

NOT SO CLEVER

How Termites Outsmart Humans

I confess that once in the distant past, seated in air-conditioned comfort at 30,000 feet, sipping a glass of chilled wine, served by willing minions, it crossed my mind that ancient emperors, for all their power, had never savoured such delights. The humblest modern holidaymaker is like an ancient god, gazing down at distant clouds, sapphire oceans and passing continents where myriads of unknown creatures live out lives of reassuring anonymity. What worlds we've conquered! Masters of all we survey! Top species on the planet! Well, aren't we?

Well, actually no. Sorry folks but we don't even compare favourably with *termites*. For did you know that these tiny prehistoric insects build vast self-governing city states with populations larger than our modern capitals? Did you know that, though they live in deserts where it bakes at midday and freezes at midnight, their cities are models of intelligent green architecture that maintain a constant temperature of 20° C and perfect humidity for their millions of inhabitants all year round *without harm to their local environment*? Compared with 99% of human architecture, termite mounds are green masterpieces - the equivalent of mile-high skyscraper cities that use the laws of physics and an intricate systems of vents and flues - all built of mud and straw - to provide constant comfort for their vast populations. These tiny insect master-builders face similar logistical problems to us: millions of mouths to feed, mountains of waste to dispose of, growing populations to house, thousands of young to be cared for. Unlike us, they solve all these problems with no input of energy and no harm whatever to their environment. If we could only forget our 'masters-of-the-universe' arrogance, maybe we could learn from them.

For, compared with theirs our cities are ecological disaster zones. After millenia of human civilisation and centuries of industrial technology the best our engineers and architects have come up with is *air-conditioning*. So they design sealed-boxes to exclude air and daylight, then use precious resources heating, cooling, lighting and ventilating them. And, as all human citizens know, the resulting noise and pollution of such primitive technology blights our lives 24 hours a day.

Unlike termites, our engineers apparently don't understand how to use natural air flow while most of our architects boast about their stylish designs of sealed, concrete, steel and glass boxes but disregard their need for a constant input of environmentally-unfriendly energy to keep them functioning. They also seem indifferent to the noisome, air-conditioning plant they stick on top. This is not only bad news for their neighbours but also for their inhabitants who have to endure the resulting stress, headaches, RSI and other symptoms. The final insult is the vast tangle of hidden ducts that provide perfect breeding grounds for bacteria, germs and viruses such as Legionnaires' Disease. (Or is the final insult that they pump their infected air out into the street where no passing citizen can avoid breathing it?)

Is it that our designers *won't* design buildings using the physics of air movement to ventilate them or that they *can't*? For they did know how to do it once. The building where I live was constructed early last century and is a masterpiece of thoughtful design. Vertical ventilation is provided through a stairwell by louvres in a roof-light at the top, so air flows continuously in from the street door at ground level up the stairwell and out through the roof-

light. In addition, air pressure always varies from one side of a building to the other, so horizontal air-flows are accomplished by opening windows at the front and/or back as needed. Result: we're warm in winter, cool in summer and all our rooms are easy to ventilate whatever the external weather conditions by simply opening and closing windows.

On the other side of my street is a building of the same age which until recently used the same techniques. But a year or so ago it changed hands and its new owners' had the roof lights removed and the internal layout redesigned to seal the front from the back. Result: the new residents find their homes unbearably hot in summer and stuffy in winter. So, guess what! The new owners have applied to install air-conditioning... but then, as I've already said, we're not as clever as termites.

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