

A chemical conspiracy?

The Fluoride Deception

by Christopher Bryson
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Fluorine chemists are proud of their unique and often unpredictable element. It sits at the top right-hand corner of the periodic table above its domain of conquests — the range of compounds it forms is remarkable, with few elements escaping its extreme reactivity and the strong bonds that it forms. The range of fluorine compounds is extraordinary, from the extremely inert calcium fluoride (the mineral fluor spar) to the highly aggressive hydrogen fluoride. This versatility has been used to great effect in applications as diverse as non-stick cookware (Teflon), high-temperature insulation (sulphur hexafluoride) and many of the most active pharmaceuticals and agricultural chemicals on the market.

Fluorine has also been a key player in several more controversial areas, although fluorine itself is seldom the culprit. It was vital to the Manhattan Project (through the use of uranium hexafluoride for isotope enrichment) and it is the major element in CFCs (chlorofluorocarbons), but it is not responsible for their destructive effects. More recently, the remarkable stability of heavily fluorinated molecules has been shown to be an environmental risk as a result of their persistence in the environment.

The uses of fluorine that have consistently received most attention in the media and from the public are the fluoridation of water and fluoride dental treatments. The arguments have raged for more than forty years, and in *The Fluoride Deception*, Christopher Bryson raises the stakes by reporting a great

IMAGE
UNAVAILABLE
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REASONS

Clear risk: fluoride levels only slightly above those used in tap water could be harmful.

deal of relevant and often alarming research, and by telling a series of human stories.

Bryson gives detailed consideration to the scientific literature on the biological actions of fluorides and the major debates about their use. Some of the findings he has identified are very interesting, such as an article from researchers at the University of York showing that water fluoridation may be responsible for reducing the incidence of cavities by only 15% — a far cry from the much higher figures suggested when the fluoridation campaign was at its peak in the 1960s. A claim in the April 1944 edition of *Time* magazine was that it led to “perfect teeth”. The evidence for the harmful effects of fluoride at only slightly greater concentration than artificial

fluoridation levels is disturbing, especially when so much of the research data have been widely available for many years. Some of this apparently damning evidence was aired at a lecture to the US National Institutes of Health more than 10 years ago.

Bryson also makes several claims about the suppression of antifluoridation evidence, the discouragement of related research (for example, through the withdrawal of federal funds) and, most controversially, that fluoridation was a direct consequence of a group of powerful industries seeking to solve the costly problems they had in dealing with fluoride pollution. The nuclear, aluminium and fertilizer industries (which are large-scale users or producers of fluorine compounds) are subject to Bryson's close scrutiny and criticism. In 1975, the US government estimated that 350,000 people in 92 different occupations were being exposed to fluoride in the workplace. He suggests that the decision to fluoridate the public water supply was made with incomplete test data and was driven by the government as a means of disposing of large quantities of fluoride waste. Bryson's attempt to link industry pressure to the decision to begin fluoridation, from the Manhattan Project onwards, is the most intriguing aspect of his book.

Bryson shows skill as a writer and adds colour to his account with many alarming and well-referenced stories, often focusing on individuals. Unfortunately, his desire to make the book more exciting leads him into the all-too-familiar trap of tarring with the same brush anything associated with, or even sounding like, fluoride or fluoridation. This is especially ironic after he starts the book with “notes on terminology”, saying “fluorine and fluoride should not be confused”. However, in the next section he tells us “the same potent chemical that is used to enrich uranium for nuclear weapons, to prepare sarin nerve gas ... is what we give to our children”. No doubt we can expect a series of books on chlorine (“the same potent chemical used in insecticides is what we put on our children's food”) and oxygen (“the same potent chemical used in the strongest acids is what we allow our children to breathe”).

No chemist would dispute the extreme hazards of many fluorine chemicals, but to group all fluorine chemicals together as “bad” is wrong. The book is peppered with similar absurdities, which will be annoying to those who know their chemistry but dangerously misleading to those who don't. There are other errors of identification and labelling, such as the description of Unilever as one of the “world's most powerful drug companies”, leading to further confusion. These flaws detract from what is otherwise a thought-provoking and worthwhile book. ■

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