Should We All Wear Nappies?

With sales of adult nappies growing year on year, futurist *Natalie D Kane* contemplates whether the diaper is a utopian or dystopian prospect.

Broach the subject of the adult nappy and it usually ends in a punchline. To mask our discomfort with the topic, manufacturers and marketers use language to deflect attention from the product's purposeand infantile associations; they entice seniors to purchase nappies by using names such as 'protective underwear' and 'comfort solutions'. When equipping their operatives for missions that don't allow time for toilet breaks, the military-industrial complex swaps the mass-market's cosy platitudes for the rhetoric of efficiency. Heroes don't wear diapers: each Nasa astronaut leaves earth's orbit proudly sporting a 'Maximum Absorbency Garment'. Other products such as the 'Wellness Brief' bridge both worlds, boasting Nasa-inspired 'InconTek' technology to appeal to seniors who want the cutting edge.

Such semantic sleights of hand, and the anxieties they reveal, are significant in an age where going on-the-go is increasingly common. According to Euromonitor International, the nappy market for infants in the US is expected to increase only 2.6 percent by 2020. In the same time, the forecaster predicts a 48 percent increase in the sale of adult nappies – from US$1.8 billionlast yearto US$2.7 billion. The expansion of this industry is due to longer lifespans in many developed nations; the median age for Japan's population, for instance, is set to reach at least 53 by 2020. As a result, the country's adult diaper market is growing by six to ten percent each year. It is currently a 140 billion yen industry.

For nappy brands, the elderly are an attractive target group. They combine ample disposable income with myriad care needs. The trick lies in how to reposition a product many find shameful so that it carries no stigma. This seemed to be the agenda of Tokyo's Aging Lifestyle Research Center, which, in 2008, held a fashion show to raise awareness of adult nappies. Models, dressed in black – to contrast with their white nappies – strutted the catwalk to the strains of the song *Relax* by Frankie Goes to Hollywood. The demonstration included a variety of nappy types, from those designed for the bedridden, to a lighter, more discrete, everyday version, signalling their potential for a range of ages. 'Diapers are something that people don't want to look at,' said the centre's Kiyoko Hamada. 'But if you make them attractive, then people can learn about them more easily.'

Making diapers desirable requires a certain level of design intervention, however, not just a change of context. This is a view shared by London-based graduate designer Stephanie Monty, who transformed a colostomy bag into an ornate prosthesis that can be worn on 'intimate occasions'. The prototype is intended to complement lingerie and the silicone can be colour-matched to the wearer's skin. 'There are over 250,000 ostomates in the UK alone and despite a wide range of highly advanced appliances, issues with their functionality and especially their aesthetics merely compound the social stigma surrounding this subject,' Monty explained.

Indeed most nappies are extremely rudimentary single-use garments that rely on absorbent materials to collect and hold waste. They are often uncomfortable, have a tendency to leak and smell, and can cause a range of skin problems. Absorbency and fastenings have improved, but the nappy still leaves people standing in a bag of their own excrement. Even Nasa's nappies rely on this basic principle; they might be able to put a man on the moon, but

they have yet to work out how to let him defecate with dignity. With the variety of prostheses available on the high street to augment consumers' other physical and mental capacities, it is remarkable that this most primordial function – defecation – has been overlooked.

There are some exceptions. The Dfree, a Japanese device that sits in your underwear and monitors your bowel movements, tallies well in a market flooded with health and fitness-focused wearables that micromanage many of our bodily functions – from how much protein you have eaten to how far you have walked. Though originally designed for those suffering from bowel disorders, it's not hard to envisage the Dfree being adopted by those who want to maximise their efficiency and rigorously plan their bowel movements. There's also Muscle Corps's 'Robohelper Love', again intended for Japan's ageing population, which automatically removes waste while the user is asleep, taking a burden off carers and enabling the wearer to wake up clean. The device fastens between the legs and features a sensor attached to a suction mechanism that 'flushes' into a storage tank when it detects waste. The system then self-cleans.

If refined a little further, such advances in design may help to shift the perception of adult nappies beyond merely addressing the inadequacies of ageing or broken bodies. We could reimagine the nappy as a product which enhances human capability by enabling our independence from the bathroom, as much a drain on time as it is for waste. Could we, in fact, view the nappy as a component of an exciting, utopian ideal, whereby the restrictions placed on us by our body's dependence on grounded, immovable infrastructure are removed?

Considering the nappy as a form of personal infrastructure helps contextualise it in a lineage of radical mid-century architecture. For architects such as London-based Archigram, Austrian group Haus-Rucker-Co and Viennese architect Hans Hollein, personal mobile systems rather than inert monuments were essential to humanity's emancipation. The key to technological progress, these groups wrote, was to move. This culture of itinerancy, removing the anchor of 'place', was a reaction to the bombarded, broken cities after World War Two, and a step towards a new kind of workforce which moved where and when it was needed.

