

TOPICS FOR FUTURE FLUORIDE RESEARCH

The presentation of a Millennium Gold Medal by Professor Miklós Bély of the Hungarian Society for Fluoride Research to Professor Kazusada Yoshitake at the XXIVth ISFR Conference in Otsu, Japan, in September 2001 was but one of a myriad of ways in which the passage of 2000 years was celebrated globally.¹ On a lesser scale, some satisfaction might be found in the announcement, at Otsu, by the Editor of *Fluoride*, Professor Emeritus Albert Burgstahler, that a 20-year Cumulative Index of the research published in *Fluoride* during the years 1983-2002 is planned for the November 2002 issue of *Fluoride*. This will augment the 15-year Cumulative Index published in the October 1982 issue of *Fluoride* for the period 1968-1982. Together the indexes will give easier access to 35 years of research published in *Fluoride*.

The importance of adequate awareness of past research was highlighted recently by Myron Coplan and Roger Masters in their editorial on silicofluorides and fluoridation.² Having electronic access to research data is important, and practical problems involving public safety may arise if it is not present. The ISFR is assisting by making *Fluoride* freely available to researchers on the Internet and by producing Cumulative Indexes. Access would be improved further if *Fluoride* was covered in *Index Medicus* and MedLine.

Also announced at Otsu were the dates for the forthcoming XXVth ISFR conference, which will be held in Dunedin, New Zealand, January 21-24, 2003. Reaching the figure of 25 international conferences will be a notable achievement and reflects the genuine interest of ISFR members in the biological, chemical, ecological, industrial, toxicological, and clinical aspects of inorganic and organic fluoride compounds.

At the Otsu conference, Professor Burgstahler circulated the following list of topics for consideration for further research:

1. Comprehensive studies on the skeletal accumulation of fluoride and its effects in humans in relation to the levels and the form of fluoride intake, dietary components, gender, age, urinary efficiency, and other factors. He considered that at present we are drawing too heavily on inadequate older studies or animal investigations.
2. Correlation of fluoride intake and skeletal accumulation with arthritic symptoms and the various forms of arthritis.
3. *In vivo* biological behavior, in humans as well as animals, of silicofluorides used in water fluoridation, especially in relation to water hardness, average community dietary components, water consumption, and similar factors. This need follows from experimental studies of some years ago which indicated that silicofluorides differ in

their mammalian biology from uncomplexed sodium fluoride. Similar studies with aluminofluorides especially in combination with silicofluorides also need to be undertaken. The lack of information in these areas has been noted by scientists at the US Environmental Protection Agency.

4. Dietary-nutritional factors affecting dental fluorosis as well as malocclusion and tooth morphology. To what extent can dietary components like vitamin E, selenium, calcium, and vitamin C help prevent or minimize dental fluorosis?
5. Correlations between various degrees of dental fluorosis and other forms of low-grade fluoride intoxication and various health problems, i.e. cognitive disorders, bone fracture incidence, birth defects, etc. More carefully planned research, with the right questions being asked, is urgently needed in this area.
6. Careful epidemiological research on the incidence of oral cancers in relation to both topical and ingested fluoride use. It is not clear if the data required for such studies are being collected and would be made available.
7. The effects of fluoride on thyroid function beyond laboratory blood tests. Even with adequate iodine intake there is evidence that hypothyroidism is more widespread than it should be.
8. Mechanism of genetic effects of fluoride and metallofluoride complexes.
9. Factors affecting soft-tissue accumulation and clinically detectable effects of fluorides in humans, i.e. extending what is already known from laboratory investigations.
10. Critical comparison of the incidence of dental caries in relation to topical fluoride levels and usage, taking into account differences in diet and oral hygiene. These areas were noted at a Research Needs Workshop, held in Bethesda, Maryland, 1999, where it was recognized that ingested fluoride has very little cariostatic effect.³ However, no consideration was given to stopping water fluoridation, since the view that widespread exposure to fluoride has been the major cause of lower tooth decay rates in developed countries was accepted, overlooking the contrary evidence that Betty de Liefde⁴ and others have assembled.

The advances in fluoride research in recent decades have led to a better understanding of the effects that fluoride may have on fundamental cell processes involving G proteins, secondary messenger systems, and enzyme ac-

tivity. Over the same period there has occurred, in many countries, an increased presence of fluoride compounds in the food chain through the use of polluted water or food, or public health programs involving the fluoridation of water, milk, or salt. The concurrence of these events means that the need for further research is both crucial and urgent. The ancient dictum *primum non nocere* remains relevant. Above all we should do no harm.

Bruce Spittle

REFERENCES

- 1 Spittle B. Report on the XXIVth ISFR Conference in Otsu. *Fluoride* 2001;34:224-6.
- 2 Coplan MJ, Masters RD. Silicofluorides and fluoridation. *Fluoride* 2001;34:161-4
- 3 International collaborative research on fluoride. *J Dent Res* 2000;79:893-904.
- 4 de Liefde B. The decline of caries in New Zealand over the past 40 years. *NZ Dent J* 1988;94:109-13.

FIRST ANNOUNCEMENT: XXVTH CONFERENCE OF THE INTERNATIONAL SOCIETY FOR FLUORIDE RESEARCH

The XXVth World Conference of the International Society for Fluoride Research will be held at Knox College in Dunedin, New Zealand, January 21-24, 2003. The meeting will be hosted by Dr Bruce Spittle and the Department of Psychological Medicine, Dunedin School of Medicine, University of Otago.

Knox College is attractively situated adjacent to the Botanical Gardens and the University of Otago. Dunedin has been described as the wildlife capital of New Zealand, being home to the Yellow-Eyed Penguin, the world's rarest penguin, NZ fur seals, and the only mainland Royal Albatross colony in the world. These areas will be visited during the social program. Also in the southern part of New Zealand is a special place, Fiordland, which was described in *National Geographic*, December 2000;66-85. A variety of tour options to Fiordland will be available.

In addition to the oral and poster presentations, it is planned to hold some symposia with key-note speakers during the conference.

Further information: The second announcement will be published in the February 2002 issue of *Fluoride*. Enquiries can be made to Dr Bruce Spittle, Convenor, XXVth ISFR Conference, 727 Brighton Road, Ocean View, Dunedin 9051, New Zealand. E-mail: spittle@es.co.nz