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# FLUORIDATION NEWS

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April-June, 1977

## With Diabetes Insipidus

# Severe Mottling Even From 0.5 ppm Fluoride

Proponents of fluoridation currently assert that drinking water must contain at least 1.4 to 1.6 ppm of fluoride before there is "noticeable fluoride-induced mottling of tooth enamel" (see "Efficacy and Safety of Fluoride" prepared for the American Medical Association by J. L. Shupe, N. J. Leone, and D. G. Fletcher, September 1975). This claim has long been known to be completely untrue, but recently it has been disproved even further by a reputable report of severe dental fluorosis (mottling with permanent brown stains) caused by consumption during childhood of water containing only 0.5 ppm fluoride—just half the concentration generally recommended for fluoridation!

Writing under the title "Dental fluorosis associated with hereditary diabetes insipidus" in the journal *Oral Surgery* (Vol. 40, No. 6, pp. 736-741, December 1975), Dr. Hortense Klein of Jerusalem's Hebrew University Hadassah Medical School, thus summarizes her findings: "Drinking of large amounts of water, even with lower than accepted fluoride content, can produce fluorosis of the teeth."

(For an account of a 1974 report of disfiguring dental fluorosis from 1 ppm artificially fluoridated water in two cases of nephrogenic diabetes insipidus, see the January-March 1975 issue of *National Fluoridation News*, page 3.)

### New Findings

Dr. Klein's report concerns the amount of dental fluorosis found in a mother and her four children afflicted with hereditary pituitary diabetes, a comparatively rare form of diabetes, in which there is insufficient pituitary production of the antidiuretic hormone vasopressin. This condition causes the patient to drink huge amounts of water—4 to 10 liters or more per day—to compensate for an excessively large urinary output. In contrast to nephrogenic diabetes insipidus, which does not respond to vasopressin therapy, pituitary diabetes insipidus can be controlled fairly well by regular injections of vasopressin at 2-3 day intervals.

Although the fluoride content of the water drunk by the mother during her childhood years (in Kurdistan) is not known, "the water in the Jerusa-

lem suburb where the four children lived during infancy and childhood had a fluoride content of about 0.5 ppm." The two older children, girls aged 14 and 13, had "severe brown discoloration on the labial side of the upper incisors and canines, and the lower anterior teeth had a chalky white appearance." Both girls had "occlusal caries" (tooth decay) in several of their permanent molars.

### High Water Intake

The two younger children, a girl aged 10 and a boy aged 8, who had received vasopressin therapy since the ages of 5 and 3, respectively—and thereafter drank much less water—had milder, but still quite visible, forms of fluorosis. The girl "had white speckling of all permanent teeth. Mild enamel hypoplasia was present in the maxillary incisors and in the upper and lower canines and premolars . . . The teeth were free of caries." The boy had "a few white areas in the enamel of the permanent teeth . . . There was slight hypoplasia of the upper first permanent molars. Interproximal carious lesions were found in the left upper and lower segments."

From this account it is not only clear that significant mottling can occur from water containing far less than 1.4 to 1.6 ppm of fluoride but also that, even with mottling, dental caries can still occur. In discussing her findings, Dr. Klein comments: ". . . the affected family members showed, in different degrees, a propensity for retention and fixing of fluoride in calcified tooth tissues." For the two older girls she estimates that there was a "daily low-fluoride water consumption 3 to 4 liters or more" above normal intake, which "over a prolonged period during the early development of their dentition has resulted in severe fluorosis of the teeth."

Dr. Klein also points out that, years before, D. J. Galagan and G. G. Lamson of the U.S. Public Health Service had "reported that a high water consumption in warmer climates can produce moderate dental fluorosis, even though the water has a small fluoride concentration." (*Public Health Rep.*, 68: 497-508, 1953; cf. D. C. Badger, "Toxic Level of Fluorine in Water Supplies," *Am. J. Diseases Children*, 78: 72-76, 1949.)

## House of Commons

### Expenditure Committee Refuses to Endorse Fluoride

"We are unable to make any recommendation on the use of fluoride in the general water supply" was the report of the British House of Commons Expenditure Committee for the 1976/77 session, released in April of this year. The report completely contradicts the position taken by the Royal College of Physicians late last year in their policy statement, *Fluoride, Teeth and Health* (Pitman Medical Pub. Co., Ltd., London, 1976).

The Expenditure Committee made its decision following a careful study of the cost of preventive medicine. The Committee said it was concerned at the low level of the nation's dental health and that too many people appeared ignorant of what could be done to improve it by the simple techniques of oral hygiene and reducing sugar consumption. As a result, there was an unnecessarily high incidence of gum disease in adults, and tooth decay among the young.

