

Only One Chance: How Environmental Pollution Impairs Brain Development—and How to Protect the Brains of the Next Generation

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reviewed by John Duffus

Philippe Grandjean is Professor and Chair of Environmental Medicine at the University of Southern Denmark and Adjunct Professor of Environmental Health in the Department of Environmental Health at Harvard School of Public Health. He has devoted his career to studying how environmental chemicals affect children and their brain development. His studies on mercury contributed significantly to the United Nations agreement to control mercury pollution. Thus, he is uniquely well qualified to write a book calling attention to the many substances in the human environment that can damage the human brain, especially when it is developing in the womb of a pregnant woman who is unaware of the possibility, and may be unknowingly exposed to such substances in the air around her or in the food she eats. Such damage may lead to lower intelligence in the baby affected and to behavioural problems. Even worse, if those in positions of power are affected, such damage may lead to poor decision-making of the kind that leads to terrorism, declarations of war, and even economic collapse. History leads us to suspect that great empires such as the Roman Empire and the Chinese Empire may have collapsed because of brain damage in the ruling classes as a result of lead and mercury

poisoning respectively. Professor Grandjean presents our current understanding of the effects of environmental pollution on brain development and function in the context of the various factors, both scientific and socio-economic, that affect related research, and explains why the results of research may take much time to be accepted as a scientific consensus. Against this background, he discusses the necessity of taking action to prevent possible serious brain damage once it is strongly suspected, but not completely proven, to follow a given substance exposure. By the time (often many years) that it takes to prove cause-effect relationships, many people may have suffered brain damage, and many more may have suffered, and even died, because of faulty judgment or behaviour resulting from the damage. The author finishes his book with a suggested ten-point strategy to tackle the problems he has identified. The last item of this strategy is as follows: “Transparent *procedures and decision rules* (the author’s italics) need to be devised for acquisition of safety information, public information, improved control of chemicals, and monitoring while innovation in safer technology is stimulated.” It is a pity that some precise suggestions for these “*procedures and decision rules*” were not added, as the previous text provides a good basis from which the needed procedures and rules might be developed. This is a book that draws attention to a neglected area of toxicology which is profoundly important for the future of the human species, a species that is uniquely dependent on brain function and now has the ability to completely destroy itself and its habitat in minutes on the whim of a damaged brain. No doubt, some will say this is “scaremongering,” but history shows otherwise.

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