

**The Dorothy Dilemma**  
**Home and away in the jet age**

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*ITURI*

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## OUTLINE

Air travel is seeing massive growth as holiday travellers seek out ever more distant destinations while the emerging middle class in Asia and Latin America increasingly adopt the flying habits of the West. But aviation is one of the main contributors to global warming. As *The Dorothy Dilemma* incisively makes clear, its rate of growth is utterly incompatible with efforts to prevent runaway climate change. What to do? Can or should people be made to fly less? If so, why should the old deny the young the travel experiences they have already enjoyed? Why should countries of the Global South be asked to deny themselves the aviation privileges the West has had for years? *The Dorothy Dilemma* confronts the hard questions that the world's policy-makers avoid amid a fantasy of token reductions – and finds a possible answer in a surprising quarter.

# CONTENTS

ONE: TOO MANY BUMS, TOO MANY SEATS

TWO: WRONG ANSWER TO THE WRONG QUESTION

THREE: FREQUENT FLYING – WHAT’S NOT TO LIKE?

FOUR: POLLUTION – IT’S BUSINESS AS USUAL

FIVE: NOISE – THE MENACE WE DON’T NOTICE

SIX: SAFETY – THE ELEPHANT IN THE ROOM

SEVEN: AIRASIA – NOW EVERYONE CAN FLY

EIGHT: IS YOUR LIFESTYLE REALLY NECESSARY?

NINE: OK, WE HAVE A PROBLEM ...

TEN: THE OTHER SIDE OF THE DREAM

ELEVEN: DOROTHY ADDRESSES HER DILEMMA

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# ONE

## TOO MANY BUMS, TOO MANY SEATS

IMAGINE a world where no-one flies. It would seem drab indeed. From Europe, for example, it would mean no more weekend shopping trips to New York or half a dozen mini-breaks a year in the far corners of the continent. Business people would not be able to fly half way around the world to meet a client. Academics would have to content themselves with conferences in Sheffield rather than Shangri-La.

Americans would cross the continent in several days by rail, not a few hours by air. No more jetting back to the family for Thanksgiving or Christmas, returning home the next day. The bus terminal would enjoy a new lease of life; it might even relocate to the now-abandoned hub airport.

Those migrating to Australia would face a sea voyage of several weeks, knowing they were unlikely to see their families back home ever again.

Not an attractive picture? Yet it was the world we had not long ago.

So what's not to celebrate about the modern freedom to fly? It's man-made global warming, stupid. And air pollution and noise pollution and safety in the skies. Like Dorothy in the beloved film *The Wizard of Oz*, we journey to lands bursting with exotic colours and adventures round every corner. How different from our everyday Kansases!

But if we're lucky we realise – again like Dorothy – that there's no place like home. Maybe there's a clue here about how the planet can deal with the explosive and damaging growth of aviation globally. This book is concerned with finding out.

Travel, it appears, is one of humanity's deepest impulses. It isn't a lifestyle extra for the affluent West, like a new kitchen gadget or the latest mobile phone. People have always travelled as far as the technology of the time would take them.

In the days when most people walked or at best had a lift into town with the common carrier, the gentry and well-to-do were envied for their horses and their carriages. It wasn't just about comfort; it was about range, or distance. The new railways in the 19<sup>th</sup> century soon introduced day return fares to the seaside. They were a huge success, transforming the life and horizons of working people and turning fishing villages into resorts.

First, however, you had to get to your railway station. This travel revolution bypassed the country poor. Flora Thompson's *Lark Rise to Candleford*, her semi-fictionalised account of growing up in rural North Oxfordshire, makes clear what a big deal it was even at the end of the 19<sup>th</sup> century to get to the market town. This is a journey that now takes ten minutes by car on well surfaced roads. And the grandchildren of Flora's generation think nothing of flying to Turkey for a week's holiday, or to Australia for a fortnight to catch up with relatives.

Air travel is simply the latest expression of humanity's restlessness, the urge to go walkabout. Nor does it end here. Queues are forming to take rides into space as soon as trips to the moon or Mars become possible.

The relative recentness of the air travel revolution is encapsulated in my own experiences as a young man. In 1957 I spent six months in North America on a working holiday in what later became known as a 'gap year' between school and university. I travelled by boat both ways. Eleven years later I returned to the United States as a green card immigrant. This time I flew, from London to New York on an established route that hasn't changed much in the years since.

In the USA domestic air travel was well into its stride in 1968, but I took the train to my ultimate destination, Cleveland (Ohio). It never occurred to me to do otherwise because that's what one did in Europe city to city. The train was largely empty. The few passengers were hopping on and off at intermediate stops. No-one else made the complete 500-mile journey.

Less than three years later, while I was working in Cleveland, the American railroad companies called time on their passenger networks except for commuter and shuttle services. The last passenger train arrived at Cleveland's Union Terminal to howls of anguish from people who hadn't used rail services for years. Use them or lose them ... The federal government stepped in to create Amtrak as a tourist railway. Air then as now had become the backbone of everyday travel.

In the Sixties I flew several times between London and Paris. I wouldn't think of doing it now. The highly successful Eurostar train through the Channel Tunnel has made the 200-mile trip pointless by air (except for transit passengers). As elsewhere in Europe, high-speed rail beats air over this distance, taking into account the extra time to reach airports rather than city-centre rail stations and greater security delays at airports.

Security at airports is unlikely to become easier for the foreseeable future – a situation that increasingly favours the railways. This resurgence of rail is surely to be welcomed from every point of view. The output of carbon dioxide (CO<sub>2</sub>) – the main component of global warming – is much less per passenger kilometre from a train than an aircraft, while noise from a train is less troublesome than noise from a plane. Anyone who thinks otherwise might compare two ultimate cases – having a busy railway at the bottom of their garden or living underneath the Heathrow flight path!

Some of London's best areas are affected by aircraft noise, like Richmond and neighbouring Kew, just to the west of Heathrow. Over much of the day noise from low-flying aircraft is constant. House prices remain eye-wateringly high. A puzzle? No doubt prices would be even higher if the planes were somehow magicked away, but I believe the key to the riddle is that some home-seekers avoid these areas because of the noise – but most people accept aircraft noise as a fact of modern life, a price we must all pay for the benefits of air travel. This book will challenge that idea.

But who are 'we'? Most people and families in the G7 bloc of advanced industrial nations can afford to fly. In Europe a huge tourism industry has developed offering everything from mini-breaks to the far corners of the continent to long-haul journeys in search of sun, sand or relatives. The economics of aviation is based on filling the aircraft, hence holidays are offered at giveaway prices – for example, a week's holiday in Malta, flights included, for sun-starved Britons for less than a return rail fare from London to Scotland.

The US travel pattern is different. Acculturated to look inwards, most Americans seem not to have fully caught up with the jet age. They aren't helped by the fact that vacation

entitlements for working people are fewer than in Europe. Millions have never left their vast country. Those who do may make a single trip – to legendary destinations like ‘Europe’, and especially ‘London’ and ‘Paris’. These names are spoken with a note of awe in the voice, as if the speaker doesn’t really believe in the possibility of getting there. Americans generally lack the scepticism of Europeans, so these destinations invariably rise to the hopes so long invested in them. However, these same Americans in their own country use aircraft like buses; or more accurately, they use planes where once they would have used trains.

Different ways of using aircraft; same pollution.

Outside the affluent West the scene couldn’t be more different. A majority of people are able to fly in the ‘minority world’; only a minority are able to fly in the Majority World. (The term ‘Majority World’, used throughout this book, is a better description for what used to be called the Third World. Countries outside the advanced West no longer make up a homogeneous bloc of underdevelopment, if they ever did. Some, like most of Africa and parts of the Asia/Pacific region, remain stuck in poverty. Others, like South Korea, Singapore and Argentina are knocking on the door of the rich people’s club.)

The price of air travel is higher relative to wages in even the advanced countries of the Majority World compared with the G7 bloc. For middle-class Malaysians, for example, regional travel to somewhere like Hong Kong or Indonesia is the best that is realistically affordable. For working people in that country the experience of aircraft is limited to looking at them in the sky.

Many Americans, as was pointed out earlier in the chapter, never leave the country, but they aren’t trapped in it. They could fly out of it if they wished. In Africa, by contrast,

almost everyone is trapped. Dismal exchange rates against the dollar, euro and pound add to the problem of low wages relative to air fares. The only way even higher professionals get to travel is to attend an international conference or to take up an educational scholarship, both with all expenses paid.

International travel is a liberating experience, but the benefits mainly accrue to the travellers, not the travelled-to. It's significantly a one-way flow. Travellers from west to east far exceed those in the reverse direction, with individual travellers even more so than with package tour groups. Hordes of free-spending, incontinent and often promiscuous Westerners distort the local economies and disrupt local cultures in ways that will be explored later, understandably producing envy, greed and not infrequently violence. The negative side of tourism is seen in places like Bangkok, Nairobi and Rio de Janeiro.

'You don't miss what you've never had' was always a dubious proposition. For people in the Majority World in the age of the internet and satellite TV, it's almost wholly untrue. They can see clearly what their counterparts in the West enjoy. In any case, they have only to walk into their own streets to find tourists on an exotic vacation. They see these things and will settle for nothing less for themselves. Why should they?

Some of these countries are developing fast, which will increasingly release the pent-up demand for flying. Airbus expects Asia to be the biggest market for new aircraft up to 2033, with 39 per cent growth against Europe's 20 per cent and North America's 18 per cent. 'Aviation is growing impressively [*sic*]. While mature aviation regions such as Europe and North America will continue to grow, Asia will stand out,' said Airbus' John Leahy.

With national development comes atmospheric pollution. Experts, or at least those who trouble to think about it, are concerned about global aviation's present level of polluting emissions. It's nothing to what we can plainly see coming.

The aviation industry - aircraft manufacturers, airlines and airport operators – is a huge lobby demanding business as usual in the West. 'Business as usual' means seeking year-on-year growth. It means the Majority World can never catch up unless it engages in even more precipitate expansion.

Aviation is part and parcel of globalisation, which has destroyed good manufacturing jobs in Western countries replacing them with service sector 'McJobs'. Textiles and consumer electronics are among the casualties. The process – which damages workers in both the First and Third Worlds – was searingly described in Naomi Klein's *No Logo* (2000). The process, which remains true today, was examined in my earlier book, *Air Madness* (3<sup>rd</sup> edition, 2008).

The creation of jobs is no ace of trumps for the aviation expansionists, not least because job gains in the aviation sector trigger job losses elsewhere, as explained below. It is disingenuous to play the job creation card when a country suffers from a shortage of workers willing to fill existing jobs. This has been the driving force behind the mass immigration into Europe and the United States.

Nor is job creation automatically a good thing. Most of us would not hesitate to condemn a campaign that spreads the joys of smoking, yet such a campaign would create jobs. Supercasinos create jobs but we wouldn't necessarily want one in our town. Even drug trafficking creates jobs, for the traffickers. So jobs need to be weighed against their social consequences. In this light, more aviation jobs are questionable indeed.

The main factor behind the growth of air travel in the UK is the great British package holiday, and more recently the continental mini-break. Government ministers believe that they mess with the public's travel at their peril. We can't have holidays in Spain, Cyprus and Florida, not to mention Australia, Thailand and the Caribbean, without cheap flights. On this issue we are all polluters now.

For the United Kingdom, the value of outbound tourism far exceeds that of inbound tourism. Sun-starved Britons spend more abroad than culture vultures drawn by Buckingham Palace and the Tower of London and Edinburgh Castle do in Britain. Aviation supporters like to proclaim what the country gains from international tourists, yet they choose to overlook this huge deficit in expenditure. Money spent abroad is lost to the home tourism market. It isn't fully replaced by visitors' spending. Spending is being exported – and hence jobs lost at home. UK residents made 56 m foreign trips (in 2013), spending £34 bn (\$51 bn). Visitors to Britain made 33 m trips, spending £21 bn (\$32 bn). Hands up anyone who still thinks cheap flights bring economic benefits to the country!

A government commission was set the task of deciding where in south-east England to expand runway. Practically everyone in the business world and the news media, and certainly the Airports Commission, headed by Sir Howard Davies, accepted the industry's argument that more capacity was vital for London to stay internationally competitive. But is it? As vital as Britain joining the euro perhaps – another near-unanimous business favourite at the time, long since discredited?

While atmospheric pollution isn't the only danger from global aviation growth, it is the greatest. It's been known about for years. It doesn't stir more public concern because it's intangible. The linkage between global warming and

carbon dioxide emissions from aircraft (or anything else) can't be made in the same direct way as rhinos and poaching or smoking and lung cancer, which everyone can see are bad. Aircraft are spewing out a lot of nasties up there, but even in Richmond and Kew we can't actually see the stuff or smell it. (A depressing comparison is that we can smell poisonous fumes from road vehicles – but even that doesn't stop the growth of car usage.)

In an upside down world, flying would be restricted to the young and the old on the basis that the young need to and the old deserve to. Anyone in the West who hasn't travelled outside Europe and North America doesn't fully understand our planet. The gap between the haves and the have-nots can be understood from newspapers and television, but can't be *known* unless experienced first-hand. This isn't the world of the refugee camps, but the everyday world of slums, congestion, unaffordable school fees and health charges, salaries so low that professional people have two or three jobs to make end meet, existing alongside extremes of affluence. In rural areas villagers obtain heat and light not by turning on switches but by walking miles each day for fuelwood.

Given that the West has most of the economic and political power, understanding the world is an imperative for each generation in waiting. Because of air travel, Westerners have the chance of knowledge that 50 years ago was possessed by only a few. In that sense, it's an unalloyed good. In reverse, citizens of the Majority World are well aware of the West through television and the internet – or they think they are. Where they have the chance to travel, they see that not every American lives in houses and apartments with the Tardis-like proportions shown in films and TV shows; not everyone in Britain lives the rural idyll of *Midsomer Murders* (until they get murdered). People in the West have their money problems too, and in so many ways

turn out to be just like us. Air travel once again is a force for good.

So air travel is culturally and politically a force for good, and at the same time it's environmentally a force for bad. This is the circle that the world's policy-makers show no sign of being able to square. Meanwhile, the scientists tell us, the world is running out of time.

The age group that benefits most from travel opportunities are the young – say 18 to 30. They are the generation that needs to understand our one world in order in due course to do a good job of running it. In fact, they should be encouraged to fly through a system of government grants.

The other age group with a strong claim on travel are retirees over 60. This group identifies travel as one of its main wishes for retirement. The retirees may have had limited opportunities to travel in their middle years when bringing up families. The goal of going round the world, or seeing the lions in the Serengeti, or climbing to Machu Pichu, may have sustained them through years of drudgery. Towards the end of life international travel is a way of 'bringing it all together', of understanding not only the planet but also the arc of one's life. This group too should be encouraged to fly (although with their own money not the taxpayers'!).

Everyone else in the upside down world – children and those between 30 and 59 – would stay at home. This would cut demand for air travel by more than half, turning aviation from part of the problem to part of the solution to the world's achieving the global warming target of not more than +2 deg C. It would buy the planet time, and offer the chance of a permanent solution if the world manages to stabilise its population.

If you're English there's no real reason to take the children to Disneyland, Florida, rather than Alton Towers, or to holiday in Barbados rather than Torquay. It's nice – but it's not a necessity of life. Even businesspeople – the airlines' great economic staple – can readily conduct international business by videocasting and teleconferencing.

The loudest squawks would come from those aged 31 to 59 at the start of the system. They would find themselves grounded. In fairness, they would have a window of, say, five years when they would work out their travel ambitions.

Another caveat concerns older people. Some spend their lives in perpetual motion. They are travelling to find where the rainbow ends (it doesn't); they are travelling not *to* somewhere but to get away *from* somewhere. Is it really that boring back home? Or if it is, the answer lies somewhere else than adding excessively to global pollution. Air miles for this group would have to be rationed, with no trading of unwanted air miles. Unused allowances would expire.

Meanwhile, the world would remain open by sea or land. Our approach to time would be more like that of previous generations. Everything would take longer. This might turn out to be a boon when we have more of it as the AI (automatic intelligence) machines take over.

It, or anything like it, isn't going to happen, of course. In the real world politicians look for solutions in very tentatively thinking about restricting demand by price, planting trees to mop up atmospheric carbon and an array of techno-fixes. It is most unlikely that these measures will be big enough or soon enough. Climate destruction is running miles ahead of the willingness of the world's politicians and their publics to confront it. There are few votes in stop-

ping people doing what they want to do – carry on flying – or making them feel bad about doing it; nor in the Majority World in telling people they can't do what those in the West are already doing.

The great environmental scientist James Lovelock, originator of the Gaia Hypothesis, says we are responding to global warming just as we did to the threat of war in the Thirties: 'Most of us think that something unpleasant may happen soon, but we are as confused as we were in 1938 over what form it will take and what to do about it. Our response so far is just like that before the Second World War, an attempt to appease [*The Revenge of Gaia*, 2006].' And, to remind, that war broke out just one year later.

When the time comes that humanity, and not just groups of individuals, perceive what Lovelock calls 'a real and present danger', will flight rationing – unwelcome statutory air miles – be the only way?

## TWO

# WRONG ANSWER TO THE WRONG QUESTION

THE power of the aviation lobby is well shown by the case of Heathrow, long the world's busiest international airport. Airlines move heaven and earth to get there and stay there, in preference to London's other five airports. As a result there are far too few slots to meet demand. The answer isn't as the rational observer might suppose, to operate more flights from Gatwick, Stansted and Luton – all places with spare capacity. No, the answer according to the airlines lustily supported by the airport operator, is to expand Heathrow even though by general agreement it's an unsuitable site.

The Heathrow juggernaut hit a bump in the road when an official inquiry into airport capacity descended into fiasco, as we'll see later in the chapter. But first, to understand where we are we must as always know where we've been.

When the former military flying field was established after the Second World War as the new London Airport, no one saw the huge expansion of air travel to come (planners of the period also missed the explosive growth of motoring). It is in the outer suburbs rather than among green fields, exposing a greater number of people to noise. Close by are two motorways, the M4 and the M25 London orbital motorway. Atmospheric pollution from vehicles plus that from aircraft mean that Heathrow is frequently at risk of

breaching European Union emissions limits. To seek to expand is either technological optimism of the highest order or barmy – take your pick!

Worst of all, most flights (70 per cent) make their final approaches to landing over central London. Passengers are treated on a fine day to spectacular views. Seeing the famous sights in this way feels like being in a balloon – close enough to the ground to be connected but high enough for thrills and awe. The consequences of a mid-air accident over a densely populated city don't bear thinking about; it seems perverse against this background to demand the expansion of flights.

Nevertheless, that is what the lobby wants, and has already got most of the way to getting it.

The limitations of Heathrow were recognised early on. The history of London's airports over decades has been that of sites proposed, sites accepted, sites rejected and sites proposed again. In 1968 the Roskill Commission proposed Cublington, in the Midlands, as the site of a new London airport. A commission minority wanted Maplin Sands, in the Thames Estuary. Anyone old enough to remember Maplin Sands will have said when Boris Johnson, the Mayor of London, proposed his 'Boris Island' in the Thames, 'This is where I came in.'

