

# The 'sick building syndrome'

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by David Pearson

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But the symptoms are also thought to derive from factors such as fluorescent lighting, air that is too hot or dry, a build-up of positive ions, and a lack of individual control of the environment. This problem has been defined as environmental and is known as the 'sick building syndrome'.

Increasingly, Western medicine is having to relate illness not to viruses and microbes but to environmental phenomena. These can be chemical (organic and inorganic substances); biological (bacteria, moulds, dust, and pollen); and physical (electromagnetic, light, temperature, and noise).

With the massive increase of toxic chemicals in the environment, 'chemical sensitivity' has become a major concern of environmental medicine (or clinical ecology). It is defined as an adverse reaction to toxic chemicals at levels generally considered not to be harmful in the environment.

Sensitivity will depend on such factors as the types and concentrations of chemicals, the parts of the body involved, and the susceptibility of the individual. A chemically sensitive person may experience a gradual increase in vulnerability, so that much smaller quantities of chemicals and exposures trigger a reaction. A spreading effect can also result whereby toxic chemicals, other than the original sensitiser, can cause reactions.

There are four principal mechanisms that tend to influence health when chemical sensitivity occurs. These are described by numerous specialists, notably the American consultant Dr William J Rea and British allergy physician Dr Jean Munro.

**Total load** Each person has an individual threshold to the load of contaminants he or she can bear. This threshold is variable and can be

lowered by stress, infections, lack of sleep, and poor exercise.

**Adaption** A person will often have a physiological response to a contaminant but become so used to it as to no longer be aware of it. This adaption, or 'masking', will continue with repeated exposures as the body strains to adjust. Eventually, an exhaustion phase is reached and disease may result.

**Bipolarity** The body's natural response to a contaminant is to activate its defensive immune and non-immune (enzyme) systems. First, the metabolic rate increases in an attempt to eject the pollutant. Next, after prolonged periods, comes the depressive stage when the response systems can no longer cope. This 'high-low', or bipolar response over many years will deplete the immune system's essential nutrients and illness will follow.

## Biochemical individuality

Everybody's immune system is different, hence individual susceptibilities vary. There are known to be over 1500 inborn metabolic defects and these will affect the body's defensive capacities.

## How to respond

Faced with this complex and worrying situation that so many of us find ourselves in, how should we react? There are three main schools of thought.

**Trust the system** This says that all we can do is trust the professionals, scientists, companies and government to see that safe limits and controls are placed on anything harmful to us or to our environment.

**Total avoidance** This approach says that there are so many unknowns, possibilities for error, misjudgements, professional and corporate vested interests, and lack of any real control that it is best to avoid all new synthetic chemicals and materials. This may be the approach that chemically sensitive and allergic people will have to take anyway.

**Lessen the load** This says that it is not realistic for most people to avoid totally all synthetic chemicals. Instead, you should try to avoid them as much as possible and to reduce the load on yourself and the environment by using safe, natural alternatives whenever practicable.



✓ Dave

and

Dept Council

Spall

Swick

Brookline

+ 'Broadhead'



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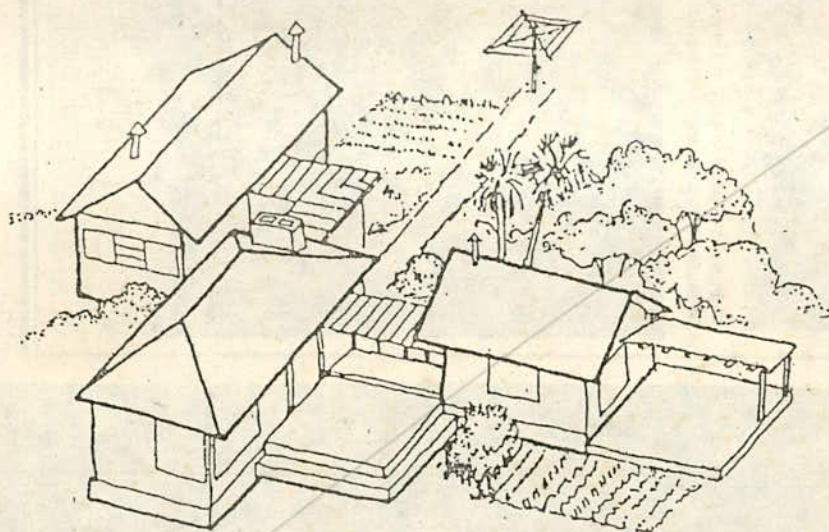
not be seen as one that can simply be confined to the archaeological record. For the same reason we would find it an anathema to use the "Scientific" zone to protect land for ritual or cultural use by contemporary Aborigines. We recommend the use of the Habitat 7(k) Zone for this purpose.

