts. Nothing should ever intimidate us.

But it does not follow that we need do nothing to change our behavior in our own lives. If we are to do justice no matter what comes, we must commit ourselves to making a difference however we can. Doing so may be difficult if it's clear that we are still caught within a society that refuses to alter its ways. Yet we cannot use that fact as an excuse. As I asked above, how tolerant are we toward a slaveholder who refused to liberate his "property" on the excuse that his doing so would not by itself liberate

all slaves? How well do we accept the plea of a woman living in Nazi Germany that she cooperated with the system of extermination because she did not have the power on her own to bring it to an end? If we are not likely to let such people off the hook, we must believe that people should do justice whatever the odds, even in the face of impoverishment, punishment, or death. Since living in an environmentally responsible fashion would provoke no such threat against us today, we have even fewer excuses; our criteria in those other cases make our judgment about our current behavior quite clear.

We may hesitate to go further than we already do because we are not convinced it is necessary or all that helpful to do so. We might conclude, for example, that statistically speaking, our personal actions will have only a miniscule effect on the overall situation. But even if such action may be statistically insignificant, it is still necessary. Our ordinary moral compass tells us as much. If one of us kills someone we hate, statistically speaking we would have reduced the human population by an almost infinitesimal amount. Similarly, if we break into someone's home to steal an object we coveted, we do virtually nothing to harm the gross national product. Yet we refuse to commit such actions for good reason. The same applies to environmental ethics: it's silly to imagine that driving a gas-guzzling vehicle is acceptable simply because that machine is only one of millions on the road. If we're destroying the biosphere, we're destroying it—and statistics is no excuse.

Other factors may enter into our thinking as well. Even if collective efforts to change our societies are weak or tardy, individual action can still make at least a minimal difference. For one thing, it will help realize, if only on a small scale, some aspect of the society we are demanding. For another, it will relieve us of a certain kind of hypocrisy, helping us close the gap between what we demand and how we actually live. Finally, if enough of us act, and encourage others to do so, together we may build momentum for a much more widespread transformation.

Such considerations may already motivate us to do a great deal. Already millions have learned that we should use renewable energy in place of fossil fuels, rely on energy-efficient forms of transportation, save energy in our households, consume less, reuse and recycle as much as we can, buy local and organic food, and compost our waste. Over the past

four decades or so, these practices have gradually become a familiar part of developed societies, at least in many locations, and now sound like basic common sense for many of us.

But because even now the greenhouse gas footprint of the average American citizen remains sharply higher than that of people elsewhere in the world, in this nation we have far to go. Moreover, as I suggested in chapter five, even if humanity as a whole shifts to renewable energy soon, our imprint on the Earth's surface will still be enormous in part because of the immensity of the global human population.

To address these challenges, we must go significantly further than we already have. We may be forced to examine aspects of our habits or assumptions that we do not want to think about at all, to tackle serious difficulties not only in the public sphere but in our own lives as well. If we are to see our own moment through the eyes of the future, we may have to endure changes to our intimate lives that we can hardly bear, to do what seems at first impossible. Our dilemma forces us toward radical thinking and action on every level—political and cultural, social and ethical, collective and personal. It demands that we cut to the root in every domain, including in our own individual lives.

In the end, we have no serious reason to hesitate applying a pragmatic environmental ethics to our own lives. Refusing to do so cannot withstand close scrutiny. Living by such an ethics will be no easy matter; we will inevitably meet resistance from that part of us still caught in the familiar habits of our culture. As a result, we might be tempted to alter our practices only when it is most convenient to do so, when it intrudes least into our lives. We might attempt to combine ease and responsibility, blending our current habits with new ways, as if changing our lives a little bit will be enough. Most dangerously, we might bargain with the future, giving up practices that do relatively little harm so that we can keep those that do much more. Renouncing the disastrous habits of our culture can be surprisingly difficult. The toughest and most essential task is to overcome this resistance, especially with regard to those truly destructive practices on which we most depend. On this score we should compromise as little as possible.