Gatwick, deep in the Sussex countryside south of London, was intended as a clearcut alternative to Heathrow. It wasn't locked into a site with homes around it, and offered a fast rail connection to central London. No more grinding through the London traffic to reach Heathrow. This was before the Underground reached the airport, and even longer before the fast surface train got there. Gatwick today is busy enough, but a rival to Heathrow it isn't.

Stansted, to the north-east of London and also connected by rail, has seen repeated expansions with protesting residents repeatedly promised, 'Once more and no more'. The inability of the authorities to keep their word in the face of pressure from the lobby is striking. The same has happened at London City, in the regenerated Docklands business district.

This airport was sold to the public, especially sceptical local residents, as a short-runway facility for STOL (short take-off and landing) aircraft to be used by business people in nearby Canary Wharf. London's standing as a global business capital would be damaged, it was argued, if business people had to trek clear across the city to Heathrow (The argument of damage to the UK's business interests is used all the time by the lobby to support expansion at Heathrow.) To no one's surprise, London City tries to raise the ante all the time, edging its way towards full-size planes on a full runway – and with a location even more unsuitable than Heathrow's.

Today London's six airports cater for different markets even though that wasn't the plan, or at least the whole of the plan. Gatwick, in fact, has seen most of its long-haul flights migrate to Heathrow. The days are long gone when a helicopter link with Heathrow was needed for transfer passengers. Gatwick is left with some European routes and substantial holiday charter traffic. The same applies to Stansted on a smaller scale.

Luton is a 'bucket and spade' airport. The faintly derogatory term suggests its typical passengers aren't affluent types off for three weeks in Barbados. They are ordinary people heading for a more modest holiday by charter aircraft or a budget airline. London City has its business clientele, no doubt complaining they can't fly further and bigger. Southend is like a poor person's Stansted.

The constellation of six airports has this configuration because of the success of the aviation lobby, which insists on concentrating the main travel routes on Heathrow as the UK's only 'hub' airport. It is used by 90 airlines, flying to more than 180 destinations in more than 90 countries. The airport handled 73 m passengers (in 2014). This is almost double the number of Gatwick (38 m), which is turn is far ahead of the other airports.

The aviation lobby hammers away at two key points: that Britain can support only one hub airport, and that Heathrow risks being eclipsed by Schipol (Netherlands) and Charles de Gaulle, or CDG (Paris), unless more capacity is allowed. In fact, Heathrow has a dominant position amongst European hubs on routes to North America and other established aviation markets. If through capacity constraints it lacks similar strength on routes to emerging nations, this would provide opportunities for the other London airports but for airlines' fixation with Heathrow as the hub.

John Stewart, one of the nation's most prominent environmental campaigners, said British Airways, by far and away the largest user of Heathrow, was 'not interested in anywhere else'. BA is now the principal partner in IAG and even more of a dominant force at Heathrow. No wonder it has strong views on the subject!

As for the idea that Britain can support only one hub airport (which the aviation lobby states with the force of holy writ) – why? Major airports are practically cheek by jowl in Northern Europe: Paris and Brussels, Brussels and Amsterdam, even Amsterdam and Frankfurt. In the United States, New York is just 200 miles or so from Washington; not much farther from Boston – hub airports all.

These are similar distances to London and the North of England, where Manchester is ready and waiting to fill the role of a second hub.

If anyone paid serious attention to the views of passengers, they would find that few have any love for Heathrow, and all the glittering terminals and superb shopping doesn't overcome the sheer 'hassle factor' of size. This is a problem that can only get worse as security intensifies and more and more people use the airport. Bigger is usually not better with flying. Smaller airports – even Gatwick – are more comfortable places to move through, but long-haul travellers have practically no choice in the matter beyond Heathrow. To fly from anywhere else typically involves one or even two changes.

Heathrow undoubtedly runs at the limit of its capacity. Anyone who has sat in a stationary aircraft stuck on an approach runway and heard the captain announce, 'We are eighth in line for takeoff', will testify to that. Even a minor mishap on one of the airport's two runways would disrupt flights all over the world.

Public opinion has forced successive British governments to put in place a range of measures to mitigate noise nuisance from Heathrow. Night flights are severely limited, but the ban isn't total – and the night ends early. The airport averages 16 flights per night (2300-0559). John Cavalla, who successfully took a case to the European Court of Human Rights, said, 'We used to lie in bed and be woken at 4.30am by the roar of the first flight. Then at 6 am all hell would break loose and planes started landing every minute or so. It was an absolute nightmare and left us irritable for the rest of the day.'

To reduce disturbance during the day to local residents – who include Queen Elizabeth in Windsor Castle –

Heathrow practises runway alternation. Aircraft mainly take off and land on separate runways. Use of the runways is swapped in the middle of the day. Take-offs make more noise than landings so runway alternation means that each resident has a small torture substituted for a big torture for half the day.

Even this sensible though limited measure can't be used in full because of another measure – the Cranford Agreement. Cranford is a small community sitting at the eastern end of the northern runway. This runway isn't used when wind direction dictates easterly take-offs. It abates the worst noise for Cranford residents, but means the end of runway alternation for the 30 per cent of the time that take-offs are to the east. Sadly for those residents, the long-standing agreement has been rescinded by government and is coming to an end.

Noise could get a whole lot worse for residents beneath the flight paths if a third runway is built at Heathrow. This could spell the end of runway alternation, with aircraft landing and taking off on two of the runways for 12 or 13 hours a day (excluding night-time). The campaigning group HACAN, led by Stewart, says some residents would find their respite period reduced to little more than four hours a day.

Night flight restrictions and runway alternation, welcome as far as they go, are also sticking plasters to keep the airport onside with the public. On a clear-headed view, they don't suggest that Heathrow is the right place for massive expansion. This, however, is the policy that the Airports Commission has green-lighted in its 2015 final report.

The British government set up the commission under economist Sir Howard Davies to investigate whether more

capacity was needed ‘to maintain the UK’s global hub status’. The answer was always going to be yes. Nobody sets up vastly expensive inquiries expecting them to recommend doing nothing. Nor would commission members feel they had earned their nosebags if they said so.

(A new runway in this context doesn’t mean quickly putting down a strip of bitumen on a green-field site. For the runway and associated infrastructure, the cost, time and land take are all enormous. One of the attractions of ‘Boris Island’ is that it offers space. While size isn’t a virtue *per se*, travellers from Dubai or Istanbul or even a medium-size field in the USA like Detroit Wayne County can’t fail to remark Heathrow’s modest scale.)

The makeup of the seven-person Airports Commission didn’t suggest that an environmentally sensitive solution would be forthcoming. As well as Davies, previously the director of the London School of Economics and before that chairman of the UK Financial Services Authority, the panel comprised a professor of urban studies and a good selection of ‘formers’ – a former BP executive, a former railway executive, a former boss of Manchester Airport and an academic with former links to the aerospace industry. The group included no representative of a mainstream environmental organisation. In the event, the commission lived down to its expectations from a green point of view.

It declared that it was ‘determined to take a fresh and independent look at UK airport capacity’, yet its shortlist for expansion featuring Heathrow and Gatwick – the country’s two biggest airports, both located in the congested South East – argued the opposite. An imaginative plan for a four-runway Thames Estuary airport on the Isle of Grain, Kent. received a stay of execution, but was finally rejected on grounds of cost (estimated at up to £112 bn [\$168 bn])

and environmental damage.

Similar in inspiration to Mayor Johnson's 'Boris Island', the Thames Hub proposal had the merit of translating Heathrow's traffic to a more suitable site. The commission, however, saw this as a negative, noting that it would 'require the closure of Heathrow for commercial reasons and London City for airspace reasons'.

Worse, the opportunity to meeting growing demand in a more sustainable manner with a second hub airport in the north of the country was summarily dismissed with the observation: 'Intervening to redistribute this excess demand away from airports in London and the South East does not appear to be a credible option.'

The three schemes accepted by the Airports Commission for the government's consideration were:

**Heathrow north-west runway**, proposed by the airport itself for a projected cost of £16.8 bn (\$25.2 bn) with completion in 2025. About 780 properties would be demolished, including most of the 14<sup>th</sup> century village of Harmondsworth.

**Heathrow Hub runway extension**. This private scheme extends the northern runway to at least 6,000 metres – an amazing 3.7 miles – to create two separate air strips. (The same method has been used with a single platform at Cambridge railway station for many years.) The projected cost is around £12 bn (\$18 bn) with completion by 2023. Properties to be destroyed: 242.

**Gatwick southern runway**, proposed by the airport as a 3,000-metre strip for an estimate cost of £7.8 bn (\$11.7 bn) and completion date of 2025. Although Gatwick is in the country, the scheme still requires 186 properties to be destroyed.

The commission's final report and recommendations were expected soon after the general election of May 7, 2015 (unexpectedly won outright by the ruling Conservatives). Embarrassingly, however, the commission found itself announcing that it would hold a further consultation on air quality. This was made inevitable by a (UK) Supreme Court decision that the United Kingdom must implement European Union limits on air pollution by the end of the year.

That such a consultation in 'extra time' was considered necessary signified an astonishing lacuna in the commission's previous work. Here surely is where the lack of a mainstream environmental figure was felt. Such a person couldn't have failed to demand attention to air quality at Heathrow – a known problem for years. The court decision looked like a mortal blow for the two Heathrow runway options, and possibly called into question the third option (Gatwick) also.

What came next surprised even hard-bitten observers. While the logic of the situation now pointed to Gatwick or the Thames Hub (see earlier in the chapter), not to mention Manchester, politics pointed to a fudge. In the event, Sir Howard Davies and his commissioner colleagues simply persuaded themselves that there was nothing wrong with their original choices. Unanimously they recommended the Heathrow north-west runway, as proposed by the airport operator. The choice was a triumph for the Heathrow juggernaut, which was back on the road and running at full steam.

Sir Howard's decision came with a package of sweeteners. The most welcome was a ban on all scheduled night flights from 11.30pm to 6.00am, which it was claimed would only be possible with expansion. In a classic bureaucratic move, a Community Engagement Board was proposed, under an

independent chairperson, 'with real influence over spending on mitigation and compensation and over the airport's operations'.

The suggestion that the government should make a firm commitment in Parliament not to expand the airport further – 'there is no sound operational or environmental case for a fourth runway at Heathrow' – was likely to fool no-one in view of the commission's previously published forecasts.

The issue of pollution was embraced and, as the commission would hope, dissipated with the requirement for 'a legal commitment on air quality that new capacity will only be released when it is clear that compliance with EU limits will not be delayed' – a condition that very possibly can never be met. Here is a fudge after all. We may dream of construction being delayed while scientists crawl over the site with pollution monitors, or the runway standing half-built until air quality improves – and then we wake up.

Sir Howard in an official statement said: 'Adding capacity at Heathrow also provides an opportunity to change the airport's relationship with its local communities as some overseas airports have done. To make expansion possible the commission recommends a comprehensive package of accompanying measures including a ban on night flights and a new noise levy to fund a far stronger and more generous set of compensation and mitigation schemes.' He made no mention of air quality.

Paul McGuinness, representing an action group of residents in Teddington, a community affected by low-flying aircraft from Heathrow, said: 'The commission's recommendation beggars belief.' Expressing the hope that the government would kill the proposal, he added: 'It's incred-

ible that a government which has recently been legally bound by the Supreme Court to improve air quality to meet EU directives can even begin to consider a third runway at Heathrow, an area which currently exceeds all limit values on toxic emissions.'

The veteran campaigner John Stewart is the leader of HACAN, an action group that has long opposed a new runway at Heathrow. He commented: 'Given the conditions imposed on a third runway, Heathrow will face the mother of all challenges to build it.'

The Heathrow saga is far from over. The decision will be made by the government and parliament. Britain has a long tradition of ignoring the recommendations of official inquiries. But the odds remain with Heathrow: to decree capacity expansion elsewhere, particularly at nearby Gatwick, strikes at the very heart of the cherished hub airport concept.

The Airports Commission's projections, now inherited by David Cameron's Conservative government, pointed strongly to Heathrow. Either runway option was expected to add at least twice as much to the economy as the Gatwick scheme (at the lower end of the predictions) – a proposition that, environment notwithstanding, any government will find hard to ignore. With job creation the commission saw an even bigger gulf:

(By 2050)

Gatwick: 7,900-49,000

Heathrow Hub: 47,000-164,000

Heathrow Airport Ltd: 64,100-180,000

How much weight to put on these numbers? They are far beyond the limits of science-based futurology. The time scale (to 2050) and the range make them largely conjectural.

In coming up with such a predictable range of choices, the commission laboured mightily and brought forth a mouse. It was presumably swayed by the economic arguments for the shortlisted three, but the decision comes at a high environmental cost. The commission even acknowledged that the two Heathrow schemes make meeting European Union air pollution limits ‘challenging’ – meaning that a techno-fix will emerge from somewhere and let’s hope for the best with traffic growth on the adjacent motorways.

The decision raises a number of questions. *How dependable are the numbers, especially jobs to be created and contribution to the economy? The time scale involved makes them good guesses at best. Can the economic benefits be obtained in other ways? Or somewhere else? How much weight do we put on the economy vis-a-vis the environment? What, for that matter, about the premiss of estimating future travel demand and setting out to meet it?*

The commission’s interim report of 2013 is permeated with a ‘predict and provide’ approach to air travel – despite the commission’s explicit disavowal of this ‘mechanistic’ strategy. ‘The London airport system is forecast to be under very substantial pressure in 2030, and by 2050 sees demand significantly in excess of the total available capacity, even when aviation emissions are constrained to 2005 levels,’ it said. ‘Addressing these problems will require new runway infrastructure in London and the South East.’

Furthermore, ‘the commission’s forecasts also indicate that there is likely to be a demand case for a second additional runway in operation by 2050 or, in some scenarios, earlier’.

This approach sits most uneasily with the commission's acknowledgement that aircraft emissions are a growing issue for climate change: 'The Intergovernmental Panel on Climate Change's 5th Assessment Report [see Chapter Four] argues that total CO<sub>2</sub> from all anthropogenic [of human origin] sources would need to be limited to a cumulative budget of one trillion tonnes if the world is to have a 'likely' chance of limiting temperature rise to 2 deg C. This is very unlikely to be achieved if aviation emissions are not controlled, so aviation is a crucial part of overall climate change policy.'

So much for the problem? Now what of the solution? The commission leans on the airline industry's mainly long term targets for improved fuel efficiency and reduced emissions, along with hopes for alternative fuels and the pious but vapid exhortation that 'policymakers should use the full range of tools at their disposal, including forecasts, to make informed judgments about what infrastructure should be provided. In doing so, they need to weigh carefully the risks of both over and under provision.' The idea that something might be done to restrain the demand for air travel isn't mentioned.

Successive British governments have failed to look beyond London and environs with air policy. The land beyond the M25 orbital motorway exists mainly for one reason only: to be visited as necessary to keep voters sweet. If politicians were able to overcome this myopia they would see the attraction of a second hub in the North.

The Airports Commission didn't go near the question because of its London-centric approach. There is nothing new in this. The Department for Transport's 2003 'predict and provide' blockbuster, *The Future of Air Transport*, has mercifully been gathering dust on some digital shelf. It did nothing to redress the imbalance of air travel facilities

between the London area and the rest of the country – quite the opposite, in fact.

Manchester would be the most suitable location of a hub airport in the North of England. The present Manchester Airport is by far the largest in the region. It has a demonstrated appetite for growth. (Manchester Airport Group is also the owner of Gatwick.)

Manchester has some international flights, but huge numbers of passengers from Britain's manufacturing heartland have to make unwelcome (and polluting) treks to London. A majority are leisure travellers; they would be only too happy to be able to fly from a more local airport. Since more people live within striking distance of Manchester than London, the present arrangements don't make sense for the environment, or for the economy. All those potentially unnecessary journeys have an economic cost through the congestion and delays they produce. Without them, capacity would be freed up for business travellers at Heathrow – answering a key demand by business leaders.

Strong evidence for the viability of Manchester as the UK's northern hub airport is provided by Dublin, a short flip across the Irish Sea. US-bound passengers from northern England and Scotland are flocking to the formerly inconsequential Irish airport to avoid Heathrow. Transatlantic transfer passengers from Britain were up 47 per cent year on year in the first half of 2014, making Dublin the seventh largest airport in Europe for transatlantic traffic.

A second hub airport would relieve the pressure on Heathrow, making expansion unnecessary there or elsewhere in the overcrowded South East region. Passenger numbers in the North would grow, thus in a sense it's rearranging the furniture. In fact, some more pieces of furniture

may have to be added when travellers put off by the long trek to Heathrow decide to fly from Manchester. As well as the benefits in personal convenience, however, the savings in CO2 and other emissions from journeys not taken would be significant. It's not about to happen, but the Airports Commission fiasco provides an opportunity to make it so.

Meanwhile, after megabucks of taxpayers' money we're left with a questionable plan to expand an airport in what should be seen as a terminal condition (no pun intended). Truly a triumph for the Heathrow juggernaut. Add into the mix the European Union's requirements on air quality, and we have a very British muddle!

By focusing on increased capacity in the South East the Airports Commission asked the wrong question, and inevitably gave the wrong answer. It was not the mouse that roared, but the lion that squeaked.

# THREE

## FREQUENT FLYING – WHAT'S NOT TO LIKE?

IN 2014 Dubai overtook Heathrow as the world's leading international airport by passenger numbers. At 69.9 m it supplanted the long-time leader, which had 68.1 m that year. In line with the ancient Asian tradition, Dubai has become the caravanserai of global aviation. It handily sits astride the routes from Europe to Asia and America to Asia.

Its ambitions are boundless. It expects the airport to handle 98.5 m passengers by 2020. Soon after that its second international airport will be able to handle 120 m a year, eventually rising to 240 m.

O brave new world! Transit passengers in Dubai's massive, glittering terminal already enjoy a Shangri-La of shopping. This can only get better.

Around the same time Fabrice Bregier, president and chief executive of Airbus, pointed to forecasts that air passenger numbers would double every 15 years at current rates. Bregier was talking up his A380, the 850-seat super-jumbo, urging that vast aircraft will be needed to cope with this volume of traffic.

Bregier would have known that in predicting the future nothing is more hazardous than a straight-line extrapolation from the present situation. Thus traffic forecasts in the 1880s missed the emergence of the motor car, but were gloomily concerned about the rise in horse traffic! Even so,

traffic forecasts generally understate the increases, and it's well for us to take Bregier at face value.

And what's not to like as we buzz into Dubai aboard our A380 super-jumbo on our fifth international mini-break of the year? It's the C-word, stupid – carbon dioxide (CO<sub>2</sub>). The tough fact is that the more we fly the more we emit greenhouse gases into the atmosphere. Larger aircraft and more fuel-efficient aircraft mean less pollution per passenger, but the gains are set to be more than eaten up with the increase in air traffic.

Carbon dioxide, much of it derived from the burning of fossil fuels like coal, oil and gas, is the principal driver of man-made global warming – the climatic change that threatens the planet with the direst environmental consequences. A stable global average temperature is needed for the health of the planet. It means curbing the output of carbon dioxide, methane and nitrous oxides. These aptly named greenhouse gases trap heat in the atmosphere.