5.1 We note and support Commissioner Simpson's recommendation that a Scientific Zone be included in the Byron DLEP.

5.2 We see this zone as having the following characteristics:

- a. being for a specific scientific purpose;
- b. relating to high environmental value;
- c. likely to be small in size;
- d. likely to be few in number;
- e. likely to be required permanently or for a long time.

6. The provisions in this zone are based on the FERN "Draft Land Use Tables".



Expanded House

## ENVIRONMENTAL PROTECTION 7(k) - HABITAT

### (i) Objectives of Zone

The objectives of this zone are:-

- (a) to identify and protect significant vegetation and wildlife habitats for conservation purposes and, to enhance the visual quality of the landscape;
- (b) to prohibit development within the zone that is likely to have a detrimental effect on the wildlife habitats which exist;
- (c) to enable the carrying out of development which would not have a significant detrimental effect on the wildlife habitats;
- (d) to identify and protect sites of significance to contemporary Aborigines and to prohibit development within the zone that is likely to have a detrimental effect on the significance of the sites;
- (e) to enable the carrying out of development which would not have a major detrimental effect on the significance of such land to Aborigines.

### (ii) Without Consent:-

Nil

### (iii) Only with Consent:-

Agriculture (other than intensive animal husbandry and clearing of land); camping grounds; bushfire hazard reduction; home industries; open space; roads; utility installations (other than gas holders and high tension transmission towers); environmental facilities; activities or development by Aborigines ancillary to Aboriginal cultural practice.

### (iv) Prohibited:-

Any purpose other than a purpose specified in item (iii).

### REASONS and COMMENTS.....

1. A need is seen to provide "environmental protection" for; forest remnants (rainforest, seed-bank tree stands, etc.); flora and wildlife corridors, flora/fauna enclaves and the like. See also "Protection of Important Forest Remnants" in the RS p.89. (It is assumed that road verges, gullies and the like, will be controlled under a DCP).

2.1 A need is also seen to be able to protect places of cultural significance for contemporary Aborigines. Where such places are still part of local Aboriginal culture we propose that the Habitat Zone be used for this purpose. (For further comment in this regard see the 7(j) Scientific Zone above).



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## INDOOR AIR POLLUTION

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Modern homes are designed to be energy efficient, especially in colder climates. Gone are the chimneys, flues and vents that let a house *breathe*. This means pollutants in contemporary houses can reach high concentrations.

Tobacco smoke and combustion gases from unvented cookers and heaters can build up. Materials such as urea formaldehyde insulation, particle board, and carpet glues can also give off unhealthy fumes.

Our cupboards, too, contain an array of powders, sprays, solvents and waxes for cleaning, demoulding and polishing, sanitizing, decorating and de-infesting. These are the causes of domestic pollution which can damage your health.

### WHAT ARE THE TELL-TALE SIGNS?

They may include itchiness, red eyes, headaches, tiredness, dizziness and rashes, an increased incidence of viral infections, sore throats, runny noses and coughs. If they are intermittent or occur over a long time they can be passed off as normal or due to other causes.

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**VIM: VENTILATION - INSTRUCTIONS - MONITORING.**

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- Open a window just a bit, even in winter.
- Give bedding and movable furnishings a regular airing or *Spring cleaning*.
- If you must use chemicals indoors, particularly caustic or chlorine-based cleaning agents, be sure there is a source of fresh air.
- Keep exhaust fans and air conditioners clean so that bacteria, gases and particles are not recirculated.

### INSTRUCTIONS

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**MONITOR** your house and state of health.

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**Combustion heaters**, gas stoves, fires and even heated cooking oils may give off carbon monoxide and other harmful gases. These can be just as deadly in a sealed house as in a sealed garage. Well-maintained flues and chimneys are the solution. Never burn plastics; they release poisonous fumes.

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If you are scraping or grinding paint off the walls of an older house, wear a face mask, as the paint may be lead-based.