Accordingly, in this chapter I will focus on one example of damaging activity—travelling by air—to examine how great a harm it causes,

why we might resist abandoning it, and what steps we could best take within the actual limits of our lives. Thinking through this single example may provide us with a template for how we can confront other destructive practices. Since air travel eventually will lead to the question about whether to rely on carbon offsets to compensate for our flights, we might also take up whether those offsets could work more broadly, whether they might be a useful strategy in response to all the harm we do. In short, this chapter will attempt to outline one practical approach to the chief ethical challenges of our time.

In most discussions of how we might shift to a new energy economy, the topic eventually turns to air travel. In nearly every other area of greenhouse gas usage, we can imagine a transition to alternative energies and can begin to make reasonable steps in that direction. But not with air travel. As David MacKay points out, “planes are already almost as energy-efficient as they could possibly be.”<sup>126</sup> Yet flying by plane has an enormous, negative impact on the atmosphere. George Monbiot, in a representative and remarkably clear discussion of the subject, citing the research of the (British) Royal Commission on Environmental Pollution, writes that “the carbon emissions per passenger mile ‘for a fully loaded cruising airliner are comparable to a passenger car carrying three or four people.’” So far so good. But as Monbiot goes on to point out, “while the mean distance travelled by car in the United Kingdom is 9,200 miles per year, in a plane we can beat that in one day.” Planes are such an efficient form of travel—they enable us to cover such huge distances so quickly—we forget how much energy is required to move us so far. If the carbon footprint of a given air mile doesn't seem so great, taking the full distance into account expands that footprint very quickly.

But this isn't the half of it. The impact of travelling in airplanes, Monbiot continues, “is not confined to the carbon they produce.” Airplanes emit many different particles that have varying effects. The IPCC thus estimates that the overall impact “is a warming effect 2.7 times that of the carbon dioxide alone,” due primarily to the mixing of vapor from jet engines with the air in the troposphere, creating the vapor trails we can see from far below. “This means that subsonic aircraft, if all their seats are full, cause roughly the same total warming per passenger mile as cars.”<sup>127</sup>

Bringing this analysis home to our own lives can be quite sobering. Let's say you drive a fuel-efficient car, recycle, and live responsibly—except each year you take a single cross-country round-trip flight. According to a representative carbon footprint calculator—the one at terrapass.com—driving a car that gets forty miles per gallon 12,000 miles a year pumps an estimated 5,869 pounds of carbon dioxide—just under three tons—into the atmosphere. In comparison, a round-trip flight from Boston to San Francisco, with one stop along the way each direction, emits 2,553 pounds of carbon dioxide per passenger. But if you multiply that number by 2.7 to reflect the full impact of that flight on global warming, it has a net effect of around 6,893 pounds—a half-ton *more* than the carbon footprint of driving that car *the entire year*.<sup>128</sup>

So would it be better to take short-haul propeller flights? The latter, it turns out, are inefficient because they require planes to spend a greater percentage of the fuel getting aloft. It's far better to use other forms of transportation to reach destinations so close; Monbiot's own estimates suggest that it's about twice as efficient to travel that distance by car (with the British average of 1.56 passengers on board), over ten times more efficient to take the train, and around fifteen times more efficient to travel by bus.<sup>129</sup>

Wouldn't it be possible for airplanes to use renewable sources of energy? Not yet. Ethanol and other biofuels do not burn well at the extremely cold temperatures found in the troposphere, and a hydrogen-fueled plane would contribute thirteen times more to global warming than today's jet airplanes.<sup>130</sup> Amyris, a biofuel company, has created a renewable jet fuel suitable for actual use and is currently testing it for release in a few years.<sup>131</sup> But whether it can be produced cheaply enough and at an appropriate scale without causing too great a damage to current ecosystems is doubtful. So far, there is no available alternative to the kinds of aircraft we fly today.