The Intergovernmental Panel on Climate Change is the world's most authoritative analyst of global warming. It collates and interprets hundreds of scientific studies and reports. Although a degree of public scepticism has arisen in recent years, the IPCC remains insistent that human activities are behind rising global temperatures.

'Human influence on the climate system is clear, and recent anthropogenic [man-made] emissions of greenhouse gases are the highest in history,' it says in its 5<sup>th</sup> Assessment Report, published in 2014. 'Recent climate changes have had widespread impacts on human and natural systems.

'Warming of the climate system is unequivocal, and since the 1950s, many of the observed changes are unprecedented over decades to millennia. The atmosphere and

ocean have warmed, the amounts of snow and ice have diminished, and sea level has risen.'

The report presents four scenarios or 'representative concentration pathways' for greenhouse gas emissions to 2100: a stringent mitigation scenario (RCP 2.6), an intermediate scenario (RCP 4.5) and two scenarios reflecting degrees of business as usual (RCP 6.0 and RCP 8.5).

In carefully precise language the IPCC says that relative to 1850-1900 [in the early stages of the Industrial Revolution for much of the West], global surface temperature change for the end of the 21st century (2081-2100) is *likely to exceed* 1.5C for RCP 4.5, RCP 6.0 and RCP 8.5 (*high confidence*). Warming is *likely to exceed* 2 C for RCP 6.0 and RCP 8.5 (*high confidence*), *more likely than not to exceed* 2 C for RCP 4.5 (*medium confidence*), but *unlikely to exceed* 2 C for RCP 2.6.

(Relative to 1986-2005, the *likely* temperature rises are 0.3-1.7 C under RCP 2.6, 1.1-2.6 C under RCP4.5, 1.4-3.1 C under RCP 6.0 and 2.6-4.8 C under RCP 8.5.)

In other words, the only strategy that can be relied upon to keep warming below 2 C, generally accepted as the highest level if irreversible environmental damage is to be avoided, is the 'stringent mitigation scenario' (RCP 2.6). This is currently nowhere in sight and, as the IPCC remarks elsewhere in the report, the longer that action is delayed the harder effective mitigation becomes.

The report puts scientific flesh on the bones of everyday talk by confirming that more frequent extreme weather events are part of global warming. 'Changes in many extreme weather and climate events have been observed since about 1950. Some of these changes have been linked to human influences, including a decrease in cold temper-

ature extremes, an increase in warm temperature extremes, an increase in extreme high sea levels and an increase in the number of heavy precipitation events in a number of regions.'

In a publication aimed more directly at the general public, the august Royal Society, an association of international scientists based in London, has reiterated the reality of anthropogenic global warming. The dominant influence of human activities on recent climate change becomes clear, it said, by 'comparing the detailed patterns of recent climate change with those expected from different human and natural influences [*A Short Guide to Climate Science*, November 2014]'

It left no room for doubt of the grave consequences in prospect. 'If emissions continue on their present trajectory, then warming of 2.6 to 4.8 C (4.7 to 8.6 F), in addition to that which has already occurred [0.8 C since 1900, much of it since the mid-1970s], would be expected by the end of the 21<sup>st</sup> century.'

Among the likely changes these temperatures will bring is a dramatic rise in the sea level. The overall observed rise since 1901 is about 20 cm (8 in). If CO<sub>2</sub> and other greenhouse gases continue to increase on their current trajectories, it is projected that sea level may rise by a further 0.5 to 1 m (1.5 to 3 ft) by 2100.' This would cause havoc with human settlement patterns, wiping out many of the world's coastal cities.

In a message to climate change sceptics, the Royal Society pointed out: 'The observed warming rate has varied from year to year, decade to decade, and place to place. These shorter-term variations are mostly due to natural causes, and do not contradict our fundamental understanding that the long-term warming trend since the mid-20<sup>th</sup> century is

primarily due to human-induced changes in the atmospheric levels of CO<sub>2</sub> and other greenhouse gases.

‘Despite the slower rate of warming, the surface temperatures in the 2000s were on average warmer than the 1990s.’

A dissident group within the Royal Society headed by Professor Michael Kelly of Cambridge University complained that with the short guide and other pronouncements the society had abandoned ‘neutral inquiry’ for ‘lobbying’. Certainly the society showed clear intent to influence public understanding without the usual academic ifs, buts and maybe’s. It made a welcome change when scrupulous scientists give us the gist of the matter in terms we can understand.

Sceptics aren’t new in the global warming controversy. They are fond of pointing out that planetary temperature has always varied. The Romans, we’re told, grew wine in parts of England that are now too cold for the activity. The objection misses the mark. Sunbathing in January in Chicago or London would be procured at a fearful climatic cost. Rapid temperature rises challenge the capacity of plants, animals and human societies to cope.

The practical consequences of global warming were spelled out by Sir Nicholas Stern, a former chief economist at the World Bank, in an authoritative study for the British government [*The Economics of Climate Change*, 2006]:

The destruction of coral reefs, the disappearance of mountain glaciers and the beginning of extreme weather make themselves felt at +1 deg C or less – the period we are in now.

At +2 deg C:

Falling crop yields in developing regions

Crop yields *cease to increase* in high altitude developed nations (like Britain) despite fertilisation

Up to one billion people suffer water shortages, and many are at risk of hunger

Rising intensity of extreme weather events, like fires, droughts and floods

Possible collapse of the Amazon rainforest

Onset of irreversible melting of the Greenland ice sheet

When global temperature reaches +3 deg C these climatic effects will continue (except that the mountain glaciers and coral reefs will be gone or irreversibly damaged), while additionally:

Many species face extinction (20 per cent to 50 per cent in one study)

Abrupt climate shifts become increasingly likely, including the collapse of the West Antarctic ice sheet and the Atlantic thermohaline circulation (THC) of which the Gulf Stream is a part

Stern is clear that under 'business as usual' (ie doing nothing) greenhouse gas emissions would more than treble by 2100, with a 50 per cent risk of a temperature rise of more than 5 deg C. 'This would take humans into unknown territory,' he comments.

The climate change controversy is bedevilled by the different approaches of scientists and campaigners. Scientists by their nature are careful, precise individuals. When dealing with macro-phenomena, they rarely feel able to deal in

certainties. Campaigners, on the other hand, are more than ready to cherry-pick the facts that suit their case. Thus both Nasa's Goddard Institute of Space Studies and the Berkeley Earth Surface Temperature Project reported that 2014 was the world's hottest year on record, although the data were within the margin of uncertainty. Sceptics fell joyfully on Nasa's clarification that the institute was only 38 per cent sure 2014 was a record, with one of the sceptics arguing that there had been no statistically significant warming trend since 1997 since the entire increase over the period was within the margin of uncertainty. Note, though, that if 2014 wasn't the hottest year another recent year was – either 2010 or 2005.

Scepticism towards global warming or – scarcely better – a lack of urgency about it flourishes with the contention that warming appears to have slowed, or halted. It's too short-term a view. The great majority of responsible scientists continue to hold that global warming is for real, that it's damaging if left unchecked and that humanity is mainly the cause.

Those who persuade themselves that human activities are too puny to affect climate can think again following a study in the respected scientific journal *Nature*. This argued that mankind brought about permanent climate change – in 1610. This is the proposed start of an epoch to be called the Anthropocene. In that year carbon dioxide levels were at their lowest, producing a 'globally synchronous cool moment', according to Dr Simon Lewis of the University of London.

The process started with the arrival of Europeans in the Americas, leading to huge transfers of crops and species between the Old and New Worlds. Smallpox wiped out 50 m native Americans, causing farming to collapse and forests to spread (taking up CO<sub>2</sub> from the atmosphere).

Flying is one among many sources of the atmospheric pollution behind global warming, but a crucially important one because of its projected growth worldwide. Other sources include industrial production, land use (farming), electricity production, gas and oil heating, and motor traffic. In this sense atmospheric pollution is inseparable from the modern world. The issue is how the 'stringent mitigation scenario' identified by the IPCC is to be brought about.

The environmental cause is damaged when campaigners say one thing and do another. Greenpeace International has taken a strong line against aviation pollution, yet its international programme director, Pascal Husting, was found to be commuting by air twice a month between Luxembourg and Amsterdam. Defending the decision, Husting said the alternative was 'a two-hour round trip by train'. So what? Perhaps those who live by the sword should be willing to fall on their sword, at least to the extent of sitting on a train. After his travel arrangements came to light, Husting discovered that his family could spare him more and he planned to make the trip once a month.

If the Dubai government and Airbus' Fabrice Bregier are even half right, air travel is poised for explosive growth as increasingly wealthy Asia (and Latin America) demands the same travel privileges as the West.

Pradipto Ghosh, a former Indian government minister, insisted that global warming was above all a problem for the West. 'Those countries have been at a tremendous party since the 19<sup>th</sup> century, and now the party has to come to an end,' he said. 'It is the West that has to get serious about this problem.' This is like saying our end of the boat isn't holed so we don't need to worry about sinking – but the mindset is all too understandable. The West has a legacy of climate abuse to overcome before it can expect others to follow.

Output of CO<sub>2</sub> from an aircraft is up to ten times greater than that from a high-speed train over equivalent distances. As for longer distances, a passenger flying from London to Florida generates as much CO<sub>2</sub> as the average British motorist in a year. Even more if you're using your corporate jet, when the CO<sub>2</sub> output of the aircraft is averaged among a handful or fewer of passengers. This most anti-social form of transport can only grow unless politically constrained.

A Spanish newspaper published a three-page supplement about the high-speed train – without mentioning the environmental benefits compared with short-haul flying. The newspaper was either unaware of or uninterested in the fact that CO<sub>2</sub> emissions per passenger kilometre are as many times greater for an aircraft than a high-speed train while journey times, city centre to city centre, are comparable for the middling distances typical of Europe. A British visitor who chanced upon the coverage commented: 'Not to even mention climate change in three whole pages of articles about investment in trains does make one see what we are up against!'

Because emissions from aircraft are higher in the atmosphere, their contribution to global warming is greater than that at ground level. The science is complex, but the effects at height are doubled or tripled for every gram of CO<sub>2</sub> emitted. The issue has been long recognised. As far back as 2002, the Royal Commission on Environmental Pollution – a rare example of an official body that pulls no punches – pressed the point home by arguing that in a carbon trading system 'the aviation industry should acquire three carbon emission permits for each unit of carbon that it actually emits' [*The Environmental Effects of Civil Aircraft in Flight*].

Britain's Airports Commission, described in the previous

chapter, estimated that, globally, aviation accounts for between one per cent and two per cent of greenhouse gas (GHG) emissions. The European Union puts the present level at about three per cent. Behind these superficially innocuous numbers lies a far greater problem. We've just seen that the level of emissions should be multiplied by two or even three times. Of equal concern is the trend for aviation to account for an ever growing share of GHG emissions. Along with an expected doubling of passenger numbers every 15 years, the aviation industry is more impervious than most to mitigation measures.

The Airports Commission noted: 'Aviation is harder to decarbonise than other sectors because of the lack of an obvious low-carbon alternative to aviation fuel (kerosene). In addition, the long service life of aircraft compared to most other vehicles means that it takes longer for new technologies to penetrate the aircraft fleet.'

It continued: 'Currently expected technological and operational improvements will help mitigate the climate impacts of aviation. Aircraft have become steadily more fuel-efficient over the past 50 years, but the historical rate of improvement in fuel efficiency has not been sufficient to offset the rate of growth in air travel, meaning that aviation emissions have been on a steady upward trajectory.'

The gravity of the situation was illustrated by the World Development Movement (now known as Global Justice Now), which pointed out in *Dying on a Jet Plane* (2007), that on present trends aviation alone will devour all the energy Britain can use without breaching world stabilisation targets, perhaps as early as 2027 – plainly an impossibility when we have to grow food to eat, power our homes with heat and light, travel to work and make things there!

We in the West might make a modest start by ceasing to gorge ourselves on imported luxuries. Air freight on the scale currently practised is impossible to justify in a warming world. The briefest visit to a delicatessen or supermarket will reveal a range of tropical exotica among the fruit and vegetables. In every case a duplicate or near match (nutritionally at least) will be found in local produce. As such, they're anything but essential to human survival.

Hard on the heels of airborne luxuries like fresh flowers from Kenya is the down-to-earth produce from nearer home that has abolished the experience of seasonality in food, and with it the pleasure of what each new season brings. These days we expect lettuces, tomatoes, strawberries and the rest all year round even if they have to be imported (often by sea, but ships pollute too). Nor is it only a matter of the seasons. It's common in British supermarkets to find the same items, foreign and local, side by side. Produce that simply duplicates local produce – apples from Spain and the UK, for example – is a betrayal of the environment in the name of consumer choice. As consumers we want choice, but are we aware of the price attached?

Granted, the environmental question goes beyond a simple 'local good, foreign bad'. The hot-housing required to grow fruit and vegetables in the Northern winter may cost more in pollution than bringing these items in from warmer countries. One-worlders say we should offset the environmental cost of flowers from Kenya with the human gain of providing work for the growers – yet a plantation economy is a dubious model for an emerging country. Generally speaking, our best bet is to think and buy local.

Viscountess Hinchinbrooke (Julie Montagu) is hailed as a healthy-eating guru. Among her offerings are 'easy to make' snack balls. They do, however, need baobab powder. 'It's like the new goji berry,' she explained. And it seems

only yesterday that goji berries were the new ... whatever. Amid the changing fashions, the constant is the CO<sub>2</sub> released on bringing in these tropical delicacies.

Larry Elliott and Dan Atkinson, in their book *Fantasy Island*, pointed out the 'super-sized' fantasy of pretending carbon emissions can be reduced while maintaining the Western way of life. The conjuring trick is impossible. It's the truth that, politically, dare not speak its name. If everyone in the world lived as Europeans do, the resources of three earths would be needed. If everyone consumed like Americans, it would be five planets. But living like Westerners is exactly what the emergent middle class in the Majority World demand. The conclusion is inescapable: with our present way of life the climate stabilisation target can't be met.

The likelihood of a calamitous situation was underlined by BP's Spencer Dale, formerly of the Bank of England. He predicted that world energy demand will grow by 37 per cent from 2013 to 2035. Keep in mind that most energy is derived from fossil fuels, and that present energy use is already challenging the stability of the environment.

Particularly scary is the idea that the world may have already passed the climatic tipping point and not know it. James Lovelock writes: 'Deadly it may be, but when we pass the threshold of climate change there may be nothing perceptible to mark this crucial step, nothing to warn that there is no returning [*The Revenge of Gaia*].'

Lovelock has been dismissed in many quarters as a prophet of doom. Somehow humanity has always struggled on. The octogenarian author, it seemed, had fallen prey to the curse of old age: *apres moi le deluge*. The trouble is, old age isn't necessarily wrong, and prophets of doom are sometimes right.

# FOUR

## POLLUTION – IT’S BUSINESS AS USUAL

BUSINESS as usual has been the world’s main response so far to global warming. However starkly the picture is laid out, it isn’t, it seems, enough. High hopes were raised when the Kyoto Protocol was signed into effect in 1997, eventually comprising 192 nations. With a first period running from 2005 to 2012, it set out national targets for the reduction of greenhouse gases (GHGs) in the atmosphere. As well as carbon dioxide (CO<sub>2</sub>), five other sources of pollution were included: methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), sulphur hexafluoride (SF<sub>6</sub>), hydrofluorocarbons (HFCs) and perfluorocarbons (PFCs).

The process soon ran into trouble when the United States, the world’s principal polluter accounting for a quarter to a third of global output of GHGs, refused to ratify the treaty. President Bill Clinton had signed the protocol, but Congress balked on the grounds that it would damage American industry.

This stance was taken up by Clinton’s successor, George W. Bush, who complained that the treaty ‘exempts 80 per cent of the world, including major population centres such as China and India, from compliance, and would cause serious harm to the US economy.’ (This was a reference to Kyoto’s emphasis on the advanced industrial nations.)

Canada, usually seen as one of the environmental good guys, withdrew from the Kyoto Protocol in 2012 to avoid

penalties for a dreadful pollution overshoot. It had committed to reduce GHG emissions by 2012 to 6 per cent below 1990 levels. In fact, by 2009 emissions were 17 per cent up.

The European Union is arguably the keenest supporter of Kyoto. Targets and outcomes varied among the member nations – and the bloc as a whole ended the first period UP by 1.9 per cent.

All of this was without factoring in the emissions of aircraft and shipping, which makes a gaping hole in the world's efforts at pollution control. These are excluded from Kyoto amid arguments about who has jurisdiction in international skies and seas. This is a legal problem that could be solved with goodwill, but exemption is useful for airlines and shipping companies.

Worse was to come with the extension of the Kyoto Protocol, known as the Doha Amendment (2012-20). China and India, rapidly industrialising major economies, joined the United States in refusing to accept legal commitments on greenhouse gas emissions.

The European Union, however, put itself onside for the second Kyoto period. The bloc, which accounts for some 11 per cent of global greenhouse gas emissions, signalled its intent to jointly achieve a 20 per cent reduction in GHG emissions on the 1990 level or member states' 'other chosen base years' (a strong statistical *prenez-garde!*).

At the heart of the EU's strategy for pollution control is the Emissions Trading System (EU ETS), based on tradeable allowances for industrial installations and other sources of pollution. Allowances are allocated to polluters, who are then allowed to sell any surplus (ie from reducing emissions) to those who produce excess pollution.

The EU sees this market-based approach as cost-efficient and environmentally effective – although on the debit side it allows rich polluters to buy their way out of trouble with little incentive to mend their ways. A more draconian approach would make allowances non-tradeable, forcing worst-case polluters to put their houses in order. This would be politically difficult, especially since the EU ETS is linked with the Kyoto process, which operates a comparable permit system.

Even the public can invest in carbon permits. They are the ultimate hazardous investment: there is no regular market for investors to turn their holdings back into cash; nor are the investments regulated and underwritten by, for example, the UK government. Lured by an attractive return, an investor, 'NM', was induced to put his pension savings of £158,000 (\$237,000) into carbon credits. He lost the lot when the company that sold the credits failed.

As with Kyoto, aviation was excluded from the EU ETS. The anomaly was addressed with the decision to include aircraft emissions from 2012. Cue uproar from much of the rest of the world. The United States, true to form, was at the forefront of opposition to this environmental measure. It was joined among others by China, India and Russia. The US argued that the EU did not have jurisdiction to regulate flights when they were not in European skies. Congress then passed the retaliatory European Union Emissions Trading Scheme Prohibition Act, 2011, banning American carriers from taking part in the European emission trading scheme.

Faced with this impasse, the EU went ahead with an internal scheme, covering all flights from, to and within the European Economic Area (the 28 EU member states plus Iceland, Liechtenstein and Norway). The ETS requirements were suspended for flights to and from non-European

countries until 2016. This followed agreement by the International Civil Aviation Organisation assembly to develop a global market-based mechanism addressing global aviation emissions by 2016 and apply it by 2020. To many observers, this looked like kicking a pressingly important issue into the long grass.