Archigram's Warren Chalk envisioned a technological society where 'people will play an active role in determining their own environment, in a self-determining way of life.' The group's Cushicle, for instance, was a speculative design for a complete environment that could be carried on a citizen's back, providing food, water, heating and entertainment. The inflatable carapace, with its exterior skin and interior matrix of plugs, power cables and apertures, clearly referenced biological structures. But this bodily metaphor stopped short of the anus. As with other mobile architecture propositions of the era, issues of waste management were largely ignored. Archigram's greatest champion, the architecture critic Reyner Banham, hinted at this last unavoidable link to the grid with his own mobile living unit, the 'Transportable Standard-of-Living Package'. A free-floating membrane, it allowed inhabitants to roam free and came complete with all the technical affordances one could wish for, that is, except for a connection to a 'brick-built bathroom unit'.

To a certain extent, the visions of those radical architects have been realised. Advances in communication technologies and decreases in the cost of international travel mean that, except for legal restrictions, we can live and work almost anywhere on the planet. Art

collective Åyr's contribution to the British Pavilion at the 2016 Venice Architecture Biennale clearly shared the same preoccupation. Titled *Home is Where the Wifi* is, the installation comprised two inflatable balls: portable shelters from which owners could conduct their digital lives. Much of Archigram's assistive technologies have been shrunk into the six inches of glass and metal most now carry in their pockets. What still remains conspicuously absent in these imaginings, however, is the toilet. Were architects to turn their attention to defecation they might find the missing piece of the puzzle.

But is this really what we want? Our era of unprecedented mobility has actually created conditions in which the nappy facilitates stasis and uninterrupted concentration. Recently, Amazon's 'recommendation' algorithm threw up a link between two disparate products: adult nappies and video game Call of Duty appeared as 'frequently bought together', revealing the obsessive practices of the video game player, trading off toilet trips for a potential advantage in online multiplayer competitions. The use of adult diapers was also uncovered in Shosh Shlam and Hilla Medalia's documentary *China's Web Junkies*: 'Some kids are so hooked on games they think going to the bathroom will affect their performance. So they wear a diaper,' says a doctor working at one of the internet-addiction treatment centres that are the film's focus. 'The teenagers we have here crave and look forward to playing games online every day. That's why we call it electronic heroin.'

As these examples show, nappies fuel obsessive impulses, enabling people to override the metabolic demands of the human body. In 2007 astronaut Lisa Nowak drove nearly 1,000 miles from Houston to Orlando airport – allegedly wearing a nappy so she wouldn't have to stop – to attack a love rival. And in the realm of government, senators, determined to push a motion forward will filibust – obstruct legislation – by talking at great length. How they do so has been the cause of much speculation. Senator Wendy Davis was thought to manage her eleven-hour stance against Texan abortion laws with the aid of a discretely fitted catheter, while Connecticut Senator Christopher Murphy was rumoured to use adult diapers during his fifteen-hour push for gun-law change.

Nappies aid feats of endurance. But serious problems arise when pressure not to take a toilet break comes from above. Earlier this year, Oxfam released a report exposing the abhorrent conditions suffered by poultry workers at North Carolina's Tyson Foods factory, where the reported 'culture of fear' meant employees were forced to wear Pampers because they were afraid to ask permission for a toilet break. 'Nearly everyone has stories of workers peeing on the line,' the report stated. 'Still others make the choice to wear diapers to work. Others report that they stop drinking water and become dehydrated.' In a country where laws exist to protect employees from such treatment, taking full advantage of those rights in this particular case might come at the cost of one's job. Elsewhere, employers have made nappies mandatory to ensure efficiency on the job. The Metropolitan Manila Development Authority insists that its traffic enforcers wear diapers, following the lead of Buckingham Palace guards, Nato soldiers and the US Army.

When individual employers are involved, it's obvious who is responsible. But how do you deal with paradigmatic shifts in the national economy of the world's most populous nation? China's mass rural-to-urban migration has created disparate family units that often live thousands of miles apart. On Lunar New Year, up to two billion Chinese migrant workers will make the pilgrimage home to celebrate with their families, leaving densely populated cities for outer regions. The transport infrastructure simply can't cope with the demand: trains become dangerously overcrowded, filled to over two hundred percent capacity, and passengers are forced to wear adult diapers to account for the lack of adequate waste management on board, contributing to a fifty percent rise in nappy sales.

But it's not all bad. An unexpected outcome of the boom in Japanese sales of adult diapers is the secondary infrastructure that has appeared. Instead of contributing to landfill, fuel is now generated from the shredded remains of the nappy, turning it into bacteria-free pellets for use in stoves and biomass boilers, with a hospital in Tokyo carrying out the first trial.

Construction materials are also derived from this by-product by companies such as Total Care Systems, which turn the nappy waste collected from hospitals, homes and care facilities into plastics and pulp.

It's easy to imagine China implementing a waste disposal system similar to Japan's in order to deal with the huge amount of waste generated as desperate passengers make this journey home. Rather than dealing with the cause of the problem directly, one can foresee a secondary, potentially profitable, industry emerging. As is often the case, the market intervenes not to correct a problem, but to exploit it.

Most of these examples point to a fundamental failing in the way things have been done at a macro level. Rather than beating the system, and realising the dreams of the avant-garde architects, we have instead become enmeshed in broken systems. How do we react? We adapt our behaviour accordingly and take on the cost of failed infrastructure ourselves. Should we really all wear nappies?

This essay inspired *On-the-Go*, an exhibition curated by *Dirty Furniture* at the London Design Festival 2016.