Facts like these fill a good number of us with outright dismay. Those who live far away from family or friends, whose professions virtually require us to get around by plane, or who simply love to explore the world would do almost anything rather than give up air travel. We might even regard the very thought as a kind of personal affront. But that is the very fact that makes this example so powerful and so instructive. The

biosphere doesn't really care all that much about how we feel; the reality is what it is, and we must bear with it.

Our first reaction might be that we should simply stop travelling by air. For many of us, that is no doubt the best option. We may be lucky enough, or smart enough, to live near all those we wish to see. Most of the rest of us should be able to visit with family members or colleagues using phone calls, Internet video links, or videoconferencing. If we do need to travel, we might be able to do so by bus or train. In fact, given the harm that air travel does, we should set this as our default response: we should determine to fly as little as possible, regarding it as a harmful act that we should undertake only when we have no other options.

But for millions of us, adopting such a response seems to ask too much. The most crucial part of this discussion thus arises when we must decide how to adjudicate between the harm of air travel and its apparently necessary place in our lives. It may be useful to pause here to ponder a series of motives for travel and imagine a plausible response to each.

Many of us use air travel as a way to take a break. What happens to the family vacation, the weekend getaway, the mid-winter trip to see sunshine? What about that week in Hawaii or the visit to the Caribbean resort? These outings are pleasant, but scarcely necessary, especially in the midst of the climate crisis; we would be wise to forego them entirely. Changing our habits in this regard will not be easy. It will alter our relationship to the very idea of getting away from it all; we will have to rethink our sense that the biosphere exists in part to assist us in enjoying leisure time.

Cutting back on air travel also raises a number of tougher questions. Should students apply to the best colleges, wherever they may be; should workers relocate to wherever the jobs are good; and should seniors retire to Arizona or Florida—if doing so requires that somebody travel by air to join the family gathering at Thanksgiving and Christmas, if not the summer holidays? What must give way: personal ambition and satisfaction, the notion of family, and the satisfactions of retirement, on the one hand, or the threat of climate change on the other? If we care at all about the survival of the biosphere, the answer over the long term is clear: we must learn how to become a far less mobile society, to abandon our belief that something fabulous will happen to us if we settle hither and yon or

venture continually to the far pavilions. Yet because we *inherit* the consequences of that mobility for our own lives, we may find ourselves far removed, and perhaps permanently, from family members.

Perhaps a good compromise is to be honest about what we can do, but also what we cannot give up; perhaps we should accept what has already taken place—such as our moving far away from family members—and thus accept occasional air travel to see them. But such a reason cannot serve us forever. As time goes by, we should take steps, wherever we can, to rejoin those we love and find far more local and settled ways to live. Adopting an environmental ethic will inevitably force us to rethink our improbable attempt to combine distance and intimacy.

Similar pressures abound elsewhere. Should members of various professions attend annual conferences intended to keep them apprised of developments in their fields? How well could they share information without meeting face to face? To cover contemporary events, journalists fly to destinations here or abroad in order to observe developments first-hand. How urgent must developments be to justify such a large environmental footprint? Salespeople, consultants, businesspeople, board members, and executives—to give a partial list—are among the nation's most frequent fliers; how are they to conduct their business?

Insofar as these professions take for granted that flying should be *routine*, that it must become in part a frequent activity over the year, they have accepted what amounts to the perpetual abuse of the biosphere. The assumption that actions of such harm should be ordinary must go. As a result, those professions must evolve very quickly into another form, relying instead on alternative forms of contact, such as videoconferencing, to conduct ordinary business. Such a change is in fact plausible if those in such fields make a concerted effort over the next few years. But calling for an absolute ban on face-to-face encounters might go too far and create a backlash against this entire effort. Here again, one might justify occasional flights on the basis of the most pressing needs or most fruitful encounters.

Even further questions arise when we contemplate our place in the international community. How are we to break out of an insular narrowness if we cannot travel to other countries, learn their languages, and partake in their cultural traditions? Artists, performers, filmmakers,

musicians, chefs, cultural critics, and people in the world of fashion cannot remain on the cutting edge without being exposed to cultures elsewhere. Would we welcome the results if they travelled less, if mutual influence took place in another way? Diplomats, workers in nongovernmental organizations, and employees of aid groups travel frequently around the world, but in a severe irony, by doing so they contribute to harming the planet. How are they to do their work without relying on air travel?