Before aviation was brought into the EU scheme, it was clear that airlines would be able to raid other industries for their surpluses. Alan Buchanan, British Airways' head of environment, for one was looking forward to that prospect, although he would undoubtedly have put it differently. 'Technology is coming to our aid [he wrote]. But, in the short run, it is likely that these technical gains in the industry's global carbon footprint will be outweighed by aviation's growth. That is why carbon trading is so necessary. It allows the industry to grow while ensuring that rising aviation emissions are more than offset by emissions reductions in sectors – such as power generation – with far greater scope for cutting their CO2 output.'

In other words, jam tomorrow for the airlines, but in the meantime business as usual. While congratulating Buchanan on his frankness, whether intended or not (he was writing in the airline's magazine for shareholders), we have to wonder whether 'head of *environment*' is the right portfolio for him.

Emissions trading has the smack of moral bankruptcy. It favours the big firms over the small ones. A small company, strapped for cash, may find itself having to sell carbon credits at the expense of its own production and therefore survival chances. Aviation suffers from a growing concentration on fewer, larger airlines. Well heeled airlines from Europe's wealthiest nations will be able to gobble up smaller airlines from poorer countries for the sake of their permits and to lock them out as competitors.

Meanwhile, other expedients were dreamt up to allow us to carry on flying and not feel bad about it. Carbon offsetting is a wonderful way to have our cake and eat it – to keep flying while neutralising our effect on the environment – or would be if it worked. The idea is to use the money from carbon offsets on pollution-reducing projects, from tree planting and wind farms to biofuels and energy-saving housing.

In practice difficulties abound. Most offset projects are in the Majority World where monitoring may be difficult. Trees are a favourite area of carbon offsetting. The same trees may be ‘sold’ twice, or they may die and no-one knows, or existing trees may be counted for carbon offsets. The trees may have been planted anyway in the course of commercial silviculture, in which case we’re not adding anything to the sources of carbon absorption.

In any case, the pollution from our flight is immediate; the absorption of carbon by our newly planted tree is in the future. The difficulty was memorably described by Andrew Simms of the New Economics Foundation (in an article in the *Observer*). ‘The logic of offsetting [he wrote] is equivalent to taking away a scuba diver’s air tank in the middle of the ocean and promising to replace it in 50 years’ time by dropping another oxygen tank in a different ocean on the other side of the world.’

For Adam Ma’anit in the *New Internationalist* climate change is ‘ultimately a narrative of oil, coal and gas’, produced from fossil carbon. If we succeed in extracting all the fossil carbon and set it free to circulate in the atmosphere, he says, the earth will become uninhabitable.

‘Unless we want to live on Venus, our task therefore is to leave that fossil carbon in the ground [writes Ma’anit]. This basic requirement, however, is precisely what the carbon

market (of which offsets are a part) has been set up to avoid.'

Much less is now heard of carbon offsets. At best it was a passing fashion; at worst it was a way for some to get rich – a Wild West, full of cowboys. Momentarily unsettling us with the publicity around environmental pollution, the carbon episode illustrates our capacity as human beings to absorb unwelcome ideas and carry on as before. Meanwhile, the cowboys have moved on to carbon trading (despite the existence of a bona fide market).

The eyes of business as usual enthusiasts light up at yet another carbon mitigation technique – carbon capture and sequestration. We can see why. In this as yet unproven industrial method, carbon dioxide is separated from other gases and piped into underground rock formations for permanent storage. This promises flights without limits.

Unfortunately (for frequent flyers), the difficulties are numerous and may ultimately be unsolvable. We can imagine carbon captured at source in major facilities like power stations and factories, but what of the myriad emissions elsewhere, among them from aircraft? Perhaps we think about the country dotted with 'carbon capture stations', each soaking up CO<sub>2</sub> from its surroundings, but this looks more like fantasy than anything achievable in the real world.

If air pollution were the only problem with binge flying, we might ask ourselves why focus on this industry when so many areas of human activity generate greenhouse gases. The answer lies partly in the vast increase in flying underway in the Majority World. More than that, the problem doesn't end with pollution. Noise from aircraft is increasingly recognised as a threat to health.

## FIVE

# NOISE – THE MENACE WE DON'T NOTICE

FOR most people pollution and noise from aircraft share the quality of invisibility but for opposite reasons: we can't perceive atmospheric pollution directly, we can't see or smell it; noise, on the other hand, is all around us. The sound of aircraft in the sky is just one part in the cacophony that is a defining characteristic of modern life.

Most of us don't notice aircraft noise, just as we (most of us) are able to tune out the traffic ceaselessly passing our front windows. This doesn't mean excessive noise isn't harming us. Noise has a demonstrated connection with hypertension (high blood pressure), which in turn is correlated with the incidence of heart attacks and strokes. People living under a flight path and indeed far beyond are as much at risk as those living on top of a main road. While in any imaginable universe it's too late to do much about motor traffic, it's not quite too late for aviation.

The problem of noise and health has not had the publicity it deserves, perhaps because we take noisiness for granted. Deepak Prasher, professor of audiology at University College London, was clear when he told the *New Scientist* magazine: 'Until now, noise has been the Cinderella form of pollution, and people have not been aware it has an impact on their health. New data provides a link showing there are earlier deaths because of noise.'

Peter Lercher of the University of Innsbruck, Austria,

reported that even typical urban noise levels affected children's health. The children were found to have raised blood pressure, heart rates and levels of stress hormones.

Note that noise spikes from the aircraft taking off are half as much again as street noise. Scientists associated with Barts hospital in London illustrated the problem vividly. They studied more than 2,800 children aged nine and ten at schools near Heathrow and in Holland and Spain. Their conclusion, published in the medical journal *Lancet*, was that the children fell two months behind the reading age of their peers for every five decibel increase in aircraft noise.

While aircraft noise does physical harm, it also causes distress through the loss of amenity. It poses the question of what sort of society we want. Aviation sprays its nuisance over town and country without fear or favour. Often the countryside suffers more. A despairing resident wrote from Radnorshire: 'Even here, in the heart of the Welsh Marches, the menace of aircraft noise is increasing by the day.'

Robert Pullin, former managing director at picturesque Hever Castle, said the castle had lost business from film-makers with an aeroplane going over every two minutes. An open air concert by Jose Carreras at Hampton Court, west London, found itself scored for full orchestra and jet aircraft. As if on cue, a plane popped up to spoil the tenor's efforts as a quiet song, *Fenesta Che Lucive*, was building. Nor was the combined sound of Carreras and the orchestra enough in the louder *Cancion Hungara*: this merely brought forth an even noisier plane

As I recounted in an earlier book, *Air Madness: Road's Mistakes Repeated* (3<sup>rd</sup> edition, 2008), I stood in a remote spot on the Pennine Hills. The quietness around me was broken

only by bird calls. No one was in sight yet I wasn't alone. High above me was the rumble of big jets – one every 6.4 minutes during a 45-minute observation period. The Pennine Way is England's premier long-distance walking route, but even here it was no longer possible to enjoy solitude in the fullest sense. This experience can only get worse as air traffic grows.

Noise is measured in decibels, with aircraft noise typically expressed using the A-weighted scale (dBA) that records the same sensitivity to sound as the average human ear. dBA Leq is a way of expressing aircraft noise over time. The European Environment Agency defines Leq as 'a single-number value that expresses the time-varying sound level for the specified period as though it were a constant sound level with the same total sound energy as the time-varying level'.

In other words, sounds and silences are averaged for the period being measured. Because silences are thrown into the pot, the measure systemically understates the level of noise disturbance from aircraft. A single noise event like a screeching hedge-hopping warplane or a big jet taking off may cause anguish on the ground – but if the event is followed by long periods of silence the Leq level will not reach the level deemed to cause a nuisance.

Both those events, by the way, are noisier than the 100 dBA of a pneumatic drill close to. A big jet taking off records up to 120 dBA at 200ft distance and a diving warplane is up to 125 dBA – levels defined by US consultants BRC Acoustics as 'intolerable'.

Even normal aircraft operations affect communities far away from airports. The South Suffolk Air Traffic Action Group found that around 200 planes a day were overflying Cornard Tye, near Sudbury. Even though they were at

6,000 to 12,000 ft, aircraft typically produced 55-59 dBA as individual noise events. This is at the level (57 dBA) considered to create a nuisance – but because of the averaging effect the villagers of Cornard Tye were officially far from having a problem!

From this we see that disturbance to communities nearer airports, with aircraft flying lower, is greater than the British government and the aviation industry acknowledge. Thousands of affected households are beyond the reach of the official noise contour maps, and therefore aren't eligible for compensation or mitigation payments. House buyers who rely on the noise maps may find themselves disappointed by the noisiness of their new homes.

The main UK measure of aircraft noise is dBA Leq 16, meaning the average noise over a 16-hour period excluding night-time. These readings are the basis of the noise contour maps. 57 dBA Leq is seen as low-level disturbance, 63 Leq as medium and 69 Leq as high.

It suits the government and the industry to rely on noise contours because they understate the problem. Fewer than 8,000 people around Stansted – London's third largest airport – suffer the effects of 57 dBA Leq and above. Yet the *Evening Star* in Ipswich – 40 miles away – mounted a campaign against the expansion of Stansted because of noise and pollution issues affecting its readers.

Because of the Leq averaging effect, the Aviation Environment Federation – an independent non-governmental organisation campaigning exclusively on the environmental impacts of aviation – says maps showing noise contours shrinking over time can be 'misleading'. The official Airports Commission (see previous chapter) concluded that a range of metrics should be used to assess noise rather than relying on 'Leq' alone.

Aviation, in an exemption going back decades and originally intended to encourage flying, can't be sued or prosecuted for noise nuisance. There is little legal protection for people affected by aircraft noise even if an increase in airport activity or a change in flight paths causes significant noise increase, the AEF noted.

The federation, which is funded by its membership (not government or the aviation industry), was formed in 1975, long before climate change became the key issue it is today. The issue that brought the federation together was noise, particularly around airports and airfields at a time when aviation was starting to grow rapidly. The noise issue has returned to the forefront as new technology drives a Europe-wide trend to concentrate flight paths. The policy minimises the number of people significantly affected by aircraft noise, but may be at odds with the public mood. The Heathrow campaign group HACAN said all the evidence shows that when asked 'communities prefer sharing the pain rather than concentration'. This was the view of Sydney (Australia) residents after their third runway opened.

According to a Civil Aviation Authority report (DORA report 9023), numerous studies have showed five-ten per cent of people are bothered by aircraft noise *below* 55 dBA Leq – while even more will be bothered as flight numbers grow.

BAA, the then owners of Stansted, disingenuously argued in its newsletter *Plane Talk* that 57dBA and above was not so different from what we all experience in everyday life. Normal conversation was said to be between 50 and 60 dBA. A dishwasher runs at 60 dBA. Normal office noise is 65 dBA.

Running the dishwasher continuously for 16 hours or talk-

ing non-stop for the period would be needed to equal the Leq figure! As an own goal, *Plane Talk* pointed out that traffic which 'goes past millions of homes every day' is about 70 dBA. Exactly. Close proximity to heavy traffic is associated with damage to health, from asthma to learning problems.

Exposure to road and aircraft noise piles on fat around the waist, a Swedish study discovered. With road traffic this was an average 0.2 cm for every extra 5 dBA above the typical 24-hour level of 45 dBA. Central obesity was also associated with exposure to air and rail noise. Much research has linked excess transport noise and stress, but this ground-breaking survey of 5,075 men and women in the Stockholm area pinpointed a direct physiological effect linked to diabetes, heart attacks and strokes. Extra fat around the waist is especially risky for health.

Even worse for those living close to airports was the study's conclusion that people exposed to two or even three sources of excess traffic noise were at particularly high risk. This is an inevitable association given that major airports have major road access and probably rail too. For people exposed to road, air and rail noise, the risk of a larger waist was doubled (from 25 per cent to 50 per cent).

The study was published in the UK-based journal *Occupational and Environmental Medicine*.

Even if noise policy were refined to take proper account of single noise events, we should acknowledge that the experience of noise is subjective as well as objective. It depends on who we are and where we are. Aircraft heard in a city centre may be tolerated better than on the high moors. A National Air Traffic Services specialist said that in tranquil areas aircraft can be heard up to 20,000 ft – the intrusion that troubled me as I stood in the Pennines. The drone of

aircraft high in the sky can be profoundly disturbing even if none registers 57dBA.

World Health Organisation experts urged that noise across the eight-hour night period should not exceed 45 dBA (30 dBA indoors), with no single noise event to exceed 60 dBA (45 dBA indoors) – proposals which if implemented would eliminate all commercial jet take-offs at night. (WHO Europe in 2009 dropped the recommended maximum from 45 dBA to 40 dBA – a level so low that’s not even recorded in the UK.)

A small scale but detailed study from the University of Mainz (Germany) called attention to the especially damaging health effects of aircraft noise at night. Frank P. Schmidt and ten colleagues, reporting in the *European Heart Journal*, found that even In healthy young adults – the 75 volunteers had an average age of 26 – ‘acute night-time aircraft noise exposure dose-dependently impairs endothelial function [a reference to disturbance of the endothelium, or inner lining of blood vessels, which was reversed with doses of Vitamin C] and stimulates adrenaline release’, thus destroying the undisturbed sleep that is essential for daytime performance and health.

The study concluded: ‘Nocturnal noise exposure seems to be more relevant for the genesis of cardiovascular disease than daytime noise exposure, probably due to repeated autonomic arousals that have been shown to habituate to a lesser degree to noise.’

Aircraft manufacturers aren’t heedless of the groundswell of public protest over noisy aircraft, which they rightly fear has the potential to grow into a tsunami of opposition. Quieter aircraft is one of the techno-fixes they hope will head off the floodwaters. As engines improve in quietness, the noise problem will be mitigated but this isn’t an ultimate solution.

Even this commonsensical observation that quieter engines mitigate noise nuisance may be too optimistic. The noise level may remain the same, or even increase. As was pointed out earlier, the Leq measurement that is the basis of noise contours averages noise events and the intervening silences over a period of time. Quieter engines reduce the noise spikes, but more flights eliminate much of the silence; hence the Leq average noise level may remain the same or conceivably, depending on how great is the increase in flights, go up.

Light aircraft and helicopters are a rich source of noise nuisance (pun entirely intended). Because they generally fly lower than commercial and corporate jets, their buzzes and whines are in some respects even more intrusive.

The private helicopter is surely the most selfish, anti-social form of transport yet devised. Thousands of people on the ground are disturbed for the convenience of one or two occupants of the helicopter. Often flights are made at the worst times. The writer John Mortimer was infuriated at his home in the Cotswold Hills, west of London, by the parade of helicopters wafting tycoons to and from their weekends in uber-fashionable Gloucestershire.

The Hamptons, the New York summer retreat for the uber-rich, suffers from a plague of helicopters. Kathleen Cunningham, head of the Quiet Skies Coalition, said: 'Our life has been an unbelievable nightmare. The noise pollution footprint from these helicopters is enormous. It rattles our walls and our windows, it wakes us at night and in the morning. You can smell the stink of the jet fuel.' Private helicopters are a prime example of our capacity as humans to foul our own nests. The point the helicopter moguls seem to have missed is that, once on the ground, they are as afflicted by the choppers as everyone else.

From Devon, one of England's most bucolic counties, a resident lamented: 'Ubiquitous light aircraft seem to take an eternity to struggle from one horizon to the next with their accompanying maddening drone, which, no sooner has it faded away, is immediately replaced by the next irritating blighter.'

Environmental campaigners would do well to be aware of the growing challenge of private flying. This industry is in its infancy, and may be said to be in the same state as the car industry at the start of the 20<sup>th</sup> century. A century ago practically no one foresaw the mass motorisation that overtook us. One of the more visionary expectations was that the private motor car would supplement the railways, not compete with them. Rail would continue to provide long distance transport, and the car would convey passengers and goods locally from the stations. This is a highly sensible idea that we would do well to revisit. It is one of a range of measures that probably would have been enforced by government if legislators had been able to see the future downsides of motoring.

Similarly, the growth of private flying is liable to creep up on us until we find we've tolerated a monster in the way that the unrestrained, undisciplined child becomes the adult hoodlum. As the green guru E. F. Schumacher pointed out, the benefit of the few soon becomes the disbenefit of all.

It may be objected that aeroplanes have been around almost as long as cars. This colonisation of the sky hasn't happened yet, so why should it happen in the future? It will, or at least it will unless avoiding action is taken, because of the level of economic affluence in the West and increasingly in other parts of the world. Only in recent years has society been wealthy enough for private aircraft to be affordable by any except a few very rich people.

For citizens of Majority World countries, worrying about aircraft noise may seem a Western indulgence. There are worse troubles at sea – or in the air; limited global connectivity, unaffordable fares and insufficient seats to meet the demand being among them. Cities of the Majority World are noisy places by the standards of pampered Westerners. Aircraft noise is just one of a battery of sounds, and sometimes won't be heard over car horns, amplified music and pneumatic drills. In rural areas villagers are more concerned with food to eat and water to drink, or finding fuelwood, than with the drone of aeroplanes high above them.

The fact that a problem is unrecognised doesn't mean it's unreal. Nor is it only a question of the noise problem now. It concerns what is to come as flying is poised for explosive growth in the Majority World. In the West the problem has arrived already. Noise from aircraft is the menace most of us don't notice, but its effects on amenity and health are all too real.

## SIX

# SAFETY – THE ELEPHANT IN THE ROOM

FEW people get into a car and worry about reaching the end of the journey alive and unhurt. Aircraft, on the other hand, are full of white-knuckle flyers fretting about whether the plane is about to crash. Every jolt of turbulence or change in the engine note is a cause of silent anguish. Yet we know the chances of a road fatality are far greater than one in the air.

As air travellers we worry about the wrong things. The chance of both engines failing on a twin-engine jetliner is many shades of minimal; with a four-engine jumbo it's effectively zero. The prospect of turbulence shaking a plane to bits is likewise minimal, although electric storms are best avoided. If we're going to worry at all, we do best to worry about takeoffs and landings, or even what happens on the ground. Runway collisions aren't unknown.

In my white-knuckle days I felt every bump and listened anxiously to every engine note. I obsessively stared at the stewardesses, not for their undoubted attractions but for signs of panic. I was second-guessing the crew from seat 26G! My worst experience, for all that, was on the ground at Heathrow. The 747 was taking off for Singapore. One could sense the moment when it was about to lift off. At that moment one of the engines put up a banshee wail. The aircraft continued on the ground, veering violently from side to side of the runway and coming to a stop just short of the perimeter fence. Nobody screamed. I suppose we

were too shocked. Nothing was heard from the flight deck. I suppose the crew were too busy keeping what control they could. The pilot made an announcement after we had stopped. He was clearly shaken, as well he might be. We must have been close to having to leave the ground with a malfunctioning engine and fuel tanks full for the long flight.

That experience – together with the time we landed at Harare, Zimbabwe, with an electric storm crashing on the wings – turned me from a scared flyer to a comfortable flyer. The psychology is obvious: if I've survived stuff that bad, why worry about the rest? These days I rarely fly – I couldn't write this book with any sort of honesty if I was clocking up air miles – but when I do I'm especially happy in midair. With the engines humming merrily, I know the aircraft's natural inclination is to stay up not to fall down – a helpful thought for nervous flyers surely.