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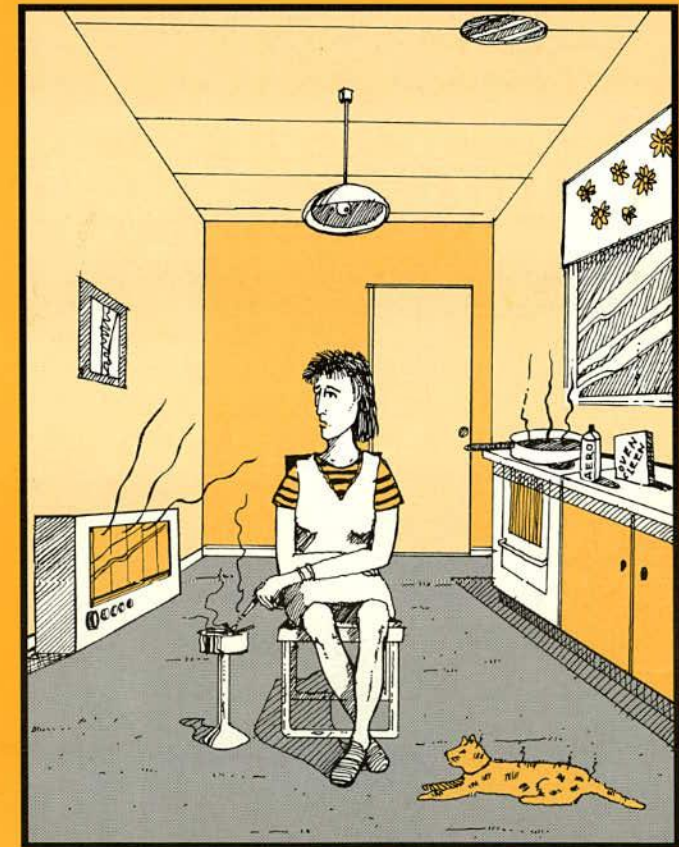
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Dirt

Have ✓

Answer ✓

Denise ✓

Pete Hamilton  
Please return



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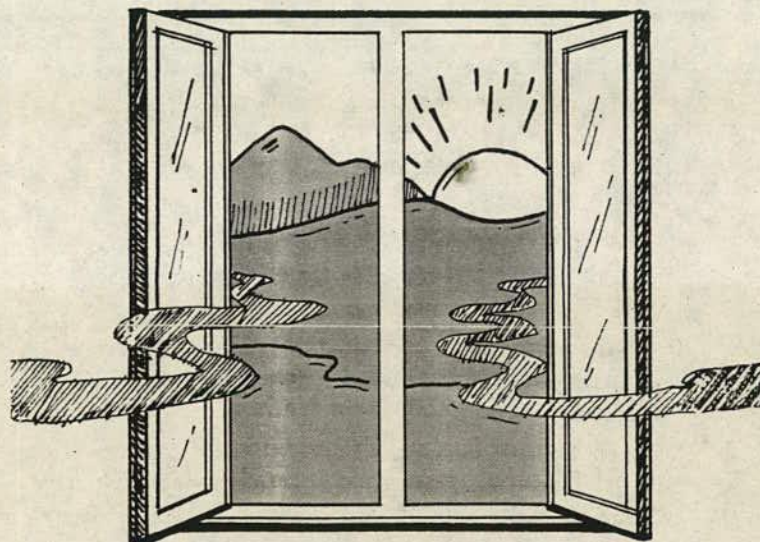
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## Could your work be driving you mad?

American researchers are linking a frightening variety of psychological disorders to the working environment. MARK RAGG reports

FROM apathy to psychosis, from depression to mania, from insomnia to narcolepsy, from aggressiveness to withdrawal, from hyperexcitability to catatonia ... it exhibits the full range of behavioural and psychiatric problems.

Loss of libido, uncontrollable laughter, uncontrollable crying, hallucinations, dementia, bizarre behaviour ... it goes on.

It is not the character outline for Jack Nicholson's next movie. It is a list from a scholarly text to be published next year called "Chemicals affecting behaviour" which describes, soberly and rationally, the effects of a wide range of chemicals found in the workplace.

The book, to be published by the US National Institute for Occupational Safety and Health, lists 748 dangerous chemicals which affect our psyche. And put simply, it suggests our work can drive us mad.