The consequences of globalizing trade relations are at stake as well. The increasing volume of goods moving between nations, especially by sea, are inevitably accompanied by an increase in international air travel, at least to support bilateral business arrangements. Globalization is also felt in cultural exchanges of all kinds. Nowadays people who live in large towns or small cities assume that they will have access to good French and Italian food, a nice Mexican place, good Chinese food, a sushi restaurant, Thai and Indian food, and maybe even a tapas place as well. In any large city, we assume that we'll experience some real multiculturalism, too—that there will be sizable ethnic or cultural communities integrated into the mix. In the last several decades, the United States has invited highly skilled or educated immigrants into its society, creating an influx of people from many nations around the world—migrants who may wish to take flights back to their homelands from time to time. All these trade relations, cultural contacts, and family ties rely on a mode of travel that does immense and ongoing harm to the biosphere. Is it possible to maintain anything like this openness to the world without doing further harm?

However greatly we may value these cultural benefits of globalization and the gradual shift from insular to more cosmopolitan attitudes, we cannot give those benefits absolute priority over the survival of the biosphere. Converting the planet into a multicultural ash heap does not serve humanity well. To the extent that we can, we should sustain the vibrancy and creativity associated with these international exchanges while dramatically reducing the number of international flights. And because those flights have a staggering carbon footprint, since they damage the biosphere more than any others, we must consider cutting them back as far as possible. If we do so, however, we will inevitably relinquish many aspects of globalization on which we have come to rely—the easy exchange of goods and fashions included. Our cultures and economies,



our sense of multicultural contact, will have to evolve as we do so. We may thus end up in this case as in the compromises above, accepting occasional journeys for truly urgent purposes but otherwise giving pride of place to the planet's survival.

How do things look so far? On the broadest scale, we could pressure governments to adopt a greenhouse gas untax of the sort I described earlier in this book. An increase in the price of fossil fuels would raise the price of air travel and could prompt us all, whatever our sense of the climate crisis, to change our ordinary practices. If necessary, we should also ponder how to change the attitudes that our professions take for granted. Workers could insist that their employers allow them to travel visually rather than in person or to find other workable alternatives to flying. We could all begin to think creatively about how we can meet, exchange information, socialize with professional peers, and forge workable bonds. All these changes will be necessary if our societies take real action; we might as well get a start on that massive cultural shift before it is too late.

Moreover, if the compromises I outlined above sound plausible, we could then commit ourselves to flying only on specific occasions, narrowing the number of flights over a year to one or less, and over a lifetime to a few: to study abroad, to return to an ancestral homeland, or to make a few visits to specific, long-desired destinations. This severe reduction in the number of flights might rightly inspire us to do the most with each one, to make those air miles *count* as much as possible. If our lives allow us, we might for example stay at our destination for several weeks if not months, substantially reducing the climate impact per day of the visit.

Wherever we fly, we could take into consideration research that suggests we could reduce the environmental impact of air travel if we fly when a plane's vapor trail can reflect sunlight back into space—that is, in the daytime and in the relatively bright seasons of the year. (One study suggests that travel from December through February, only one-fourth of the total number of annual flights in southeast Britain, caused one-half of a year's warming effect from contrails; travel at night, around one-fifth of the total there, caused 60 to 80 percent of the effect.) However, because contrails may constitute only a portion of flying's overall impact on the atmosphere, taking this step may have no more than a partial benefit.<sup>132</sup>