Fear of flying, which reportedly affects as many as one third of air passengers, isn't senseless. We understand the *totality* of the risk. More road crashes are survived than not. When an express train was derailed at 95mph near Kendal, in England's Lake District, one passenger was killed and 99 survived. Outcomes like these are unlikely in the air. We have only a limited chance of surviving a forced landing, especially in the sea; none at all of surviving a mid-air collision.

All of those air events have occurred. Commercial flying is as safe as human ingenuity and technology can make it. Interestingly and thankfully, this standard is generally maintained in parts of the world that are otherwise decrepit. Even so, the risk can never be zero.

Nor do we really want it to be. We belong to a risk-taking species. The act of going up in a single-engine aircraft, and

even more a helicopter, is an acceptance of a degree of risk, slight though it may be in comparison with the reward. Studies of car drivers' behaviour show the effects of risk compensation. Each of us has a level of personal risk that we find acceptable. Up to that level we enjoy the 'thrills and spills'; beyond it we feel threatened. More safety features in cars don't make drivers drive more safely. They drive less safely to compensate, returning their risk to the former level.

Just how safe commercial aviation is becomes clear from the International Air Transport Association's global survey for 2014. For all aircraft types, there were 12 fatal accidents and 641 deaths in 38 m flights. The fatality rate was the equivalent of one death for every 5.15 m journeys. The figures include the vanished Malaysia Airlines flight MH370, but not the same airline's MH17, which was shot down by anti-aircraft weaponry (see Chapter Seven for details).

IATA has some 250 member airlines comprising 84 per cent of global air traffic. Tony Tyler, director general and chief executive, said: 'Any accident is one too many, and safety is always aviation's top priority. While aviation safety was in the headlines in 2014, the data show that flying continues to improve its safety performance. That would be true even if we were to include MH 17 in the total.' He added that the four aircraft involved in the events of 9/11 were treated in the same way.

'The shooting down of MH 17 took with it 298 lives in an act of aggression that is by any measure unacceptable. Governments and industry have come together to find ways to reduce the risk of over-flying conflict zones. This includes better sharing of critical information about security risks to civil aviation. And we are calling on governments to find an international mechanism to regulate the

design, manufacture and deployment of weapons with anti-aircraft capabilities.

'To the flying public an air tragedy is an air tragedy, regardless of how it is classified. The greatest tribute that we can pay to those who lost their lives in aviation-related tragedies is to continue our dedication to make flying ever safer. And that is exactly what we are doing.'

Jet aircraft have a better safety record than the generally smaller turbo-props. The jet accident rate for the year (measured in hull losses per one million flights) was 0.23, the lowest in history, compared with the five-year rate (2009-2013) of 0.58. The turboprop rate improved to 2.30 hull losses per one million flights, against 2.78 in the five years 2009-2013.

IATA said it was addressing the turbo-prop issue through increased focus on improved safety awareness, systems, training and airport infrastructure serving this type of operation. It sees its Operational Safety Audit Registry (IOSA), currently with 396 member airlines, as central to safer operations.

World travellers are bound to be concerned that with both jets and turbo-props three regions registered worse safety performances than the rest: Sub-Saharan Africa, the CIS (broadly the former Soviet Union) and the Middle East/North Africa. For example, with turbo-props for the five years 2009-13 the hull loss rates per one million flights were: CIS 12.12; Sub-Saharan Africa 9.62; Middle East/North Africa 7.91. Sub-Saharan Africa's was the only rate that went up in 2014, to 14.13. By contrast, the best performing region with turbo-props over the five years was North America, with 1.02.

Of course, these are tiny numbers in relation to total flights.

And statistics famously tell us what but not why. Difficult terrain and extreme weather will be among the factors. Others may be aircraft maintenance, the age and build quality of fleets and pilot skills.

Pulling no punches, Tyler said: 'Safety continues to be a challenge for Sub-Saharan Africa. The fact that the region experienced no jet hull loss accidents last year is real progress. However, the poor performance on turbo-props demonstrates that significant challenges remain. Governments in the region need to accelerate implementation of the International Civil Aviation Organisation's safety-related standards and recommended practices (SARPS). As of the end of 2014, only 14 African states had achieved 60 per cent implementation of the SARPS. The 27 Sub-Saharan airlines on the IOSA registry are performing more than 10 times better than non-IOSA operators in terms of all accidents (1.95 per million flights versus 19.62).

'CIS airlines on the IOSA registry experienced zero accidents in 2014 for a second consecutive year. For all airlines in the CIS, the jet hull loss rate in 2014 of 0.83 was a significant improvement over the five-year rate (2.74). However, this was well below world levels. We are seeing steady improvement in the CIS, but there still is work to be done.'

IATA stresses the importance of using data analysis to drive improvements. Historically, aviation safety has improved through a well established process of accident investigations that identify the probable causes and recommend mitigation measures. However, as aviation becomes ever safer, there are so few accidents that they cannot yield the trend data that is vital to a systemic risk-based approach to improving safety, the association says. Future safety gains will come increasingly from analysing data from the 38 million flights that operate safely every year rather than the handful of flights where something goes wrong.

To support this requirement, IATA has created the Global Aviation Data Management (GADM) programme as a comprehensive safety data warehouse. GADM includes analysis reports covering accidents, incidents, ground damage, maintenance and audits, plus data from nearly two million flights and over one million air safety reports. More than 470 organisations, including more than nine out of ten IATA member airlines, are taking part in at least one GADM database.

‘The GADM programme will enhance aviation’s ability to identify areas of concern before they rise to the level of potential threats. Stakeholders are committed to advancing safety through a data-driven approach supported by co-operation and reliance on global standards and best practices,’ said Tyler.

Crucial to the data-driven approach must be information on the near misses, known in industry parlance as ‘airprox’ (aircraft proximity events). An airprox is defined as a situation in which, in the opinion of a pilot or a controller, the distance between aircraft as well as their relative positions and speed have been such that the safety of the aircraft involved was or may have been compromised. The UK Airprox Board (UKAB) is responsible for assessing the causes and risks involved with airprox within UK airspace.

There would be more white-knuckle flyers if the scale of airprox was widely realised. In 2013, 171 such events were notified to the UKAB. Mostly these were private aircraft, but 27 involved commercial aircraft with three assessed as ‘risk-bearing’ – where there was either an actual risk of collision or safety was not assured. In four other cases, according to the UKAB, ‘there was insufficient information to determine the risk with any certainty’ – for example, pilots sighting objects (possibly small balloons, aerial lanterns or model aircraft) that did not show on radar and

could not be traced.

Most airprox are technical infringements. Risk-bearing events are in low single figures year after year. Even so, for one of those events to become reality would be an enormous tragedy when we think about the scale of the disaster. It is against this background that the increase in flight movements must be seen. Seven out of ten aircraft bound for Heathrow make their final approach over central London. The consequences of a collision or a crash don't bear thinking about.

The Airports Commission, which has backed expansion at Heathrow (see Chapter Two), enthusiastically supported time based separation as a way of squeezing more aircraft on to the landing runways. The method allows the same time spacing between aircraft regardless of wind conditions, which would 'recover' up to five movements per hour on windy days. Those movements would otherwise be delayed or cancelled.

The commission found that the typical landing rate at Heathrow is 42-44 aircraft per hour. Spare a thought for the residents below, who must pray for high wind days when the rate can drop to 36 per hour. On one such day this caused 11,249 minutes of delay, which time based separation would have reduced by an estimated one third (32 per cent).

Time based separation has not been introduced anywhere in the world, the commission noted, but it argued for it to be introduced at Heathrow – one of the world's most hectic airports – within two years. It acknowledged that the programme would 'require a stringent safety case to be undertaken'.

A dramatic example of the risk from aircraft in urban areas was provided by a TransAsia flight that crashed after take-off from Taipei, Taiwan, in February 2015. The ATR-72 turboprop failed to gain height. It tipped the edge of a bridge and hit a taxi, before crashing into the river with the loss of at least 32 lives. Astonishingly, the taxi driver suffered only minor injuries. Almost as astonishingly, the crew managed to miss adjacent high-rise apartment buildings.

Nowadays everyone's first instinct at an incident is to reach for their smartphones. The tragic event was captured on video for the world to watch on the internet.

The world was confronted in March 2015 with a flight risk that no one thinks about – pilot suicide. Andreas Lubitz, co-pilot of Germanwings flight 4U9525 from Spain to Germany, crashed the Airbus into a mountainside, killing all 190 people on board. The shock was all the greater because nervous flyers everywhere see pilots as the ultimate reassuring presence, a rock of safety. Pilot suicide, it emerged, is rare but not unknown. Four attested cases have involved airliners in the last two decades: Royal Air Maroc, ATR-42, 1994; Silk Air, Boeing 737, 1997; Egyptair, Boeing 767, 1999; LAM-Mozambique Airlines, Embraer, 2013. Altogether, 391 people lost their lives as well as the four suicides. To this toll we might tentatively link Malaysia Airlines flight MH370, which vanished over the South China Sea in March 2014 (see Chapter Seven).

Following the Germanwings tragedy, European airlines rushed to require two crew members to be in the cockpit at all times. Lubitz had been alone, having locked the captain out of the flight deck after he left apparently to relieve himself. But there can be no guarantees. Even this added layer of protection would fail if a determined wrongdoer attacked and disabled his colleague.

Pilot suicide is so rare that we can't meaningfully calculate the odds of it happening. Even so, the more flights the greater the chance of another occurrence. This is particularly the case since aviation expansion means recruiters will have to look lower down the list of applicants for new pilots.

Legislators and air traffic controllers are under impossible public pressure to fit ever more aircraft into the sky. We all want to be safe, but we don't want to give up our holidays. These aspirations don't necessarily fit together.

The pan-European air traffic control agency, Eurocontrol, has halved the vertical layers separating planes above 29,000 ft, the level at which typical cruising heights start. Aircraft need stay only 1,000 ft apart instead of 2,000ft as before. The move was accompanied by the usual mantra that safety would not be compromised. They wouldn't have got very far by admitting they *were* compromising safety in the interests of people's summer holidays! Clearly though, the more aircraft squeezed into the sky the more the risk of an accident.

In a long-running case, a Russian airliner and a cargo plane collided over Germany in July 2002, killing 71 people most of them children. Nineteen months later, Peter Nielsen, the controller who directed the two planes from Zurich air traffic control, was stabbed to death in a suspected revenge killing.

In September 2007, four managers of the Zurich control centre run by Skyguide were convicted of negligent homicide. Three were given one-year suspended sentences and the fourth was fined 13,500 Swiss francs (now £9,200/\$13,800). Four other officials were acquitted.

Prosecutors had argued that Nielsen, who was alone in the

control room at the time, was not solely to blame for the tragedy. There was a culture of negligence and lack of risk awareness, they claimed.

The tragedy has echoed down the years as a warning over Europe's increasingly crowded skies and the working conditions in which air traffic controllers may find themselves.

Safety is the elephant in the room with aeronautics. In everyday terms it's reasonable to accept the risk in flying just as it's usually reasonable to accept the risk of a car journey. It's not reasonable to ignore the issue; yet safety is usually unmentioned in official reports and discussions about the growth of aviation.

Death or injury in the air is statistically far more likely with light aircraft and helicopters. Every year brings its crop of deaths, often from the misjudgement of weather conditions or other pilot errors. This number must be expected to increase. Even if the risk per flight remains constant the growth of the sector will see to that. In fact, the risk is set to increase as the lower sky becomes more crowded.

The United Kingdom has some of the most closely and effectively controlled sky in the world. But below the level of the big jets and away from restricted locations like airports and military bases pilots of light aircraft can mostly go where they please. They operate under visual flight rules not instrument flight rules – that is, pilots must be able to see where they are going – and aren't normally subject to air traffic control.

Computers may have finally put that favourite vision of the future, flying cars, within reach. Or again, maybe not. Someone transported by time machine from 1920 to the present day would no doubt be surprised we don't have

them already. He would have been told that the problem of runways – even in the land-abundant United States it would be impracticable for every house or group of houses to have its own runway – had been solved decades earlier with vertical takeoff technology. Then he would realise that the insuperable limitation was driver error. Operating in three dimensions, with others buzzing in front, behind, above and below, the driver of a flying car would have a far greater chance of crashing than his counterpart on the road – with indiscriminate risk to those on the ground. It simply couldn't be allowed for the sake of safety. The best that could be managed was a small plane or helicopter using a nearby airstrip with the pilot hedged in with licence conditions, insurance restrictions and heavy running costs.

All this may change as a result of driverless cars first appearing on public roads in 2015. We can foresee a time not far away when fully automated vehicles, with no driver, have proved themselves and have been accepted by the public. The technology is readily extendable to the air. Such a flying vehicle would overcome the problems of weather and driver mistakes. If the technology becomes as reliable as it's cracked up to be, it wouldn't make mistakes. Just like a driverless road car, it wouldn't crash into the car in front (or above or below). Nor would it fly in bad weather. We can easily imagine a sensor of wind and rain, with the vehicle refusing to fly if the weather conditions made it unsafe. That fact alone may do for the flying car as a working vehicle. Who will want the expense if half the time it won't start?

Automated vehicles would address the issue of drivers' risk compensation, described above. Until that time it's hard to see how any rational society could allow the man in the street to leap into his 'flying Ford' without the same strict pilot licensing as now. The chance of deaths on the

ground from drivers operating up to their personal level of risk is just too great.

Flying cars may never happen on a significant scale because of the expense. But they said that before Henry Ford came along, didn't they?

Safety was to the fore when America's Federal Aviation Authority vetoed plans by Amazon to use drones as delivery vehicles. This followed several incidents when drones almost collided with passenger jets. The company's Prime Air programme would have provided deliveries within 30 minutes of an order being received. Undaunted, Amazon said it would go ahead with Prime Air in countries with a more relaxed view of drones, or as vice-president Paul Misener put it, 'where we have the regulatory support we need'. Britain, it was reported, was Amazon's first target country.

In one form or another, we are going to have to get used to drones just as, on present trends, we must come to terms with ever more light aircraft and helicopters. Safety apart, the privacy implications are enormous. The *i* newspaper reported that civilian drones may legally fly over Queen Elizabeth's Balmoral and Sandringham estates as well as the prime minister's country retreat, Chequers. In a neat touch of irony, the spy flights are allowed to pass over the GCHQ spy centre, according to the newspaper. They are, however, banned from nuclear plants, military sites, airports – and prisons.

Yet with satellites able to read a newspaper headline from space, TV sets relaying our conversations from our living rooms and Google Glass filming us in secret, aerial surveillance is a tiny piece in the dystopian jigsaw. As far back as the 1920s, the author E.M. Forster was troubled by the idea of being watched from above as planes flew here and there. That's the least of our worries now.

## SEVEN

# AIRASIA – NOW EVERYONE CAN FLY

WHEN AirAsia's flight QZ 8501 crashed into the Java Sea on December 28, 2014, chief executive Tony Fernandes rushed from his Kuala Lumpur home to meet desperate relatives at Surabaya in Indonesia, from where the flight had taken off for Singapore. It was a typical 'lead from the front' gesture by the colourful entrepreneur, and one that was much appreciated by the relatives. All too soon they learnt that there were no survivors among the 162 on board.

Nor was the relatives' anguish soon over. The main part of the fuselage wasn't found until mid-January, and the last recoverable part was removed from the sea after two months. It was confirmed that the wreckage didn't contain any of the missing bodies.

The Airbus A320 is thought to have been trying to avoid bad weather when it ran into trouble. It capped an *annus horribilis* for Malaysian airlines. In March MH 370, a Boeing 777 operated by Malaysia Airlines with 239 on board, vanished on a flight to Beijing. It has never been found. In July, MH 17, another Malaysia Airlines Boeing 777, was shot down over Ukraine. No one survived among the 298 on board.

'When I heard the words, "We've lost contact with an aircraft", my world changed,' Fernandes recalled. 'I just felt shock really, and a sense of helplessness. It's every airline

chief executive's worst nightmare. I don't care how many of those things [disaster training] you go through, nothing can prepare you for this.'

Enthusiasts for private enterprise hail the success of AirAsia in an industry still dominated by parastatals (statutory non-ministerial bodies). The airline is Tony Fernandes' baby. The British-educated chartered accountant and former Time-Warner executive bought the troubled budget airline in 2001 from the Malaysian government. He paid a token one ringgit and took over two Boeing 737-300 airliners and a debt pile the equivalent of US\$11 m. He cleared the debt in one year, and the initial public share offering in 2004 was hugely oversubscribed. The company, directly or through its regional subsidiaries, now flies around 180 Airbus A320s, a workhorse of the sky. It has orders in place for twice as many again, mainly the A320neo variant.

One of Fernandes' greatest achievements was to persuade the politicians, in Malaysia and the neighbouring countries of Thailand, Indonesia and Singapore, to agree to 'open skies'. This cleared the way for AirAsia to operate to a wide range of regional destinations. It also flies domestic routes within Malaysia. It's a crucial air bridge, along with Malaysia Airlines, joining West Malaysia (Peninsular Malaysia) and East Malaysia (Sarawak and Sabah), across the South China Sea on the island of Borneo.

The no-frills airline is a trailblazer in the region. It's also a good example of how the budget airlines of America and Europe will increasingly be replicated around the world. AirAsia's slogan is Now Everyone Can Fly, and indeed a good proportion of passengers are first-time flyers. In common with low-cost carriers everywhere, ticket sales are the gateway to the highly profitable area of retail sales and services.

Unlike so many airlines around the world, AirAsia has had a generally smooth flight from its foundation to its present cruising altitude (although it reported a net loss in the last quarter of 2014). This is testimony to the latent demand in the region, which can only grow further. For passengers this must be welcome, but the implications for global warming – the theme of this book – don't need to be stressed.

Fernandes commented early in 2015 that the current round of airline consolidation was right for Europe because of excess capacity, but made clear that his region had opportunities for growth. He told Karl West of the (London) *Daily Mail*: 'You are seeing in Europe what's happened in America. Obviously, there is just too much capacity for the market, and its inevitable consolidation will happen. It's a funny industry though because an airline carries a country's name and flag so you get too many bailouts and interference. I've done one acquisition – it's f\*\*\*ing painful. Airline consolidation comes with a lot of headaches, so I'd rather go for organic growth.'

AirAsia and Japanese network airline All Nippon Airways announced a joint venture in 2011, with AirAsia Japan making its first flight the following year. AirAsia has other joint ventures in India, Indonesia, Thailand and the Philippines.

Fernandes' bouncy style has echoes of Sir Richard Branson (for whom Fernandes briefly worked), another airline boss with a flair for publicity. When AirAsia started flights to Singapore, it cheekily took on Singapore Airlines and its long-running 'Singapore Girl' promotions. 'There's a new girl in town,' declared AirAsia in advertisement featuring stewardesses in bright red uniforms.

AirAsia is far from being Fernandes' only business interest

en route to becoming one of the richest men in Malaysia. In 2007, he started a hotel chain, Tune Hotels, with properties in Britain, Australia and Asia – another no frills concept that parallels the Easy hotels venture in Europe of easyJet founder Sir Stelios Haji-Ioannu. Fernandes bought the Formula One racing team, Caterham, and, having failed to buy the English football team West Ham, he consoled himself with another – Queen’s Park Rangers, where he became chairman.

