

The new London air and spaceport

Are we destined to endlessly carp and cavil and for ever patch and darn the threadbare structure that is the London Heathrow and City air travel experience? asks Bryan Avery

For decades now it's been obvious that London's Heathrow airport is an expedient post-war solution that has long outlived its usefulness. It served its purpose when aircraft were few and far between, used relatively quiet piston engines and could land in a circuit close to the field. Now the airport needs vast holding patterns covering much of southern England and casts a thirty-mile long acoustic blight across the whole of central London.

And yet government after government has shirked the issue and hoped that with just another little bit more tinkering it'll tide things over and then it'll be someone else's problem.

The trouble is Heathrow really has come to the end of its life. Air travel isn't shrinking. Oil prices haven't affected it, nor has the internet. We still travel, and as more and more nations industrialise and prosper, so too does air travel.

Our choice is to pull up the drawbridge and close the UK shop – or keep up with the rest of the world and expand.

But expanding Heathrow (and just as crucially London's City airport) is not an option that anyone other than the vested commercial interests there can justify any more. There are massive public health and safety issues with both airports that are being blithely ignored.

Consider that in going into these two airports, the aircraft spray huge quantities of burnt jet fuel over the city, containing sulphur dioxides and nitrogen oxides, the very same toxic particulates that the planned ban on diesel vehicles in the city are intended to eradicate. The National Geographic Magazine carried a new piece (10th of October 2010) claiming that toxic pollutants from aircraft kill 10,000 people annually whereas 'only' 1,000 die annually in plane crashes.

Consider too that there is a nose-to-tail line of these jets going into Heathrow and they pass at low level spraying their particulates over pretty well the entire length of the densest concentration of population that this country has. Is that wise? It is also reported that jet noise can cause stress and strokes (British Medical Journal 08/10/13) and the onslaught is ever increasing. Between 11.30 at night and 6.00 in the morning Heathrow has been 'capped' at 5,800 night time take-offs and landings a year. Pity the poor people living in this environment because at 6.00 am it all starts again in earnest. Those fortunate enough to afford double glazing and air-conditioning can escape from it but for the vast majority whose only recourse on a hot summer's night is to open the window, it's a remorseless aural onslaught.

And lest we forget, it was announced last year that under a new restructuring of the flight path, the aerial traffic is about to increase by 50 per cent and this is additional to the effect that a third runway with its hugely increased aural footprint will have.

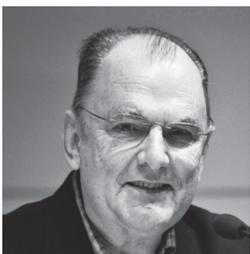
The pro-Heathrow lobby has argued that quieter planes are always in prospect, they always are. They say too that aircraft will be ever bigger and therefore fewer, but they just get bigger and more of them. They say too that if the pilots would only leave the wheels up just a little longer they'd make less noise, but it's all obfuscation. It was also said that the planes using London's City airport would be ultra quiet because they were powered by turboprops and could land and take off very steeply. That didn't last very long, did it?

Consider too that aircraft have on occasion been known to crash. Its hugely devastating wherever it occurs but over a densely populated area it's doubly so. There have been numerous emergencies and lucky escapes at Heathrow. In 2008 a BA Boeing 777 lost all power from its engines over London and crash-landed just short of the runway. In 2015 another BA flight had to make an emergency landing when it took off with one of its engines still under repair. A similar accident happened to a BA Airbus A 319 in 2013 and it had to overfly London with one of its engines on fire. In New York there was the famous case of the US Airways pilot of an Airbus A320 who crash-landed in the Hudson. This pilot exhibited an extraordinary level of professionalism but not all pilots are so well trained or indeed so fit for their roles. Sad to say pilots now may be trained in countries where the standards are less stringent, perhaps even corrupt.

Bear in mind too that there was a report in the Times newspaper last year that one in eight pilots admitted to suffering from depression; another in January this year of a drunk pilot found slumped at his controls before take-off. There was also the Heathrow pilot arrested for carrying knives in his baggage; and of course the horrific case of the Germanwings pilot of Flight 9525 who committed suicide by deliberately flying his plane into the Alps killing all 150 people on board. He could just as easily have done so over London.