As long ago as 1700 physicians could describe the effects of exposure to heavy metals such as mercury, and Lewis Carroll's Mad Hatter in Alice in Wonderland (1865) appeared on the literary scene only five years after the damaging effects of mercury were described in New Jersey hatters. Incidentally, hatters tended to shake, salivate and blush easily — they were rarely mad. Madness was more common in other industries.

But why should we wait until our minds have become so poisoned that rationality is lost? Why do we not try to detect early warning signs? The answer is that we are starting to — slowly.

The range of chemical effects on our nervous systems is enormous. They include tremors, pins and needles, numbness, anxiety, and slowed reflexes through to memory loss, poor co-ordination and irrational behaviour. More severe cases of chronic poisoning have resulted in florid psychiatric illnesses, as described above, and even death.

But we really don't know too much about it in Australia. One person working in the field is the National Institute of Occupational Health and

Safety's senior lecturer in psychology, Dr Ann Williamson.

"People in the United States are a lot more interested," she says.

"I recently went to a conference at Little Rock, and there were 150 to 200 people there. If we had a similar conference in Australia, well, I'd be pretty lonely."

Why is so little known? She says nervous system toxins are typically associated with other problems: for example, lead causes kidney damage, which is easily measurable. So doctors tend to ignore the vague symptoms — the dizziness, the numbness and tingling, the headaches, the lethargy — for the ones that can be picked up with a blood test.

Another reason may be the attitude of regulatory authorities. The US Environmental Protection Agency subjects many new products to neurobehavioural testing. The idea is that subtle psychological and physical tests of memory, co-ordination, personality, and reflexes can detect early damage to the nervous system, and consequently our psyche. In Australia, governments do little such testing.

A further reason is that it is so difficult to tease out direct causes from a mass of unknowns.

A lead smelter complains of headaches, tiredness and memory loss. Is he or she bored after a decade in a repetitive job? Suffering from too much alcohol? Being slowly poisoned by lead? Is there an unfortunate, but entirely coincidental brain tumour? Or hypertension? Is ventilation inadequate? Is a marriage slowly dissolving? Does the person have underlying psychological or psychiatric problems that are easier to blame on work? It is so hard to tell.

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● **SUDDENLY** Mrs X couldn't sleep or eat. She was feeling guilty about nothing and everything. She paced the floor, wringing her hands endlessly. She was convinced there was something destructive inside her body. Her psychiatrist concluded she was suffering a major depression induced by biochemical changes in the brain, and started her on antidepressants.

Most people, if they had previously been well like Mrs X, get better on antidepressants. But Mrs X did not. After three months and a change in medication, she started to talk about suicide. Mrs X was sent to hospital and had electro-convulsive therapy, but there was no improvement. For months it went on — she was still depressed.

One day Mrs X was talking about her anger and complained about her husband, who was constantly renovating the house. For a long time he had spent an hour every evening blistering paint with a blowtorch. The mess and the smell were there all day and, she said, they were driving her mad.

She was right. The psychiatrist checked her blood and found very high levels of lead. After several months without lead and some drugs to remove it from her bloodstream, she recovered.

● **MR Y** had been a happy, healthy, newly married young man. Three years later his wife had thrown him out because of his strange behaviour. He was now near catatonic in his mother's house. He sat staring with a wide-eyed look. His few words were meaningless. He had threatened and hit his mother, and slept with a knife under his mattress.

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The psychiatrist was reminded of a similar young man who had been a glue sniffer. He rang the ill man's wife and she denied any substance abuse. But it came out in the conversation that he had worked for two years as a mixer in a factory which made lacquers. She knew of two other men from the factory who "went mental".

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Mrs Z had worked for five years as a dishwasher for a company that prepared in-flight aeroplane meals. The psychiatrist found that three other workers experienced similar symptoms, mainly the memory loss.

Investigations (against the company's wishes) revealed the presence of neurotoxic pesticides. When these combined with chemicals used to clean the dishwashing equipment, they produced carbon disulphide. "Carbon disulphide insanity", as these workers were thought to have, has also been recognised in rubber workers. Recovery, if at all, is slow.

Source: *Social Science & Medicine*, 1989, 29:9:1077-1082

carrying out mercury-based finger-printing, turning from hardened crime-chasers to embarrassed bumbles.

After heavy metals, the other main group is the solvents, which are found throughout petroleum and plastics industries, in homes as cleaning products, in dry cleaners and laboratories. Paint and pesticide manufacturers, degreasers and liquid papers all use solvents.