He explained pragmatically: ‘Everyone knows I’ve followed West Ham all my life, but I’ve always had a soft spot for QPR. Rangers were one of the first teams I watched as a child at Loftus Road. I’ve always wanted to be involved in football, and the appeal of a London club, like QPR, was too good an opportunity to turn down.’ The separated father of two, who is in his early fifties, even brings the game into the home. He relaxes by playing computer football.

Fernandes holds high honours from two countries. From Malaysia he has the title of tan sri, the top in the hierarchy of awards, while from Britain he is a CBE (commander of the order of the British Empire – one step below a knighthood). Neither has stopped the unpretentious businessman from wearing his favourite jeans and trademark AirAsia cap.

## EIGHT

# IS YOUR LIFESTYLE REALLY NECESSARY?

THE idea of ‘contraction and convergence’ neatly encapsulates what the world has to do if it is to avoid runaway global warming and the destruction of our habitat. As a slogan, however, it couldn’t be worse for Westerners. Who wants to be told they must ‘contract’ their lifestyle? For the moment, since the world shows no sign of seriously addressing the problem, we’re forced to park the idea for academic discussions, often by people who have jetted in to some fancy and energy-intensive resort hotel from all four corners of the planet.

The Global Commons Institute, of the United Kingdom, devised the strategy in the 1990s as a fair way to tackle climate change. As the name implies, CO<sub>2</sub> outputs in the advanced nations would over time contract while those in the Majority World would rise until a state of convergence was reached at a sustainable level.

The institute was invited to present an analysis to the Intergovernmental Panel on Climate Change but, unsurprisingly, contraction and convergence proved exceptionally controversial at the 2009 United Nations Climate Change Conference (the Copenhagen Summit). At issue are far greater lifestyle changes than anything currently contemplated in the West.

The issue won’t go away, however. It’s obvious that nothing less than ‘convergence’, or parity with the First World’s

standard of living, will satisfy the middle classes in the emergent countries of the Majority World, and behind them the mass of their peoples. This is impossible in terms of planetary resources. James Lovelock, in *The Revenge of Gaia*, notes that we have already taken half of all land for our settlements and our agriculture. Intrusion on the rest – the forests, mountains, deserts and remaining wildernesses – undermines the capacity of Gaia (or biosphere) to regulate itself and maintain a liveable environment. Specifically, liveable for us. Lovelock is in no doubt that life on earth will survive. What is in jeopardy is human civilisation.

The alternative is gradual contraction of First World standards of living until all around the world find themselves at the same level. Pie in the sky this may be for some, but it's hard to see any other way to reconcile a sustainable climate with the aspirations of the billions outside the Western pale. Since Western consumption indicators continue to rise, we have a giant problem. Mainstream economics holds that success is achieved when a country's gross national product gets ever bigger. Growth is expected year after year. Giant corporations are happy to oblige, persuading us the consumers to want more and more, newer and newer.

Year-on-year growth is the model of national development that is exported to the Majority World, which in terms of planetary resources compounds the problem and then compounds it again.

Since mainstream economics is plainly unable to deliver the outcome we need, we should look at sidestreams. The problem in my view lies not in the profit motive but in corporatism. To maximise profits companies seek ever-greater market dominance, particularly through mergers and acquisitions. The result is cartels and eventually, unless

prevented by regulators, monopoly.

A fragmented market made up of a host of smaller companies is healthier for the planet and ultimately for consumers. The vaunted economies of scale of large companies cease to apply if there is little or no scale to concern us. Smaller companies are more likely to be content with a stable market share, and even if they aren't would lack capital for significant growth.

Companies on a national scale, without the global tentacles of the international behemoths, would enhance economic development in the Majority World. Indigenous companies would have a chance to establish themselves and grow without being blown away from outside. Smaller companies would painlessly and with hardly anyone noticing 'de-develop' the First World economically – or rather, revert it to a 19<sup>th</sup> century state. In all parts of the world these trends would serve the interests of contraction and convergence.

How is such a benign scenario to be brought about? A good start will be to discard the dreadful dogma of 'shareholder value' together with share options for senior management. In Anglo-Saxon law at least, the shareholders are the sole owners of the company. The directors' duty – their legal obligation, in fact – is to act in the interests of the shareholders even when these conflict with those of other 'stakeholders', principally the staff and the public.

What this means in practice is that perfectly viable businesses fall prey to opportunistic approaches that offer short-term gains but long-term losses even for the people for whose supposed benefit the sale is made – the shareholders. Meanwhile, we can almost guarantee that many staff will lose their jobs as the combined company boasts of its 'synergies' of scale. The managers who arrange these

deals stand to benefit personally from consummating the union through their share options. They are thus directly in conflict of interest.

The only safe basis for a company to reject a bid approach is that it doesn't sufficiently value the company here and now (taking account of future prospects), not whether the company and its staff would have a good future on its own, or whether society would be better served by both companies operating separately; much less that the bid makes a poor ethical fit with current activities. The chief executive who played the ethical card would open himself to a legal challenge, particularly from speculators who had piled into a company at the first sign of a bid approach.

A stark example of the limitations of global capitalism was provided by Kraft Foods' 2010 takeover of Cadbury, a British company with a deeply entrenched philanthropic tradition. Cadbury was itself a global giant, but it fell to an even bigger global giant. The takeover was swung by the votes of short-term profit-takers who had invested in the previous 12 months as bid rumours circulated. Cadbury's chairman and chief executive both went away consoled with millions from their share awards. One of Kraft's early actions was to go back on its promise and close a factory in Bristol with ensuing job losses. Five years later, precisely on trend as described here, Kraft itself was swallowed in a 49:51 per cent merger with Heinz.

For all that it may be necessary, a new economic paradigm based on smaller companies is a cosmic level of approach to contraction and convergence. In many smaller ways, here and now, we can work towards the goal. We are all of us in so many ways unthinking consumers – food bought but not eaten, food imported from the other side of the world, clothes and goods thrown away simply for being out of fashion, car journeys made when the train or our

legs would do, homes overheated or oversized or simply duplicated (second homes). I doubt there's anybody in the Western world who can say 'not me!' to all of that list. Certainly I can't. Nevertheless, it serves as a checklist as we try to 'think global and act local'.

We can and should go round our homes turning off unneeded lights, or not stand in the shower for 30 minutes, but an awful lot of people would have to do these things for an awfully long time to equal the carbon dioxide output of one passenger flying from London to New York and back. The biggest individual contribution we can make to contraction and convergence is to reconsider our flying habits.

Leonard Glynn of Bristol, western England, proudly told newspaper readers that he took his wife to see her favourite opera, *La bohème*, at the Met in New York to celebrate her 60<sup>th</sup> birthday. A fine treat clearly but, to borrow a Second World War energy-saving slogan, was your journey really necessary?

It has become commonplace for Britons to fly to New York for Christmas shopping. Things are cheaper there. Taking into account the cost of getting there and staying over, I wonder if that is so; but even if it is these indulgent journeys are an environmental cost to the rest of us (not to mention retailers at home who lose business).

Equally proud of her air miles is UK resident Sadie Nicholas. With her husband Jon she clocked up 29 trips to Dubai in a decade – just short of three a year. She concluded her newspaper report: 'But our greatest pleasures were the simplest – watching our baby splashing in the pool, blowing raspberries at the lifeguards and gazing, perplexed, at the camels on the beach.' No need to go as far as Dubai, Sadie. Apart from the camels, the same expe-

riences can be had in Brighton.

Among the more extreme examples of aerial mini-breaks from the UK are a weekend trip to the Masai Mara, Kenya, or a day trip to a Norwegian fjord to see whales. For £1,030 (\$1,545), two adults and one child could make a day trip to Lapland to find Santa. That's *two* adults and *one* child. So whose outing is this?

Frankly, these trips seem to me to be an abuse of the freedom to fly. If Kenya is worth seeing at all, it's worth more than a weekend. Same with the day visit to the Norwegian fjords. Kenya is among the cheapest long-haul holiday destinations so a longer visit is unlikely to be unaffordable. As for Lapland, if a child is young enough to believe in Santa he or she is young enough to believe that the local department store is in Lapland.

These examples make the standard continental mini-break to places like Vienna, Rome and Prague seem like a trip to the seaside. And so they are in moderation. But the holiday-holics who boast of four or five mini-breaks a year (or the three foreign vacations a year people) aren't helping the rest of us.

Councillor Brian Riley from Hadleigh, eastern England, gold-plated the idea of extravagant flying when he moved to the USA – and kept his seat on Suffolk County Council in defiance of party chiefs. He claimed he could still represent his constituents effectively. 'We are in the 21<sup>st</sup> century with emails and Skype, and there are plenty of ways of keeping in touch with the people of Hadleigh. I shall be coming back to the UK every six or seven weeks to keep up with my council work,' said Riley, aged 71. Unfortunately, he overlooked the fact that the 21<sup>st</sup> century is also the age of global warming, with aircraft emissions at the forefront.

The idea of contraction and convergence bristles with practical difficulties. The chief one in the Western democracies will be persuading people to give up any aspect of their lifestyle. A political leader who tried even the mildest measure would present an easy target for the opposition. President George Bush Snr was happy to proclaim that the American standard of living was not for negotiation. This, however, is exactly what contraction implies.

Sad to say, the environmental causes that have made most headway in the United Kingdom are those that impinge least on most people's lives. It's easy to commit to saving polar bears; not too hard for most women to stop wearing real fur. To give up something that affects us closely, like factory-farmed food, lots of children and our personal mobility, it's another matter.

Factory farming – the cruel rearing of chickens, pigs and other food animals in confined spaces – has made relatively little progress in the past half-century since the issue was flagged up in the Sixties. It has even gone backwards with cows, which increasingly find themselves seeing out their lives indoors in huge barns. What amelioration there has been for chickens and pigs has come from the authorities, not from the consuming public refusing to buy intensively farmed products. The lure of cheap food is just too great.

It's striking how many well educated and otherwise environmentally conscious young women happily say they want 'lots of children'. They are apparently oblivious to the contradiction of a growing population and the conservation of planetary resources. Some top women business leaders have multiple children (courtesy of nannies), at the least untroubled by the message this sends and perhaps happy at the 'superwoman' signal.

Transport fits the pattern of activities that are too close to

home to give up. Lifestyles are built around the motor car, which becomes part of one's identity, an extension of oneself. Whatever the arguments for the environmental damage done by the car, it's a rare individual who gives it up. It's impossible to relate so personally to an airliner – a private plane is no doubt different, and therein lies a further problem for the future – but flying means holidays, and these in no circumstances are we willing to forgo.

Support for the green movement is overwhelmingly middle class. Even if its principles are honoured more in the breach than in the observance, its members are aware of them. For less educated members of the community, the message of contraction is utterly alien and impossible to consider.

Contraction will be hard to establish in Europe, and doubly so in the United States with its long history of institution-alised extravagance and no real experience of war in the homeland. Yet in the events of 9/11 Americans showed that they too can be resilient when the need is there. The firefighters and emergency workers at Ground Zero inspired the world. This is of a piece with the Second World War experience, which proved that Western populations will accept deprivations if the need is obvious or unavoidable. This is the hopeful omen for contraction and convergence.

The British population endured years of rationing of food and clothes, with unimaginably small quantities. Bombs rained destruction on cities like London, Coventry and Plymouth, but life there continued with the added camaraderie in adversity (as well as incidents of selfishness and cheating) that survivors remember vividly. Peacetime is never so friendly.

The situation in Germany in the last stages of the war was

far worse. Christabel Bielenberg, an Irish woman married to a German anti-Nazi, spent the whole war in Germany. She remembered when Hamburg and Berlin were the only major cities remaining in Nazi hands trains continued to run on a timetable between the two with an air of surface normality (*The Past Is Myself*, 1968).

These are examples of humanity's resilience and adaptability. The same qualities were shown by the North Vietnamese despite America's best effort to bomb them into submission. We need not doubt that the West will be capable of the same response when the need is clear. For most people, this isn't yet the case with global warming. We are a long way short of the planet being visibly in peril. Life goes on around us much as always. We must hope that by the time the threat becomes impossible to avoid, it isn't too late.

Another difficulty is what do we mean by *convergence*? How do we define it? Energy needs vary hugely around the world. Homes, factories, offices and shops have to be heated in winter outside the tropics. And in the tropics is air conditioning a necessity or a luxury? If it's somewhere in between, what price do we put on lost productivity when workers are too hot? Rice is expensive to produce. It's labour-intensive and demanding of irrigation. Can it be substituted with a crop like wheat or potatoes? And what are the cultural implications of that? China is an instructive example here. Wheat was traditionally the staple in the north, rice in the south. As the world becomes progressively urbanised, many people have to travel vast distances to get to work; elsewhere they live on top of their work.

Geography imposes its own imperatives with flying. Western Europe's comparatively small area means it's feasible to get around by train or car. The United States could make

more use of rail for short and middling distances – by reinstating passenger services and reopening stations – but for many journeys the distance is so great that flying is the only realistic choice. Outside the West railways and roads may be lacking, or the country may be formed of parts split by the sea (for example, Indonesia). In these cases flying is a necessity, not an option.

We can't usefully take energy needs as the measure of convergence. We have to look at *standard of living*. But what does this mean, and who is to measure it?

It can be defined negatively readily enough. We can state that the standard of living as currently enjoyed in the West is not sustainable for the world as a whole. We can speak of replacing consumption as the goal of economic activity, of ending our worship at the altar of gross domestic product. We all have to consume some things, however, so we're then led into trying to define what makes up an acceptable living standard. What is luxury to a Majority World peasant would be hardship to a First World factory worker. Within any country, workers and middle-class professionals have different ideas of an acceptable standard of living, as do the young and the old within the same social class. What, for that matter, about the different ideas of single people and families?

Any attempt to produce a 'one size fits all' model of living standards points us towards the grim uniformity of totalitarian regimes. The prescription has been tried and failed. It isn't the route to take. The huge challenge is to bring about convergence without throwing out democracy.

## NINE

# OK, WE HAVE A PROBLEM ...

FACED with the explosive growth of flying, governments around the world pay at least lip service to the need to restrain carbon dioxide emissions, but few go beyond it. Of noise pollution, the other great menace of the skies, little is heard.

Britain's Conservative-Liberal Democrat coalition, which took office in 2010, flirted with several fairly radical ideas about pollution. The coalition considered a tax on flights rather than passengers (which would encourage flight consolidations), emission charges and – from the Conservatives before coming to power – personal air miles allowances (not the sort that win us prizes but a limit on how much we can fly). These ideas were attacked by airlines, chambers of commerce and travel agents, all claiming to speak for the travelling public. But did the public really engage? It is a stark illustration of the difficulties in the way of taking any sort of effective action.

So OK, we have a problem with aviation growth. We also have an array of potential responses.

**Predict and provide.** The simplest answer to growing demand is to increase capacity – more runways, terminals, flights and so on. It is also the worst. Dubai is far from alone in going one stage further and seeking to capture more business. It may be impolite these days to use the term, but predict and provide remains the prevailing

model for the world's airports.

It's an anti-solution in terms of emissions and noise. It does nothing to curb pollution; on the contrary, it promotes its increase. The example of road building strongly suggests that improved facilities actually increase traffic, bringing out demand that wasn't there before.

The supporters of predict and provide naturally argue that it can't be seen in isolation. It must be accompanied by measures to offset the added nuisance. The trouble is that these measures are partially effective at best.

**Techno-fixes.** The aviation industry is staking the farm on technical improvements to aircraft being quiet enough to head off environmental curbs on flying. Quieter and more economical engines are obvious improvements. Larger aircraft like the Airbus mammoth A380 hold the promise of fewer aircraft and less pollution per passenger, but could equally mean a greater number of empty seats being flown across the world's oceans.

While cleaner alternative fuels like hydrogen and bio aren't practically in sight, hybrid-electric planes promise similar benefits as a hybrid car. Boeing and Cambridge University combined to build a plane with an electric motor and a petrol engine working together to use 30 per cent less fuel than a conventional propeller plane.

Dr Paul Robertson, who led the project, said hybrid or fully electric aircraft had been held back by batteries, which were too heavy and didn't have enough capacity. 'With the advent of improved lithium-polymer batteries, similar to what you would find in a laptop computer, hybrid aircraft, albeit at a small scale, are now starting to become viable,' he explained.

Scaling up to the size of an airliner is years away, if it happens at all. Meanwhile, Airbus predicted a huge increase in the world's stock of commercial aircraft to 37,463 by 2033, with only 6,105 in current fleets remaining in service. Boeing was even more bullish, hiking the estimate over a similar period to 43,560 –doubling the total over less than two decades. The new aircraft will most likely be quieter, but they won't be silent, hence noise nuisance on the ground will increase. As for cleaner aircraft, the United Nations' Intergovernmental Panel on Climate Change remarked that 'improvements are expected to only partially offset the growth of aviation emissions'.

**Curbing carbon.** A system of permits to pollute, imposed on factories and airlines among others, allows governmental authorities in theory at least to determine the overall level of carbon dioxide pollution. It is one of the key ways in which the European Union and the Kyoto Protocol hope to reduce pollution levels to meet the agreed targets.

The system is pragmatic to the point of moral bankruptcy in allowing carbon trading. It means companies can buy their way out of trouble and do business as usual. The theory is that polluters have an incentive to become cleaner so they can sell their unused permit capacity. It can equally well mean smaller companies going out of business after being 'bribed' to sell their permits, or smaller airlines being bought by the global giants for the sake of their permits.

An executive of the then British Airways was open about the airline buying carbon permits from other industries. Especially in the Majority World, airlines buying from other industries has development implications. Lack of permit capacity means lack of capacity to grow.

Carbon capture, in which emissions are taken from the emitting source and stored underground, is a long way from being an established technology. While we can imagine it working in a power station, it's impossible to picture it with emissions from aircraft.

Carbon offsetting is one of those ideas that are fine in theory but have little to offer in practice. Leaving aside the cowboys and the problems of monitoring, no one can gainsay the value of paying our offset 'fine' and seeing the money invested in carbon-reducing projects like wind farms and energy-efficient housing. Let's leave trees out of it here.

This tricky area has been highlighted already, in Chapter Three. Even in these terms, however, carbon offsetting would make a negligible contribution on a flight unless everyone was doing it – an unimaginable situation without its being compulsory, in which case it would be a tax or levy and a form of demand management (as follows). The UN aviation body, ICAO, is working on just this – a mandatory offsetting programme but only for emissions above 2020 levels – so lots of growth to be done before then! It's being billed as carbon neutral growth. A decision is expected in autumn 2016

## **Demand management.**

Demand may be managed by capacity or price. As a strategy it's highly visible and politically sensitive: for all that it may be necessary, few like to think that difficulties are being put in the way of their freedom to fly.

One way to manage demand is to restrict facilities – not build new runways and airports, or conceivably shut them

down. This would set a cap on flight numbers and put up prices for existing flights. Unsurprisingly, this isn't a strategy pursued by any government so far as I know because it isn't politically deliverable.