It is then but a short step to those who actually intend such devastation, the terrorists. They struck Washington and the twin towers in New York; they've blown up aeroplanes numerous times since and there are constant emergencies and atrocities at the airports. There was a gunman loose at Fort Lauderdale airport (January 2017) and a flight from Pakistan in February 2017 had to be escorted into Heathrow by Typhoon fighters over Germany. Is it only a matter of time before someone succeeds with a terrorist atrocity over London?

The security services clearly think it's possible; they set up a no-fly zone over the 2012 Olympic site and over Anmer Hall where the Duke and Duchess of Cambridge live so why not over Buckingham Palace or the Houses of Parliament? Could it be that there's no point because at the height the planes are flying the RAF's rapid-reaction aircraft can't get there in time?



Bryan Avery MBE is principal of Avery Associates Architects

It takes but a few seconds for an aircraft to plummet to earth from 3000 feet over London but it takes 6 minutes for an RAF Typhoon to get there from Coningsby.

And yet despite all of this – which you might have imagined would have already been considered an extreme health and safety issue and been central to any planning enquiry about the future of aviation in London – it's been considered an officially 'acceptable' risk and we still allow these hugely damaging and dangerous vehicles, emanating from all parts of a war-torn globe, and with who know who at the controls, free passage over the heart of our capital. One would have thought that every one of the London Boroughs through which these planes pass would have something to say about that but no, hardly a word, it's too politically charged.

And, to add to the absurdity, we appear to have no ability to prevent drones from coming within 20 m of a collision with an Airbus A 320 on approach over London (BBC 17 Nov 2016); nor can we stop various mechanical parts and stowaways in undercarriages from falling on the city. We can't even stop one of the many low flying helicopters from crashing into one of London's towers and killing two people (St George's Wharf 16/01/13). So what then is the sense in allowing two international flight paths to cross through this dangerously congested local air-space?

In Victoria, Central London, there are two flight paths which, whenever the landing directions at City and Heathrow aren't synchronised, as can happen when the wind speed is less than 5 Knots, they are allowed to cross paths. There can be one flight path where the aircraft are already at a low level and descending, wheels out, into Heathrow; and another even lower, barely 2000 ft, crossing and descending into City Airport – and they are doing this complex manoeuvre immediately above Buckingham Palace, the Houses of Parliament and the nation's most cherished institutions. What nonsense is that? What other major capital of a civilised country condones such a flagrant flouting of values and for what – the cost?

Can that really be all that this is about? We don't use that as an excuse in any other life-critical decision. We don't create national parks: host the Olympics, keep an army or maintain a national health service to save money. We wouldn't do anything worthwhile ever, if that were the case.

But expanding Heathrow isn't the cheapest option anyway. To add a runway will take years of negotiation to overcome the huge political and legal obstructions that will assuredly come into play. And even if it was actually realised and a new runway came into existence ten or fifteen years from now, it would already be insufficient for the needs then and the debate on a fourth runway would then begin again...and so on ad infinitum.

One would have thought that where large, contentious,



infra-structure projects are concerned it's best to bite the bullet early on and go for the fastest option. When the A3 was extended through the Surrey Hills they avoided the years of wrangling and cost escalations of the Winchester By-Pass fiasco and opted for tunnelling straight away. So too here, we should get on with commissioning a new airport. Its what other countries have done with only a fraction of our GDP and many designed by British consultants.

Moreover if we duck the issue yet again and settle for another short-term expedient, consider the world we may find ourselves in in ten or fifteen years time. Short of an unforeseeable cataclysmic event we must assume that whatever we do post Brexit the rest of the world will continue to seek a better standard of living and will therefore trade more and as our trade will, by necessity, be directed ever further afield, air traffic in the future can only increase.

We would also be wise to assume that as it is now thirteen years since the supersonic Concorde was taken out of service (and it has to be remembered that it plied the Atlantic at twice the speed of sound for twenty seven years before that), the issue of speed will inevitably come to the fore again.