Although these compromises might seem sensible, flying to this degree would still contribute to climate change. As a result, the approach I have sketched so far is still inadequate. A key further element, then, is the opportunity to purchase carbon offsets for each of those flights—that is, to contribute to organizations that use the money for projects that reduce greenhouse gas emissions. Surprisingly, such offsets are fairly cheap: you can offset the emission carbon dioxide through a credible and certified organization for around \$12 to \$15 a ton. Doing so responsibly, however, takes a bit of research. For such offsets to be effective, they must fund efforts that would not otherwise take place, do not merely shift harmful activities to another site, and are not already being counted under an existing environmental policy. Furthermore, such offsets should support interventions that truly make a difference *now*. If you fund projects for planting trees, for example, they may not begin to pull carbon dioxide out of the atmosphere for many years, and already, as I mentioned in earlier chapters, many forests under the pressure of climate change are drying out, decaying, and are thus on the verge of emitting more carbon dioxide than they absorb. It is thus much wiser to fund programs that choose other strategies, that reduce the burning of wood or charcoal for cooking fires, for example, or help construct renewable energy plants whose power local consumers will actually use. (Those cooking fires, by the way, typically produce great quantities of black carbon, which researchers have recently found may be far more harmful than previously thought; funding efforts to reduce that harm may thus be far more helpful than we knew.<sup>133</sup> ) Fortunately, others have done careful research on all these concerns and have made the results available online, along with links to those carbon offset companies whose efforts seem to be making the most difference.<sup>134</sup>

If we travel only on occasion *and* purchase offsets when we do so, we would go far toward reducing our overall carbon footprint and do much to fulfill the demand for reparation. What's more, by purchasing offsets we would be contributing in our own small way to efforts that the international community could sponsor wholesale if it so chose; we would in effect begin to bring about the ecological revolution we demand. By living in this way, we would declare our commitment to that revolution and

thus begin to make good on our choice to take responsibility for the ecological disaster now unfolding around us.

One problem with offsets, however, is that they are so cheap and so easy to purchase that they may become too convenient. If one can afford that minimal cost, why not simply continue flying as much as one pleases and offset it all? Such a strategy is certainly better than flying *without* offsets; at least it helps cancel out the harm of one's travel. But the purpose of offsets is to compensate for those emissions we cannot eliminate, not to enable us to travel as much as we might wish. Otherwise, it becomes a tactic to allow people to live in continued extravagance, as if they can do all the harm they please as long as they buy the sense that they are doing none.

Offsets are limited in this way because our eventual goal is both to reduce emissions *we* might cause and help reduce emissions *elsewhere*, for a *total* reduction much larger than offsets can make possible. While it does much good to fund projects that decrease environmental harm, our eventual purpose is to do so while also reducing the harm to which we *directly* contribute. Our eventual goal, then, must be to eliminate *all* of our contributions to climate change while also enabling those in other regions of the world to do the same.

These considerations inspire some people to deplore offsets entirely. If we can potentially abuse them to excuse doing harm to the biosphere, the logic goes, then we should avoid them altogether. But those who make this point almost inevitably still travel by air; the virtue they espouse by excluding offsets is thus illusory. The only responsible way to avoid using them is to eliminate one's carbon footprint in the first place.

Nevertheless, we should take this hesitation to rely on offsets seriously. Ultimately, offsets will be of value to us only if we see them as tools to help us as we construct new practices that will do no direct harm. If we decide to use offsets, we must commit ourselves to doing so sparingly over the course of a transition in our actions—*so that eventually we would reduce our air travel so much we would no longer need those offsets at all*. Thinking of offsets as a transitional strategy may be our best option.

This is only one example of how we might shift our habits in the era of climate change. How well does it represent a transformation in all our activities? How can we build on it to rethink the whole pattern?

It shouldn't be too difficult to apply many aspects of this example to others. Setting a low threshold for a carbon footprint, sorting out whether we should make any exceptions, and offsetting those exceptions carefully—while regarding those offsets as a temporary measure—will enable us to reduce our overall carbon footprint responsibly.