Another form of price control, currently in use, is a tax on passengers, either directly or through taxing the carriers. Air passenger duty (APD) is a poll tax charged on each person who flies. Politically, it's easy to attack as an infringement of liberty; hence the uproar when the UK coalition government proposed to increase it.

In a warming world, that may be one liberty too far. The Royal Commission on Environmental Pollution commented: 'The availability of cheap air transport currently enjoyed by the [British] public is a very recent phenomenon. It is not a traditional "right" in any sense.'

Opponents say APD is a crude tax that hits the poor harder than the rich. This, however, is true of any measure, direct or indirect, that raises ticket prices. APD is no more regressive than any item on sale to the public. If you can afford it, you can buy the sofa; if you can't, you don't. The point can be pressed too far because leisure travellers turn out to be a generally well to-do-lot. Findings by groups fighting expansion at two London airports, Stansted and Gatwick, suggest that airport expansion and cheap flights are not about empowering the poorest to fly. What they mainly do is allow the well-to-do to fly more.

Stop Stansted Expansion found that four-fifths of Stansted Airport passengers were from the affluent ABC1 occupational groups. The Gatwick Area Conservation Campaign produced a similar picture: average household income of Gatwick leisure passengers was £49,000 (\$73,500) – around double the national average household income at the time.

The Aviation Environment Federation estimated that if airlines and manufacturers are to meet their pledge of limiting aircraft emissions to their 2005 level the cost of a ticket might go up fivefold. Plainly, that isn't going to happen so, unless some rabbit is pulled out of a hat, the conclusion is inevitable: either the pledge is worthless, or aviation will raid other industries for their carbon allowances. We saw earlier (Chapter Four) that an executive of the then-BA welcomed the prospect.

Removing tax benefits from the aviation industry is an indirect form of demand management. In the United Kingdom, for example, airlines and airport operators are exempt from value added tax from retail sales (except within the European Union) to fuel (also from fuel duty), tickets and purchases of aircraft. These colossal commercial benefits aren't enjoyed by the competing modes of rail, road and sea. The concession has its roots in the 1940s when it was intended to encourage the burgeoning aviation industry in a postwar world of reconstruction and optimism. The taxation exemptions are generally misunderstood, although we may imagine that the industry doesn't try too hard to understand them! The Aviation Environment Federation points out that international conventions prohibit the taxation of fuel already on board but say nothing about fuel uplifted – that comes from the bilateral air service agreements between states on the misquoted advice that the convention prohibits taxation generally.

The concessions are an anachronism worth billions of pounds a year. For the United Kingdom alone, the Treasury estimated that if aviation paid VAT and duty at the same rate as the motorist it would net in excess of £9 bn (\$13.5 bn) a year. And fares would be bound to rise.

Withholding infrastructure support would also mean

higher fares with airport operators and their airline customers having to fund more of their own developments. Huge public investments in new runways, terminals, warehouses and access roads are said to be needed for the nation's business to succeed. It's a conjectural argument. If the commercial imperative really is that great, business itself will find the money.

Price rises are helpful in moderating demand, but aren't the whole answer. Dearer air tickets hit hardest on the young, who as suggested at the start of the book have the strongest claim on air travel.

**Charging per flight.** A charge per flight rather than per passenger is a modest concept that would bring about a worthwhile reduction in carbon emissions. With air passenger duty described above, there is no tax on empty seats. A charge per flight would encourage consolidation of flights – ie conflating two or even three trips into one – meaning fewer emissions overall.

Most airlines oppose this basis of charging because of the practical difficulties of consolidating flights at short notice and for fear of upsetting their passengers. Certainly the practicalities would need to be worked through with care. Transit passengers, for example, would require another connection if their flight was consolidated to a later time.

**Emissions charging.** Another per-flight concept, an emissions charge would bear directly on aviation 'externalities' – the costs that the flight imposes on others than the aircraft operator. These include toxic emissions, which are a cost to the environment and specifically on agencies that have to clean up the pollution.

The charge should vary with the type of aircraft and the scale of emissions, which would give added impetus to the development of cleaner engines. The emission charge should be increased by a factor of two or three over carbon dioxide alone to account for radiative forcing by aircraft in flight (see Chapter Three).

Emissions charging is complicated because of the international character of aviation. Who has the authority to impose the charge when a flight goes from one country to another? How will the proceeds be shared between the countries? Naturally, the countries concerned would have to agree on imposing the charge. The world currently is a long way short of that agreement, although the European Union has wanted for years to introduce the charge on intra-EU flights.

It would be good to see a similar charge on noise pollution. While many airports levy noise charges, these are generally revenue-neutral with landing fees discounted for quieter aircraft and increased for noisier ones. What's required are additional charge for mitigation measures. Sadly, the Cinderella science of noise has so far convinced few of the need. Noise too is an externality of flying. When at a polluting level it imposes a cost on society as a whole through stress illnesses and the effects on children's learning. Householders or their local authorities may be obliged to install sound-proofing; others will bear the costs of moving house because of distress at excessive aircraft noise.

**Rationing.** In a warming world rationing of our pollution-producing activities may become necessary. Flying as the most polluting mode of travel will surely be among the first targets. It may not seem that way to enthusiasts of continental mini-breaks and long-haul holidays, but flying is a discretionary activity. No one's life depends on being able to fly (except someone being air-lifted to a hospital).

A personal air miles allowance is straightforward in principle, but as with any rationing scheme a host of questions arise. On Day One of the scheme, much of the population would have already enjoyed unlimited air travel. Should such individuals' allowances be reduced to take account of this? What variations if any in the allowance are to be made? The young and the old, for different reasons, have a stronger claim on air miles than the middle-aged.

Opposition would be expected in the Majority World. Its citizens would be asked to give up a chunk of what they've never had and others elsewhere have enjoyed. Individual countries in the West might consider going it alone, setting an example for others to follow.

What is to be done with the allowances of those who don't wish to use them – the very old, the ill and the simply uninterested? Letting the allowances lapse would drive down the CO2 level even faster than planned. An attractive idea is the chance to transfer unwanted air miles into a greater number of miles in greener forms of travel, like cruises.

Many people will wish to sell their air miles. Should they be transferable in this way? The issue doesn't raise the same moral difficulty as selling carbon permits, described earlier, and certainly not food rations. (In the Second World War it was illegal to sell any of your rations.) The idea of the rich carrying on as usual by buying the allowances of others isn't very palatable, but perhaps personal air miles should be like our money in the bank: we can broadly speaking do what we want with it.

**Selective taxation of routes.** Air routes where rail is comparable for time might be taxed (air passenger duty, flight charge or whatever) more heavily as a way of diverting traffic to the greener mode of travel. New York to Washington, Paris to London and Manchester to London

fall into this bracket. Except for transit passengers, it's a mystery why anyone would wish to go through the discomforts of the modern airport when the train is there waiting, city centre to city centre.

**Abolish hub airports.** The aviation industry developed the hub airport concept as the most commercially effective way of working. For the rest of us, however, it's a bum steer. With main flights clustered in a single huge airport, regional or secondary airports are downgraded, not developed or closed. Their role is to feed passengers to the hub, where they transit to the main flight. Frequently, a country has only one hub airport. This is the case with a country as populous and relatively large as the United Kingdom, although this book argues that it needn't be so.

Operating many main flights from underused regional airports would be the renaissance of those facilities. It would disperse aircraft noise disturbance around the country – a policy very likely more acceptable to the public than the further expansion of pollution ghettos surrounding the hub airport. As matters stand, the following UK airports are at risk of closure: Belfast International, Doncaster/Sheffield, Bournemouth, Humberside, Cardiff, Prestwick, Dundee and Newquay, with the 'zombie' list headed by Durham/Tees Valley. It suffered a 75 per cent fall in passenger numbers between 2008 and 2013. Blackpool Airport already closed.

Hub airports are inconvenient to passengers. Instead of taking a direct flight from an airport nearer home, they must take a connecting flight or make a long road journey. Hub and spoke operation is environmentally costly for atmospheric pollution as well as noise because of the greater number of takeoffs and landings. Hub airport supporters counter that the smaller aircraft that would be used on point to point routes are less fuel efficient per seat.

Hub airports also increase the safety risk in the surrounding area through the concentration of air traffic. A big proportion of all airliners in the UK fly over central London, for example, bound to or from Heathrow.

The policy of dispersing flights to smaller airports is ridiculed by the aviation industry. Costs are minimised by operating from as few bases as possible. However, if a hub airport's externalities were charged for the costings would be radically altered. Externalities include extra takeoffs and landings from connecting flights, and the formation of pollution ghettos around the hub.

The United States has a number of hub airports, dictated by geography and also the structure of the airline industry, with each major airline developing its own hub. This produces somewhat more international direct flights even where the hubs are physically quite close – say, Boston, New York and Washington.

US practice still leaves a lot to be desired in terms of direct flights from smaller airports. To take one example, I attended a film festival near Des Moines, Iowa, deep in America's Midwest. Des Moines is a pretty substantial city, but it's impossible to fly there directly from London. Go via Chicago, Detroit, Minneapolis/St Paul, Atlanta – take your pick, but for DM change you must.

My home is quite near the substantial regional airport of Bristol. To reach Des Moines from there involves two changes – a range of foreign airports including Amsterdam, Paris and Dublin, and the US airports mentioned above. Less attractive to me, and a worse outcome environmentally.

**Levy on transit passengers.** In the example just given, ferocious competition between airlines leads to fares that are as cheap or cheaper with two changes as with one. This is impossible to justify in terms of added pollution. A levy on transfers beyond the first would encourage passengers to take the most sustainable route. Perhaps this might be extended to the first transfer, which would put pressure on airlines to provide more direct flights. Even as matters stand, I find it hard to believe that there isn't enough demand to support at least one direct flight a week between London and Des Moines.

**Private flying.** Quieter aero engines promise relief from noise nuisance, but the benefit will be limited by the growth of aircraft numbers. This is likely to be even truer with small private aeroplanes, whose buzzing and droning at lower levels is arguably more intrusive. The nuisance from helicopters doesn't need emphasising.

The number of private aircraft has been increasing slowly and steadily in Europe, even more so in the United States; governments and environmental campaigners will do well to watch the trends carefully, and be ready to act before it's too late. I see a direct parallel with the growth of the motor car. In the earliest years the emphasis was on commercial vehicles (= airliners). Only slowly did the number of private cars (= light aircraft and helicopters) pull ahead to reach the present situation of overwhelming numerical dominance. For all its benefits, the motor car as currently used and in its present numbers is a social and environmental pathogen. This is now widely recognised – but the recognition came too late for the car to be used in more benign ways. The same could happen with private planes.

Private aircraft make a strong case for demand management through tougher licence standards. However tough the standards are now, they can be made tougher in the

interest of restraining the growth of this sector. The reduction of uncontrolled airspace where light aircraft can operate is another sensible policy. Albeit accidentally in its effect on private flying, this is set to happen in the UK as part of a wider trend in the Western world. The creation of more flight paths around major airports means the extension of controlled airspace. Private fliers call it an 'air grab', but for the long-suffering residents of existing noise ghettos more flight paths mean the great boon of fewer airliners in any particular space.

Private fliers and in particular helicopter users are the heirs of Schopenhauer's waggoner, whose whip-cracking served to 'kill in the bud the thoughts which may happen to be springing up in 10,000 heads – the number he will disturb one after the other in half an hour's drive through the town' (from his essay *On Noise*, in *Studies in Pessimism*).

Except for the non-solution of predict and provide and techno-fixes, many of which are of the 'jam tomorrow' variety, the practices described in this chapter involve coercion of some sort – making people fly less either by diktat or by pricing them out of the sky. This explains why few are in use by governments and the aviation industry. When the survival of the world as we know it is at stake, we may have to put aside some of the finer points of personal liberty. This is war, after all. But the politics remain even in wartime. The measures with teeth will be immensely hard to put into effect. Can the prescriptive approach be the only way?

# TEN

## THE OTHER SIDE OF THE DREAM

KYRENIA in Cyprus was my idea of the perfect Mediterranean town. As the sun blazed in a cloudless sky, the few visitors mingled with locals going about their daily business. Old houses and shops clustered round the picturesque harbour dominated by a massive Crusader castle.

This was in the Eighties, and even then Kyrenia seemed like the rest of the Med before they ruined it. This was no accident. Kyrenia was and is in ethnically Turkish Northern Cyprus, a de facto state recognised by no country except Turkey. The time warp feeling arose from the state's international isolation. It was off the main tourist trails and starved of capital to fuel the tourism boom that was underway elsewhere.

Back then, Benidorm on Spain's Costa Blanca was already a byword for over-development, an urban jungle of apartment blocks and cramped villas to accommodate Northern Europe's holiday-makers, second-homers and retirees. In the years since, around the Med and in much of the vacationing world, the crowds have become greater, the coastlines ever more built over and the towns and villages more spoilt. All of this is made possible by cheap flights to the sun.

The identical process occurs in the United States, where many residents of the 'snowbelt' states head south in the depths of the winter to the warmth of Florida and Arizona, or retire there.

From the depths of a Northern winter, it looks irresistible. The beachside home in Florida with the wrap-around veranda ready and waiting; the whitewashed cottage glued to a Greek hillside; the farmstead wrapped in a gentle, embracing landscape of France – all with seemingly never-ending sun and, in Europe at least, a price to die for. The reality is so different. Americans deal with vendors and realtors who speak the same language with broadly similar ways of buying the property. Europeans face a different language and a different legal system, and perhaps paperwork going through the system with the speed of a snail.

Having bought the property, we find we have to repair it and maintain it. Negotiating these tasks in a foreign language are fun to read about in books like Peter Mayle's *Toujours Provence*, but a nightmare for real. An agent will arrange these matters for us, but it costs. Nor can we budget our expenses accurately because the currency exchange rate fluctuates.

If the property is a holiday home, we worry about what's happening to it when we're not there. We find we don't go to it as often as we expected, but having got it we feel we must use it – meaning that we can't take other sorts of vacation elsewhere.

In the nightmare scenario, we find we don't have good legal title, threatening us with homelessness and at best making the property unsaleable. In the rush to meet expatriate demand, many Spanish builders put up homes without planning consents. In Kyrenia (as above) and other parts of Northern Cyprus, land titles granted by the internationally unrecognised government will be challenged in the event of reunification by Greek Cypriots wanting their homes back.

Only the very rich end up in that whitewashed cottage glued to the hillside or the farmstead wrapped in a gentle, embracing landscape. For the rest of us, it's a flat or a cramped house in a community of scores or hundreds of others pursuing the same will-o'-the-wisp – an expatriate ghetto.

Retailers of travel – the booking agents, the holiday and property companies, the cruise lines, the journalists who write travel supplements in newspapers, the TV presenters who head up 'homes in the sun' programmes – are selling a dream. Bikini-clad girls and model families of father, mother and two children are among the beautiful people pictured in beautiful settings. But the reality often can't survive the expectations heaped upon it. Admittedly, there can still be magic in the air, but when we set the minuses against the pluses the balance is closer than the publicists would like us to think.

A typical weekend travel section for a UK national newspaper included articles on the following places (all enticingly illustrated in glorious colour): Kefalonia (Greece), Channel Islands, Ireland, Shetland Islands and Isle of Wight (both UK), Belgium, Holland, Brittany and Normandy (both France), Maldives, Mauritius, Cambodia, the Baltic, Madagascar, Cyprus, Florida (United States). With a choice like that, why would anyone think of staying at home!

As an example of gilding the lily and hang the CO<sub>2</sub>, passengers on a Mediterranean cruise were offered a side-trip by helicopter for lunch at a gourmet restaurant in Provence.

Here is a sceptic's guide to the joys of travel.

**Personal travel.** The freedom to go where we want when

we want comes at a price – literally. The golden rule is that however carefully we've budgeted, the trip will cost twice what we expected. When we get home, we can look in travel agents' windows and see that holidays of the same length and in the same country are a fraction of our spending. All that remain are happy memories and credit card bills.

Europe and America are easy to move around in – if we can work out how the small things work. How do we get train tickets out of the machine (every country seems to have a different design) and what do we do with them when we have them? In France, for example, it isn't enough to obtain a ticket. It has to be validated at another machine before boarding the train. Outside the First World matters become stickier for the hapless visitor, already wilting in the heat. Here's when we find that beyond the hotels, tour buses and tourist shops English isn't as widely understood as we thought.

If we haven't arranged our accommodation in advance – which removes the spontaneity from individual travel – we may find ourselves struggling for a bed for the night. Few experiences are as dispiriting as asking at our tenth hotel at eight o'clock at night, 'Vous avez une chambre s'il vous plait?' and to be told, 'Je regrette.'

When we pick up an ailment we find that the treatments go by different names from those we know. Add to this the fact that the pharmacist has little English. We don't really want to walk out with cough sweets for diarrhoea, but we may have no choice.

Above all, we find that the sights we want to see are the same that everybody else wants – the Louvre, Pompeii, Machu Picchu, the Grand Canyon and so on. Everywhere is horribly crowded, expensive and hot. Not at all the

elegant experience we planned. At least with package tours they'll make a group booking, and we can go round in comfort. Everyone else will get out of the way.

**Package holidays.** We know what they're going to cost, more or less, but package holidays can eat up our money with extras like excursions and drinks at the bar. The package holiday has come a long way since its 'cheap and cheerful' origins of decades ago. Highly upmarket offers are now available – and for most people are the only practical way of travelling outside the First World.

Nevertheless, these holidays are inflexible. We have a limited choice of dates and length of stay; we're also stuck with the same people. Our fellow passengers on the flight will probably turn up at the same hotel. If we don't like them we don't have to mix with them, although they may be hard to avoid poolside or on the beach. At least coach tours offer limited possibilities for sun-lounger wars, but this type of holiday means we're closeted with the same people throughout.

If we choose a fitness holiday – a growing trend, according to currency dealer Travelex – we may well find we've bitten off more than we can chew. Trapezing and yoga present hazards to people who can barely touch their knees let alone their toes. Those who rarely walk a mile at a time discover an urge to go trekking in Norway or to climb Mount Kilimanjaro in Tanzania. The result is aching muscles, blistered feet, a preoccupation with surviving the day rather than enjoying it, frowns from other members of the party who are slowed up and, in the worst cases, evacuation from the middle of nowhere. A stroll along the promenade or the boardwalk is more relaxing and safer.

Almost one in two Britons were considering an activity break, Travelex found in a survey. No doubt many consid-

ered – and sensibly reconsidered. Another company, Health and Fitness Travel, found that being active on vacation was important for 82 per cent of respondents. Important yes, but actually doing it?

Health and Fitness Travel co-founder Paul Joseph said: ‘Gone are the days when people want to return from holiday feeling sluggish with waistbands that little bit tighter. With our collective lifespans increasing by approximately 30 years, a healthy lifestyle has never been so important.’ Trouble is, a healthy lifestyle like charity begins at home. It’s for 52 weeks a year, not two weeks.

All-inclusive resort hotels have the great attraction that we can eat and drink as much as we want when we want, and thus point in the opposite direction from a healthy lifestyle. They are like a geodome within the host country. The moment we step outside the dome we start spending; which makes it very tempting to stay inside. It’s a temptation that many holiday-makers give in to, meaning they see little or nothing of the country and its people. They may as well be anywhere.