Wouldn't everyone, given the chance, and were it to be affordable, prefer getting to New York in three and a half hours rather than seven or eight? And soon it will be affordable. There are a number of supersonic aircraft currently being designed, some for private hire, others, by Boeing and Branson for airline use. Airbus also has one under review capable of reaching New York in an hour.

These kinds of vehicles should be central to any planning for a new hub airport and yet in the whole of the Davies Commission report there was not one reference to them. One >>>

>>> can understand why since none of our land-bound airports are up to the mark technically let alone tolerating such powerful vehicles to overfly populated areas – and certainly not 24/7 and 365 days a year.

Moreover, if one does seriously plan for the next big leap in aviation we can already see it in gestation here in the UK. Reaction Engines of Oxford have just been given a very sizeable government grant to develop a revolutionary air-breathing engine designed by Alan Bond which could get a plane to Sydney, Australia in four hours. That would change the whole aviation world and we should capitalise on our leadership - if only we'd stop picking over the entrails of Heathrow.

The issue then is where other than at Heathrow should a new airport be built? Assuming that the two other main (existing) contenders, Gatwick and Stansted, have similar albeit slightly lesser social and political difficulties to overcome and, like Heathrow, once one more runway has been built they'll have reached the end of their capabilities to build more, then it just leaves the Thames-Estuary sites.

They have the advantage of a relative proximity to London and if it were not for the difficulties of building on an environmentally sensitive site, of bird strikes, a dangerous munitions ship etc, etc - they would be the obvious option. It was the solution favoured by London's former Mayor, Boris Johnson, but to surmount these difficulties would again take time and time is by far the biggest cost risk. The essential point that the Davis Commission ignored in favour of 'cost' was 'speed'. Speed is of the essence in so many ways.

The only site within striking distance of the capital without any critical impediments, where construction could begin immediately; where the nearest neighbour is five miles away

(about the same distance as from the Spinnaker Tower in the centre of Portsmouth to Ryde on the Isle of Wight – almost too far to see); where there are no nesting birds; where at least four, and probably five runways could be built and all five could be operated in a twenty four hours a day cycle, seven days a week and fifty two weeks a year to maximise on inter-continental traffic; where powerful supersonic and hypersonic aircraft could take off and land without impediment; and the facilities there could serve the whole of Western Europe. The site? – the notorious danger to shipping, the semi-submerged sand reef five miles off the Kent coast called the Goodwin Sands.

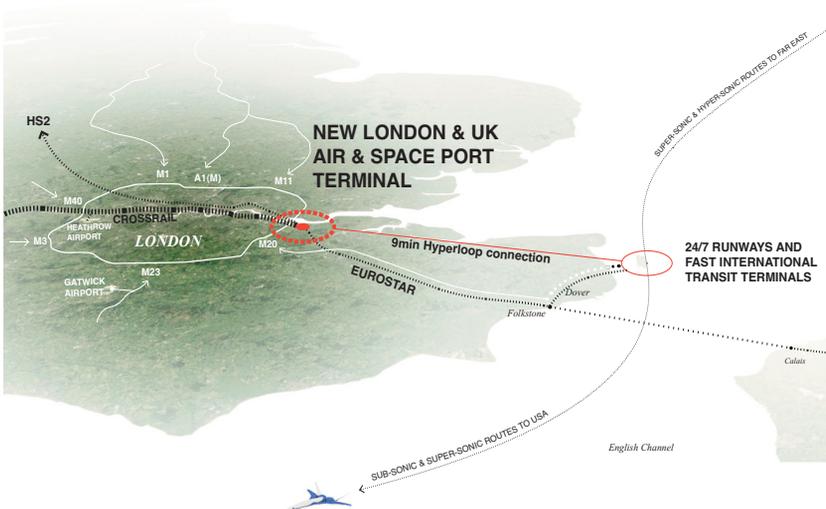
Certainly the site would need to be secured but the Dutch have been doing that for centuries and Schiphol airport is itself 4 m below sea level. There would also need to be a suitable resting place for the war graves and the fisheries too would need to be protected but these pale into insignificance when compared with the issues faced by the other sites.

