Editorial

A professional duty to inform

A recent editorial entitled "Chemical pollution, verbal pollution, and paratoxicology" in this journal,¹ drew attention to the problems caused by "paratoxicologists" and related these problems to the apparent public affection for bad news. It may be that to some extent the fault lies with doctors and scientists who have built up excessive expectations about the benefits that can flow from their skills. A generation has grown up who expect perfect health and earthly immortality as of right and suspect that there is some external, clearly definable explanation for any state of affairs short of such a biological Utopia.

The paradox is that we are scientifically better informed on the causes and effects of environmental pollution in its broader sense than ever before; we have research tools in toxicology and its related sciences of far greater specificity and power than were dreamed of only a generation ago. We also have as the means of communication with our fellows, systems and methods of much greater penetration and accessibility than were available to our forefathers. If the knowledge is there and the means of communication are there why are we failing to promote and to get accepted a balanced view of the risks and benefits of industrial and every day life? Why is there something of an antitechnology backlash? Why is the public perception of risk so different from the scientific measurement of risk?

No matter how often it is pointed out that the risk of living near a dam is much greater than the risk of living near a nuclear power station, or that travelling by motor car on the road is really rather a dangerous activity, it cannot be denied that the general public does not see things that way and that, even after 20 or 30 years of explanation, is even less inclined to do so.

It is neither sensible nor helpful to dismiss public over-reaction as illogical or irrational. Since the Royal Society Study Group published its important report on risk,² much has been said and written about public perceptions and what influences them. Aspects such as "guilt by association" in the case of nuclear power (association with Hiroshima and Nagasaki) or dioxin (associated with defoliation in Vietnam) are obvious sources of bias; perhaps also our own attitudes and our presentation of our findings has an

important place. This is obviously true of that irresponsible group of pseudo-scientific scaremongers, who include among them those described as paratoxicologists in these pages; it is also true of publicity seeking media people whose self esteem outweighs their scientific integrity or whose basic innumeracy conceals from them the relevance of much of what they discuss. It may also be true much more widely and perhaps more seriously among almost all of us who are frequently guilty of semantic slackness in publishing our results or whose desire to emphasise the significance of these results produces an emphasis on positive findings and a suppression of the less exciting negative ones.

A recent article in the *Archives of Environmental Health*³ gave a good and fair review of the reports on exposure to electromagnetic fields and the risk of leukaemia, but the last sentence of the abstract was perhaps significant. It read "Further epidemiological research is needed to establish an association between exposure to electromagnetic fields and the risk of leukaemia." What the sentence obviously means is "to establish whether there is an association . . ." but that is not what it says. There lies behind this whole attitude an assumption that if only we go on digging we shall eventually find some causal relation to satisfy our intellectual curiosity. There seems to be no mileage in publishing negative epidemiology and there is the enormous difficulty that you can never actually prove the negative. We are therefore left with the situation in which possible positives reach the press, scientific or other, but failed attempts to establish correlation do not. The whole problem is made even more complex by using words which the public thinks it understands in a specific sense. The classic example of this has to be the word "significant."

It is easier to describe the problem than to point to the solution. The minute you accept that exposure to some agent may carry some effect down to very low exposures indeed or that there may be no threshold at all, you obviously have to accept that you cannot give blanket answers of total safety. When you reach that point you are faced with the enormous difficulty of producing answers which are essentially statistical probabilities for a waiting public that does not think

or understand in that way. At the National Radiological Protection Board we have been swamped with anxieties expressed by the public about the possible effects of either the consequences of the Chernobyl accident itself or of other exposures to radiation. These have been harrowing and distressing to read because they have not been the outcome of public pressure groups trying to push some political point but have been a genuine concern from people who, as a result of all the public debate, are now in some agony of mind about the possible risks that they or, more importantly, their children may have been exposed to by, for example, simple medical procedures. As an instance, one letter was from a woman who had had a chest x ray examination when pregnant 26 years ago and wanted to know what the chances of early cancer were for her, now, 25 year old son. This was by no means an extreme or isolated example.

One part of the solution lies in the need for a radical change in our approach to many aspects of occupational health.⁴ This change must include organisational rethinking as well as a fundamental modification of professional attitudes that can only come from changes in professional training.⁵ There needs now to be an informed debate on the roles of occupational health professionals of all types and a much better understanding of the place of the law in the establishment and maintenance of high standards of occupational health and safety. The basis for this rethinking exists already in the principles underlying the Health and Safety at Work, etc Act 1974 and is emphasised in some recent forward thinking expressed by the Health and Safety Commission and the Executive.^{6,7} Now that we are, particularly in the health field, dealing with relative risk and the balancing of costs and benefits in whole new fields of technology which require more advanced assessment of potential effects—for instance, of a behavioural and psychological character—nineteenth century rule making principles will not serve. Future development does not lie with more rigid or more precise regulations backed up by an ever increasing number of inspectors. It lies with the development of management techniques that endorse the involvement of a well informed and participating workforce, supported

by well trained specialists in all the various disciplines related to occupational health, safety, and hygiene and in the recognition by all parties concerned of the scientific integrity and independence of these experts. Only in that way can the balanced assessment of risks and benefits and well guided expenditure of resources in the furtherance of health and safety be assured. There is an unhappy tendency, both on the part of employers and on the part of trade unions, and, sadly, also sometimes on the part of occupational health practitioners, to look for simplistic solutions to what is, because of our success in some ways, an increasingly complex problem.

It is conventional wisdom among doctors and scientists to criticise what is loosely called "media distortion" and the production of alarmist reports. My thesis is that the only answer to that lies in long term education and that the process must start with us displaying much greater self discipline and humility in our desire to have our work recognised, either by our peers or by the public. It would be exciting to establish that Duncan's syndrome could be brought on by three cups of coffee administered to subjects with some rare genetic disease with a likelihood of 1 in 10^{-9} but I think it is a privilege I should deny myself.

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References

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- 6 *Control of substances hazardous to health: consultative document*. London: Health and Safety Executive, HMSO, 1984.
- 7 Health and Safety Commission. *Plan of work 1985/86 onwards*. London: HMSO, 1985.