These all-inclusive hotels are of limited value to the country in which they are based. They are a source of jobs, but the economic benefits mainly accrue to the small group of hotel staff rather than being spread among shops, restaurants and tour operators. The holiday-maker with a conscience who wants to support local businesses is caught in a bind: he or she is paying twice for a meal at every visit to a restaurant outside the geodome – once for the meal not eaten in the hotel, and again at the restaurant.

**Mini-breaks.** The British, and other Europeans for all I know, are enthusiastic takers of weekend mini-breaks by air. It’s not uncommon for couples to enjoy three or four breaks a year on top of their longer holidays (at least two).

Picturesque Continental cities are favourites.

The mini-break gets off to a bad start because we have to go through the whole airport palaver of queues and scans and removing clothes and shoes to get on our aeroplane. The security system neither knows nor cares whether we're leaving the country for two days, two months or two years (or forever).

Mini-breaks by their brevity provide only the illusion of visiting a country. To know the capital city isn't to know the country. Prague, to take a popular destination, is no more typical of the Czech Republic than London is of the United Kingdom or New York is of the United States. Of the city itself, visitors come away with an incomplete understanding. No law says we must try to fit in everything, but that's the almost irresistible urge. The temptation is magnified by the deplorable newspaper series '36 Hours in ...' Rather than rushing round half a dozen of Amsterdam's tourist sights in a day, it might be better to spend all morning in the Van Gogh Museum and all afternoon sitting in a park after a long lunch at a pavement café.

The most likely outcome of our mini-break is that we fall exhausted into the plane home, over-spent and wondering how it was worth it. Until we do it again.

**Cruising.** As with the all-inclusive hotel, cruising has the great attraction that most of our costs are fixed in advance. Fixed eye-wateringly high, that is. Even if we have money left over, we usually can't get off the boat to spend it at some little bistro or taverna.

On a Mediterranean or a Caribbean cruise the ports of call come in rapid succession. It's hard to remember where we are. Perhaps it doesn't matter. It's the seaborne equivalent of the 'if it's Tuesday this must be Belgium' tour; it's like

the diner in an old Punch magazine cartoon who turns to the next table and asks, 'Can you settle an argument? Is this the Paris Hilton or the Madrid Hilton?'

The arrival of a cruise ship is a signal for all the hawkers, touts and bogus money changers in the port to converge on the dock. Travellers who go ashore find themselves in the middle of a mass of importunate humanity. And why not? Cruise passengers are by definition wealthy, or so it seems.

They need to be to spend 14 days cruising the Mediterranean with the five-masted sailing ship Royal Clipper. This holiday is from £3,339 (\$5,009) per person. At least the cruise is called Voyages of a Lifetime by Tall Ship.

A body of dedicated retirees live their lives from cruise to cruise to the detriment of the children's inheritances. Home is somewhere to pass the time between trips. It creates a camaraderie on board among the seasoned cruisers – marred by people's tendency to want to talk about their trips rather than listen to other people's trips, and an unfortunate competition to see who's done the longest, most expensive, most exotic, most unusual etc cruise. With so many cruises on offer and with vast ships, at least we're unlikely to run into the same people again.

Many cruises combine the best (or worst, depending on how we look at it) of sailing and flying. They are boat out and plane back, or vice versa. So the relative greenness of cruising is half-lost.

**Long-haul holidays.** English-speaking visitors to Australia find themselves in a comfortable Anglo-Saxon hybrid, a First World country that is a bit like the US and a bit like the UK. Long-haul holidays into the Majority World are another proposition.

The stomach and the bowels become the focus of the trip. Diarrhoea and constipation take turn and turn about. For the unlucky ones, excursions are dominated by the need to locate toilets. In some countries, places where one sits down rather than squats can be hard to find. These conditions are brought about by the disruption of our routines, particularly changes in diet and temperature. From winter to tropical heat and humidity is asking for trouble.

Beyond the hotels and restaurants aimed at visitors, lack of food hygiene may also take its toll. Those tasty-looking kebabs from the street vendor and the tantalising fish lying on the riverbank in the boiling sun don't come with health warnings, but they should. The hygiene issue arises from ignorance and lack of the sanitary facilities that we take for granted. I used to wonder why the locals could eat these treats and I couldn't. Simple: they've had years to acquire immunities and defences that I lack.

Most of us start to feel better in the new climate after a few days. The trouble is the body doesn't work to the time scale of Thomas Cook. It prefers to acclimatise in weeks, not days. As soon as we're over the worst of it, it's time to start to thinking about going home. Not much time to enjoy the sights we've come to see. Twenty years later – the typical gestation time of superficial skin cancer – we may find ourselves with basal cell carcinomas if we haven't used sun block and worn a hat. It's astonishing how few visitors in the tropics wear hats, an article of faith for earlier generations of visitors. Much sooner than 20 years, we may develop malaria if we haven't taken anti-malarial tablets. Many tourists are casual about this, apparently believing that one won't get malaria in a brief visit just as one can't get pregnant from a single encounter!

Visitors all want to see the same sights – the Victoria Falls, the Kenya safari parks, orang-utans in Sabah and so on.

These venues inevitably become crowded. A game drive in a procession of vehicles isn't the safari experience we dreamt of (and which we've been sold in the glossy brochures). Villages close to the cities of the tourists are co-opted into the tourism experience. Young people dance, the women stir steaming pots of maize porridge, the men sit and look wise. Oh, and the traders sell souvenirs. Tourists come in by the busload, cameras and smartphones poised, but what they are watching is more like a theatre show than a glimpse of the traditional way of life.

Long-haul holidays aren't cheap. For example, India and Nepal, 15 days, from £2,569 (\$3,854); Rio de Janeiro and Highlights of Argentina (*sic*), 14 days, from £2,699 (\$4,049); Japan, 13 days, from £2,799 (\$4,199). Whistle-stop holidays don't come much more sibilant than 'In Pursuit of Pandas'- nine days from £1,790 (\$2,685). In not much more than a week in China we can see the pandas at the Chengdu conservation, and mop up the Great Wall, historic Beijing and the terracotta warriors at Xian.

Prices are per person. Most people travel with a companion so the cost is doubled. Notice the terrifying word 'from'. Among the *froms* will be a single person supplement, often not stated in brochures although seasoned travellers know what to expect. For the Rio/ Argentina holiday above the single supplement was £699 (\$1,049) – an extra 26 per cent on the base price.

No wonder international tourism is seen in almost all countries as a valuable source of national income. The world's wealthiest country, the United States, is keen on tourists – even if the message isn't always apparent at customs and immigration. A few countries of the Majority World have spurned Western tourism as a form of neo-colonialism. Burma for years was effectively closed to visitors, and Malaysia was markedly unkeen. Both have

changed their policy under economic pressures, but they had a point.

The United States, and other tourist magnets like France, can absorb limitless numbers of tourists because their economies are diversified enough to cope. Paris is in no danger of turning into a theme park. Tourism as a sector is important in many Western countries, but not dominant.

Burma, Malaysia and like-minded countries were aware that in the Majority World tourism was capable of dominating and distorting national economies; and has done so. At ground level, Westerners insensitively walking around with expensive jewellery on show and overtipping the equivalent of half a week's wages for a single lunch are a temptation and a provocation. Think of the dependence of Kenya and Caribbean islands on international visitors. It's no accident that Nairobi, the principal African beneficiary of tourism from Northern Europe between Egypt and South Africa, has for years had a reputation for muggings.

At a higher level where academics and politicians ponder these matters, tourism arguably impairs the development of high-value indigenous industries. These keep more of the profits within the country and provide needed diversification in the economy. All in all, not comfortable thoughts for tourists with a conscience as they sip their sundowners.

# ELEVEN:

## DOROTHY ADDRESSES HER DILEMMA

DOROTHY GALE, looking back from the comfort and safety of her Kansas farmstead home, would not, I think, have regretted her adventures in Oz. But, as she made clear at the end of the iconic film, she had no wish to go there again. She didn't need to be grown-up to know there's no place like home. But going there again, to the many Oz's around the world, is what we grown-ups choose to do again and again.

Mainly we get there by air. Mostly we don't give a thought to the atmospheric pollution, noise and safety – downsides of flying highlighted in this book. Even those who think of themselves as greens, with few exceptions, shunt their principles into a siding when it comes to flying. Jan Moir wasn't too wide of the mark when she wrote in the *Daily Telegraph*: 'I've yet to meet the person, politician or otherwise, who takes carbon emissions seriously. On a deep level. On a level that suggests they are going to stay at home instead of ruining the planet by having a nice holiday or a lucrative business trip. Even if they have considered it, everyone always has a good reason why their trip is necessary, but yours never is.'

It was unwise of Ed Miliband, when leader of Britain's parliamentary opposition, to appoint Lord Prescott as his 'climate change adviser'. In five years his lordship notched up 23 foreign trips totalling 181,000 air miles. It was as oxymoronic a choice as Les Patterson for Australia's

(fictional) 'cultural attache'.

Even Greenpeace, which campaigns against pollution caused by air travel, was caught red-handed. As noted earlier, its international programme director, Pascal Husting, was found to be commuting by air twice a month between Luxembourg and Amsterdam, instead of taking the train. For the sake of the family. Of course.

Jan Moir's characters are only too recognisable, but we must all think again. Man-made global warming is threatening – indeed, has already begun to damage – our planetary home. The effects range from biblical-style floods caused by melting glaciers and polar icecaps to the mass extinction of species, up to and including ourselves if James Lovelock is correct. The originator of the Gaia Hypothesis is apocalyptic on the subject because he knows better than most that humanity doesn't and cannot stand separate from the natural world.

Aircraft are prime contributors of the greenhouse gases that are behind global warming. The situation is going to get a whole lot worse. The world's stock of airliners will double in the two decades to the mid-2030s, spurred especially by economic growth in Asia and other parts of the emerging world. Meanwhile, Europe and North America won't stand still. Despite the intensively developed markets today, even more flights will be taken in those regions.

Of course, the world's policymakers claim to be addressing the problem, but their efforts look puny in relation to the need. The Kyoto Protocol, as we've seen, is faltering. Even where agreements are in place to reduce atmospheric carbon, for many and perhaps most countries these may turn out to be of the 'jam tomorrow but never jam today' variety – that is, the targets won't be met. Green groups are

united in saying that deeper cuts are needed if catastrophe is to be avoided.

Even if you the reader consider such doomsday scenarios as scare-mongering, noise pollution from aircraft is enough on its own to demand curbs on aviation. Noise pollution is a blight on modern life. It produces discomfort, anxiety, ruined sleep, impaired learning and damaged health. It leads to high blood pressure, which is a cause of heart attacks and strokes. Aircraft are among the worst offenders. We can escape from the noise of busy roads or the cacophony of city centres. Aeroplanes are ubiquitous. We don't have to live on top of an airport to be troubled by their noise; the high moors or remote water meadows will do it.

Aero engines get quieter but the amount of flying grows. This is set to *increase* the noise environment on the ground. There are fewer periods of silence between passing aircraft, hence Leq – the official measure of noise disturbance, which aggregates noise events and silence – will rise.

Airliners are an extremely safe mode of travel. They make road traffic look like an out-of-control sledge on a mountain. But the risk of a catastrophic event, human, mechanical or electronic, can never be zero. Putting ever more aircraft into the sky has obvious implications for safety both of those aboard and those on the ground. Southern England has some of the most crowded airspace in the world. Here, and elsewhere in the European Union, in the interests of shoehorning in more flights, the minimum horizontal separation between airliners was reduced from 2,000 ft to 1,000 ft. The move was accompanied with the usual mantra about safety not being compromised.

Military aircraft, corporate jets, light planes, helicopters and drones all play their part in the three 'nasties' of atmospheric pollution, noise and safety. The world is in a period

of great political turmoil, so we can expect more military aircraft. Corporate jets show a steady increase around the world, as do light planes and helicopters. Drones show a spectacular increase in numbers as agency after agency, company after company, discovers the benefits of spying.

Hangar 8 is a British company that wants to grow the market for corporate jets by helping time-stressed business people reach out-of-the-way places, and mining engineers and aid workers to get to even more out-of-the-way places. It's doing it with evident success: the £24m (\$36 m) turnover company achieved a gross profit margin in 2014 of 35 per cent. Corporate jets, even in the most advanced [*sic*] aviation market, the United State, remain relatively rare and prestigious. So once was the motor car. Look at it now!

These sectors aren't environmental sideshows compared with the world of the big jets. With noise and safety, not to mention privacy, light planes, helicopters and drones are for many the greater nuisance. They fly low and they fly everywhere, with less regulation of airspace at the lower levels. The relative frequency of crashes of private light aircraft and helicopters testifies to their riskier nature. Neither in the mechanics nor the pilot skillset is the bar set as high as it is for commercial flying.

Despite some gestures to the contrary, mostly in the developed nations, the world remains in the 'let it rip' era of flying – never more so as emerging nations expand their aviation sectors. This is incompatible with halting global warming. It will also be socially disastrous if we replicate in the air the traffic chaos on the ground. Gridlock on the roads, with all its social, commercial and health consequences, didn't emerge fully formed. Nobody willed it. It crept up on us until it was too late to do anything about it.

What will be an adequate response to the problems of global aviation growth?. The dilemma is that flying is good for individuals, at least up to a point, but bad for humanity. I'm the last person to deny that flying can be exciting. Everyone should experience it at least once. Or that visiting another country is needed for a clear view of the world, and in particular that citizens of the two worlds posited in this book – the West or First World, and the emerging or Majority World – should visit each other.

Any moves to restrict flying opportunities in the Majority World would be asking its peoples to give up what has only recently come within reach. No wonder they will resist. The same applies with young people in the West. It would ill behove older people, who have enjoyed a lifetime of flying, to try to pull up the ladder in this way. The dilemma deepens.

Interestingly, only a minority of the residents of central London run a car. They include some of the richest people on earth. This is a compound of many factors including benefits (ready access to taxis and the Tube) and disbenefits (round-the-clock traffic congestion), but above all they don't have a car because they don't want one. To them a car is no big deal. Those who grew up in the upper middle class have behind them many generations of motoring reaching back to the Twenties and the Thirties.

For the population at large, however, car ownership is barely into its third generation. Universal access to cars is less than half a century old in the UK; in the Majority World it remains a dream for most people. Such people don't take a car for granted. In fact, many Britons would take their car to bed with them if they could. It's not about the practical need for mobility, stupid, but the enfranchisement that the car signifies.

In the same way, we must expect travellers at large to resist restraints on their holidays by air more violently than the well-to-do, whose forebears had been flying for decades. This won't be primarily about affordability (the really poor don't fly), but about feeling cheated of an entitlement. The feeling would be magnified several times over in the Majority World, where travellers would see the aircraft steps being pulled away just as they are ready to board.

Britain's Royal Commission on Environmental Pollution is correct in saying cheap air transport is not 'a traditional "right" in any sense'. For most people it's a product of the jet age. The super-rich travelled widely as soon as the means to do so became available, from the 18<sup>th</sup> century Grand Tour onwards. Some bold souls flew from Europe to Australia, with multiple stops, in the Twenties. Yet even well-to-do professional families until recent times were generally content to take their summer holidays close to home – Eastbourne and Torquay for Londoners, Niagara and the Hamptons for New Yorkers, Le Touquet and Deauville, for example. Nor did they consider it proper to take several vacations a year.

All restraints on flying whether direct like a surcharge on tickets or indirect like reducing availability involve stopping people doing what they want to do. That's why the measures encounter resistance. They have a role in managing demand, but overall they are on a flightpath to nowhere. It would be different if the planet were evidently in peril. While that is fervently believed by some, it's not the common view. When it becomes so it may be too late; hence the need to act now.

The most fruitful measure is the one that is never seriously proposed in policy papers and specialist reports – voluntarism. Is your journey really necessary? It can be cooler in every sense of the word to stay at home like Dorothy.

Holiday-making families discover the pleasures (not to mention the financial benefit) of the resorts and tourism attractions in their own country or region.

Couples addicted to whistle-stop visits to far-flung cities find they can make do with two mini-breaks a year instead of four, and that it's really quite pleasant to do nothing in their home city.

The intrepid long-haul traveller finds (to borrow an idea from Professor Chris Rapley of London's Science Museum) that his postcards from Bora Bora are as well received as a row of animal heads on the wall.

Business people stop using face-to-face meetings as an excuse for a trip and use video-conferencing to its full potential.

Bureaucrats discover trains for journeys of up to 200 miles.

Locally produced food enjoys a boom as shoppers acquire a heightened awareness of food miles – how far the produce has travelled to reach the point of sale and the environmental cost of getting it there. It's not seen as smart to flavour a dish with baobob powder.

It must be emphasised that voluntarism means just that – it's voluntary. People change their ways because they want to. The approach won't work if there is any element of legal compulsion, or if individuals feel browbeaten by society. Citizens in Western countries will need to take the lead. It's we who have been 'at a tremendous party since the 19<sup>th</sup> century', in the words of Pradipto Ghosh, a former Indian government minister. Now it's up to us to start clearing up.

Voluntarism in reducing toxic flying isn't as fanciful as it may seem at first sight. We've previously seen many turn-

rounds in social attitudes.

Big game hunting has gone from a widely accepted pastime (the word hangs heavy in a modern context) to an activity done by a few, and one not to be spoken of in most settings. Large families – those with more than two or three children – attract wide if unspoken disapproval in the West. The norm of small families goes beyond economics. It's seen as irresponsible to burden the over-populated planet with too many mouths except when, as in much of Africa, children are essential to support us in our old age.

Even the detoxification of farming makes slow but steady progress, although sustainable farms are up against the genuine need for cheap food.

These examples seem to arise from a common cause: an understanding that previously unchallenged practices have wounded Earth, and the condition is turning terminal. We need the same understanding with flying. It's only one part of the global warming problem, but it's central to the solution. Unless aircraft emissions, present and future, are brought under control, the world's sustainability targets won't be met. The losers will be our children and grandchildren.

Unique times demand from us a unique response, which is to transcend the urge to travel as far as the technology will take us. As Chapter One suggested, this has been part of the human story from the beginning. Note, we're not talking about the urge to travel as such, but to travel by air to the farthest corners of the world. This is where our principal problem lies.

Dorothy Gale missed the friends she left behind in Oz, but she had learnt that there's no place like home. 'If I ever go looking for my heart's desire again,' she told Aunt Em, 'I

won't look any further than my own backyard.' This is our best hope, too.

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Cedric Pulford is an acclaimed British journalist with a long-standing interest in transport and the environment. He has been on the staff of major daily newspapers in London and the United States. For more than 20 years Cedric ran training courses in countries of the emerging world – an experience that informs the global perspective of the present book. *The Dorothy Dilemma* is his tenth book. He is also the author of *Air Madness: Road's Mistakes Repeated* (3<sup>rd</sup> edition, 2008).

## **Also from Cedric Pulford and Ituri**

*Air Madness: Road's Mistakes Repeated* (environment)

*Two Kingdoms of Uganda* (history)

*Casualty of Empire* (history)

*Eating Uganda* (history / religion)

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*Coming Second Doesn't Count* (memories) *co-author*

*Our Vanishing Freedoms* (politics) *pamphlet*