"We're talking about an insidious group of chemicals that people use indiscriminately," Dr Williamson says. Long-term effects include memory loss, poor hand-eye coordination and slowed reac-

tion times. A senior toxicologist at the institute, Dr Chris Winder, says 10 per cent of Australia's workers — 700,000 people — are exposed to solvents regularly.

The occupational health centre of British Petroleum carried out a thorough review of problems caused by organic solvents. It grouped them this way:

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● Solvents that have been suspected of causing chronic neurophysiological and psychological disorders — trichloroethylene, toluene, styrene, white spirit, jet fuel, methyl-

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Of course, this was recognised by the employees. The owner of one late 19th century India rubber works was so concerned that he put bars on the windows to stop workers throwing themselves out in fits of madness.

And this century, US viscose-rayon workers were found to commit suicide at two or three times the national average rate, with carbon disulphide being blamed. It should no longer be used, but the other chemicals are in widespread use, often with little knowledge of their ill-effects.

The institute is so concerned about solvents that it has decided to study 200 apprentice spray painters over three years. They will be tested regularly for changes in mood, behaviour, co-ordination, memory and reflexes, as well as any damage to the skin, lungs, liver and kidneys. The institute hopes to find nothing, but will not be surprised if damage appears.

"In the main we're talking about chronic and insidious effects which can affect individuals in much the same way as alcohol does — poor co-ordination and concentration, slowed reflexes etcetera," Dr Williamson says, noting that if these are not considered health problems then at least they should be considered safety risks for employees.

"At high levels, all of these substances will produce psychiatric symptoms."

"Once they've occurred, you've lost out — it's too late."

"What we're hoping to do by looking at the behavioural problems that precede psychiatric disturbances is to recognise early signs of damage, to allow for better treatment, and to promote a safer environment to prevent it happening at all."



## Could your work be driving you mad?

American researchers are linking a frightening variety of psychological disorders to the working environment. MARK RAGG reports

FROM apathy to psychosis, from depression to mania, from insomnia to narcolepsy, from aggressiveness to withdrawal, from hyperexcitability to catatonia... it exhibits the full range of behavioural and psychiatric problems.

Loss of libido, uncontrollable laughter, uncontrollable crying, hallucinations, dementia, bizarre behaviour... it goes on.

It is not the character outline for Jack Nicholson's next movie. It is a list from a scholarly text to be published next year called "Chemicals affecting behaviour" which describes, soberly and rationally, the effects of a wide range of chemicals found in the workplace.

The book, to be published by the US National Institute for Occupational Safety and Health, lists 748 dangerous chemicals which affect our psyche. And put simply, it suggests our work can drive us mad.

As long ago as 1700 physicians could describe the effects of exposure to heavy metals such as mercury, and Lewis Carroll's Mad Hatter in Alice in Wonderland (1865) appeared on the literary scene only five years after the damaging effects of mercury were described in New Jersey hatters. Incidentally, hatters tended to shake, salivate and blush easily — they were rarely mad. Madness was more common in other industries.

But why should we wait until our minds have become so poisoned that rationality is lost? Why do we not try to detect early warning signs? The answer is that we are starting to — slowly.

The range of chemical effects on our nervous systems is enormous. They include tremors, pins and needles, numbness, anxiety, and slowed reflexes through to memory loss, poor co-ordination and irrational behaviour. More severe cases of chronic poisoning have resulted in florid psychiatric illnesses, as described above, and even death.

But we really don't know too much about it in Australia. One person working in the field is the National Institute of Occupational Health and

Safety's senior lecturer in psychology, Dr Ann Williamson.

"People in the United States are a lot more interested," she says.

"I recently went to a conference at Little Rock, and there were 150 to 200 people there. If we had a similar conference in Australia, well, I'd be pretty lonely."

Why is so little known? She says nervous system toxins are typically associated with other problems: for example, lead causes kidney damage, which is easily measurable. So doctors tend to ignore the vague symptoms — the dizziness, the numbness and tingling, the headaches, the lethargy — for the ones that can be picked up with a blood test.

Another reason may be the attitude of regulatory authorities. The US Environmental Protection Agency subjects many new products to neuro-behavioural testing. The idea is that subtle psychological and physical tests of memory, co-ordination, personality, and reflexes can detect early damage to the nervous system, and consequently our psyche. In Australia, governments do little such testing.

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