But in that case, this example teaches us that we should begin to offset *every* aspect of our carbon footprint, in effect, to *offset our lives* entirely. Since offsets are relatively inexpensive, most of us could afford to calculate all our greenhouse gas emissions annually and compensate for them. Because most of us use energy in rough proportion to our income, it follows that most of us with more money could afford more offsets, and those who need them the least would need to purchase the fewest. Even then, of course, they might be too expensive for some. Nevertheless, if all of us did our best, and all of us who could afford to do so offset our lives, we would make a real difference for the biosphere even without government action. And because we would be linking this practice to a prior, systematic attempt to reduce our carbon footprints as far as possible, we would be going even further to eliminating the harm we do to the planet.

By taking these steps, we would be following through on our commitment to make reparation. Indeed, that reparation would be visible both in the greatly reduced harm we cause in our own lives and in the active transformation we would make possible here and elsewhere. As people around the world shift to less harmful practices, as renewable energy plants come online, some version, however limited, of undoing harm to the Earth will take place.

But if that is the case, why stop there? We should also contribute to organizations that restore ecosystems where we live, that actively protect wild spaces, waterways, wetlands, and wildlife preserves, and that not only protect but also dare to *restore* damaged landscapes. Even further, if purchasing offsets can do so much good, why shouldn't we contribute money to those organizations quite apart from offsetting per se, enabling them to go much further than they would otherwise? If our lives are truly about reparation, we could commit ourselves to purchasing twice, or even three times, what we would need to do to offset our carbon footprint, doing what we could to decrease the harm brought about by the society in which we live.

Making these compromises and accepting the cost of these offsets may be no easy matter; at first, for people in many professions, taking these actions might pose a tough challenge. But it's pretty clear that our current crisis requires us to change our whole way of life. In these specific ways, it may push us well beyond the comfort zone, demanding what we do not really want to give. Yet we simply must make changes of this kind if we want to tackle the challenges that face us. If we do not, we are no different from those who proclaim against all the evidence that there is no problem at all—or are even worse, since we become far more inconsistent and hypocritical than they. We have no choice but to do all that we can.

### Notes

126. MacKay, *Sustainable Energy*, 35.
127. George Monbiot, *Heat*, 173. For the Special Report from the Royal Commission on Environmental Pollution, see *The Environmental Effects of Civil Aircraft in Flight*, 2002, especially paragraph 3.22, available as a pdf document online. For the IPCC estimate, which is drawn from research into the greenhouse gas impact of air travel in 1992, see the Special Report, *Aviation and the Global Atmosphere*, 1999, section 6.6.5, <http://www.ipcc.ch/ipccreports/sres/aviation/index.php?idp=86>.
128. I calculated these numbers on the Carbon Footprint Calculator at [terrapass.com](http://terrapass.com), which, as its name suggests, provides estimates only for the carbon emissions for a given plane flight—not for its overall effect on the environment. In this regard it is typical of most carbon footprint websites. Responsible users of these sites would be well advised to multiply the estimate of footprint for air travel by 2.7. See <http://terrapass.com/carbon-footprint-calculator-2/>.
129. Monbiot, 180.
130. Monbiot, 180–82; see also MacKay, 35–37.
131. See Krupp and Horn, *Earth: The Sequel*, 88–89; <http://www.amyris.com/>.
132. See Nicola Stuber and others, “The Importance of the Diurnal and Annual Cycle of Air Traffic for Contrail Radiative Forcing,” *Nature* 441 (June 15, 2006), 864–67, doi:10.1038/nature04877.
133. Elisabeth Rosenthal, “Burning Fuel Particles Do More Damage to Climate Than Thought, Study Says,” *New York Times*, January 15, 2013, <http://www>.

nytimes.com/2013/01/16/science/earth/burning-fuel-particles-do-more-damage-to-climate-than-thought-study-says.html?\_r=0 and T. C. Bond and others, "Bounding the role of black carbon in the climate system: A scientific assessment," *Journal of Geophysical Research: Atmospheres*, 118 (June 6, 2013), 1-173, doi: 10.1002/jgrd.50171.

134. A good place to get started on such research may be found here: <http://www.offsetconsumer.org/providers/>.