Indeed, this very site was put to the Davies Commission by its originators, Beckett Rankine, one of the world's leading marine engineers, and went almost straight into the waste bin, as did the estuary airport options initially until retrieved under political pressure and then finally they were all kicked into the long grass because the Commission was interested only in the two criteria that would see Heathrow chosen, its cheapness and its distance from the centre of London. Put all the other criteria into the Commission's selection matrix and unsurprisingly Goodwin comes out ahead of Heathrow.

There's obviously not much you can say if the cheapest initial cost trumps all and you don't mind how long it will take but distance is really only an issue of speed and with the high speed cross-channel shuttle from St Pancras and a new tunnel link from Folkestone to the Sands you'd be there in forty minutes. Maybe that's perfectly good enough. After all, it currently takes an average thirty minutes to get to Gatwick from Victoria; thirty four minutes (on a good day) from St Pancras to Luton Airport; forty five minutes from Liverpool Street to Stansted Airport; and more than an hour from Westminster to Heathrow on the Piccadilly line, when its running.

However, if you change the parameters you could locate the 'terminal', the place where you check-in, drop off your bags, go through security, shop and wait for your flight to be called, ie. the place you would normally think of as the 'airport', in a convenient spot much closer to the centre of the city. The British Overseas Airways Corporation used to have such a terminal in Victoria where you'd check in and then trains and coaches would take you, freed of your baggage, to the two airstrips at Heathrow and Gatwick or to the flying boat terminal at Southampton, some seventy miles away.

Imagine then such a terminal located at the intersection of



the M25 with the high speed Cross-Rail and Eurostar cross channel trains, which would then also link via HS2 and the motorways to the Midlands and the North.

An airport terminal there would be both a genuine London terminal and serve the continent too. The connection between the terminal and the aircraft would then be much like that at Stansted today, that is with shuttle-trains out to the departure lounges. The only difference is that the departure lounges would be fifty five miles away. However, at the speed of the Eurostar (185 mph) this would take just forty minutes or so; at the speed of the Shanghai Maglev (267 mph) it might take twenty five minutes and with Elon Musk's Hyperloop (760 mph) it could take around nine minutes. Considering that it can currently take twenty minutes to walk to a departure gate at Heathrow or Gatwick, such times would transform airport design.



Moreover given that if we adopted the same criteria for the transport system as for the runway location, that time is ultimately the most costly factor, then to avoid acrimonious and very expensive public enquiries and delays, we should just bite the bullet and tunnel as much as possible, the whole length if needs be. After all we already have abundant expertise with Crossrail and the Channel Tunnel but there are other huge tunnelling operations in progress now too such as the Thames Tideway Tunnel (sixteen miles long) and the extraordinary Thames Water Ring Main which upon completion in 2025 will itself be fifty miles long.

And let's not forget that London initiated the very concept of the 'tube'. The London Underground has over one hundred and twelve miles of tunnels under the capital already. This new 'tube' is just the twenty-first century's extension of the same system.

As for the pragmatics of the proposal let's assume that it be phased and that in broad outline the first phase will include the construction of a small passenger terminal on the sands which will later become a transit terminal plus an undersea road link from the mainland. This would help to relieve the immediate pressure to expand Heathrow.

The second phase would include the construction of the



London terminal and the high speed transit tunnels to the runways. At this point Heathrow and Gatwick could begin downsizing and at the end of the third phase, which would see the second island built and four runways come into play, Gatwick could revert to being a primary cargo hub and Heathrow and City airports could at last come out of service. It has been calculated that the value of Heathrow as a development site could be in excess of £ 3.5 billion and maybe City Airport would realise £1.0 billion – certainly enough to get things moving - and we would then have a new air and spaceport designed for the 21st century to serve the whole of Northwestern Europe.

Imagine what a transformational effect that would have on the capital. The everyday noise and pollution would vastly decrease; the parks and open spaces would regain their tranquility; buildings wouldn't be constrained in height by flight paths; the east side of the city would receive a massive boost in investment; and the Heathrow and City Airport sites together with a vast swathe of land around them, would provide hugely desirable and much needed new residential and commercial developments.

The question is, are we up to such a challenge or are we destined to endlessly carp and cavil and for ever patch and darn the threadbare structure that is the London Heathrow and City air travel experience? ■

