

Editors' foreword

The rate of production of research articles and patents dealing with a metal centre known, or supposed or just believed to be related to human life is certainly a reliable indicator of a diffuse perception of its biological relevance (See Zatta's diagrams in Figs. 1–3).

In spite of this apparent interest by the international community for the “biology” of aluminium(III), an awareness of the negative aspects of its biological activity appeared only quite recently in chemistry textbooks such as *Advanced Inorganic Chemistry* [1] and *The Biological Chemistry of the Elements* [2]. We are tempted to attribute this lack of temporal overlap between specialist and diffuse knowledge to the intimate conviction of relevant authors that the evolution of life in a biosphere known to be exceedingly rich in Al^{III} must require that living organisms have developed effective protection mechanisms. Therefore, this intuition-based conviction coupled with the substantial dearth of organized information on the molecular basis of aluminium toxicity, may explain why chemists have ignored some of the negative biological functions of Al^{III} .

However, the reasonable conviction that Nature has developed effective protection mechanisms against attack by Al^{III} on living organisms (... but, how effective are they? [3]) should not discourage efforts aimed at understanding the molecular and

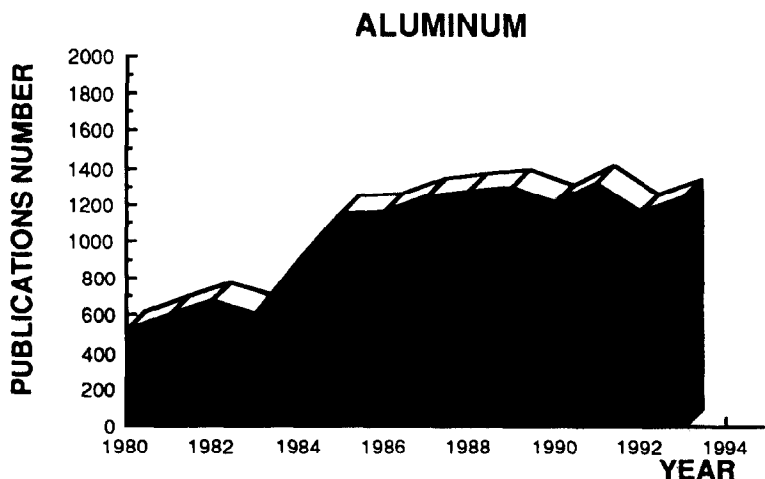


Fig. 1. Data from Biological Abstract with keyword “aluminium”.

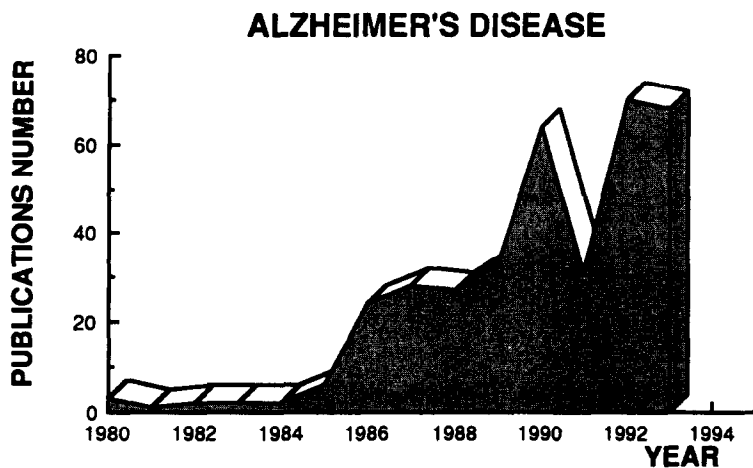


Fig. 2. Data from Medline with keywords aluminium, Alzheimer's Disease.

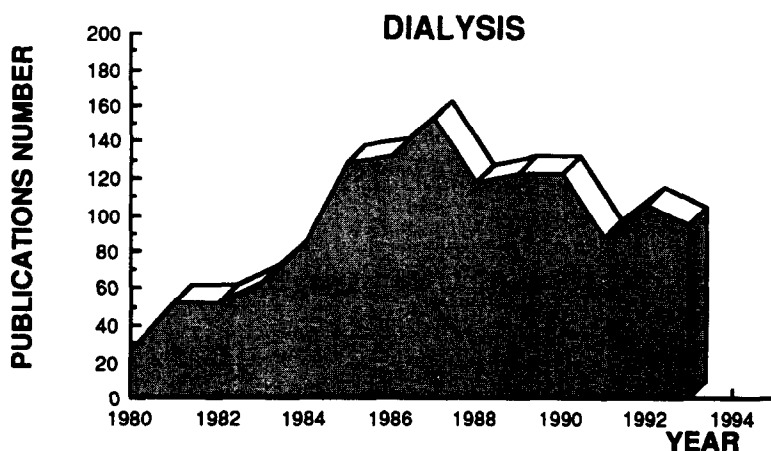


Fig. 3. Data from Medline with keywords aluminium, dialysis.

cellular aspects of the pathogenesis of the Al^{III} -related human pathologies. These remain a social duty and a scientific challenge.

After the publication of so many articles, reviews and books on the mainly medical and biological aspects of " Al^{III} -biochemistry", we hope this issue of *Coordination Chemistry Reviews* will alert the chemical community and will stimulate advanced bio-inorganic research into aluminium biology.

References

- [1] F.A. Cotton and G. Wilkinson, *Advanced Inorganic Chemistry*, fifth edition, 1989, Wiley, Chichester.
- [2] J.J.R. Frausto da Silva and R.J.P. Williams, *The Biological Chemistry of the Elements*, Clarendon Press, Oxford, 1991.
- [3] (a) W.A. Banks, A.J. Kustin and P. Zatta in, *Non-neural Cells in Alzheimer's Disease*, P. Zatta and N. Nicolini (Eds.), 1995, World Sci. Publ., Singapore.
(b) M. Nicolini, P.F. Zatta and B. Corain (Eds.), *Aluminium in Chemistry Biology and Medicine*, Vol. 1, 1991, Cortina International-Raven Press, Verona, New York.
(c) Various authors in *Life Chemistry Reports*, (special issue) 11 (1994).