The Committee noted that there was still controversy about whether the general water supply should be fluoridated. "Such fundamental issues as whether the State has a right to mass medicate the water supply or whether nominated or elected bodies should take such decisions are not matters for this Committee. As Members of Parliament we are, however, naturally concerned that any interference with the liberty of the subject should only be entertained where substantial common good would result."

The statement continues:

"Fluoridation has been put to us as a highly recommended possible measure for preventive medicine which is currently in operation, and is cost-effective. We have considered the matter in some depth. We find that there is an extremely strong body of institutional opinion in favour of fluoridation but that the evidence on which this is based has been subjected to strong criticism. We are unable to make any recommendation on the use of fluoride in the general water supply.

We make the following recommendations for improved dental health:

1. That more resources should be devoted to an intensive campaign of dental health education, particularly in schools, but also for the public at large.
2. That more dental hygienists be trained, and employed.
3. That fissure sealants and topical fluoride

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## Eighth ISFR Conference Held in Oxford, England

The International Society for Fluoride Research, held in 1966, held its eighth conference in Oxford, England, May 29-31, 1977. The ISFR conferences draw scientists from countries throughout the world to present research on fluoride relating to human, animal, and plant health. This year participants gathered from Poland, England, Holland, East Germany, West Germany, Switzerland, Austria, India, Scotland, France and the United States.

### Skeletal Changes in Aluminum Workers

In the opening session Dr. E. Czerwinski and co-workers, Poland, presented several papers dealing with skeletal changes associated with industrial and endemic fluorosis.

Fluorotic changes in bones and joints were evaluated in a group of 105 aluminum workers, and compared to those of 20 residents in an endemic fluorosis region. The aluminum workers exhibited the same skeletal changes, although less advanced, as those found in residents of an endemic fluorosis area of India. Generalized sclerosis, alterations in the bone structure, and periosteal reactions are characteristic of endemic skeletal fluorosis, whereas ossification of bone-connecting membranes and muscle attachments are more common in industrial fluorosis.

Morphometric measurements of fluorotic changes in the long bones were made in a group of 95 aluminum workers. Cortical indices of the radius and ulna among the aluminum workers were significantly higher than in non-exposed controls.

Mean values of the cortical indices of the metaphysis and diaphysis of the tibia were also significantly higher in the aluminum workers than in the controls. This work indicates a diagnostic value in measurements of the tibia for evaluating fluorotic changes in the long bones.

Orthopaedic, radiological, and analytical examinations were likewise performed on a group of 60 retired disabled workers from an aluminum factory. Occupational disease had previously been recognized in this group because of disturbances in the respiratory and circulatory systems.

In the majority of cases orthopaedic examination showed changes of a generalized character in leg and arm joints. Exostoses and ossification of bone-connecting membranes and muscle attachments were the changes most often detected radiologically. Generalized sclerosis

and periosteal effects occurred less frequently. No major deviations from normal were found in the serum calcium, phosphorus, and acid and alkaline phosphatase levels.

Dr. A. K. Susheela from India presented a report on effects of sodium fluoride on collagen structure and function. Collagen fibers are an important structural constituent of the bone matrix and extracellular connective tissue. Since extensive pathological changes are known to occur in the bone matrix and extracellular connective tissue of those afflicted with fluorosis, the present study was undertaken to determine the damage caused to the collagen fiber and collagen protein by fluoride ions.

### Significant Fluorotic Effects

Rabbits receiving sodium fluoride (50 mg/kg body weight) and maintained under laboratory conditions were used as the experimental animal model. Animals pair-fed and deprived of sodium fluoride formed the control group. Electron microscopic observations on the collagen fiber and biochemical data obtained on collagen protein indicated significant fluorotic effects.

Dr. H. Runge and colleagues (G.D.R.) presented important findings on changes in bone mineral composition of humans subjected to long-term fluoride exposure. Using photon absorptiometry utilizing iodine 125, they

determined the mineral content of bone, the width of bone, and its index for three groups of people with different fluorine exposures. The first group included 300 smelter workers of an aluminum plant in the G.D.R. The second group consisted of 300 smelter workers of an aluminum factory in Czechoslovakia whose fluorine exposures were somewhat lower. The third group comprised nearly 500 persons living in a district where the drinking water contained 2.25 to 2.45 ppm fluorine. The results were as follows:

- (1) In the first group increases in both the width and mineral content of bones occurred.
- (2) In the second group the bone widths seemed to be increased, but to a lesser extent than in the first group. The mineral contents of the bones were only slightly increased.
- (3) In the third group there were no well-defined differences. Control and prophylactic measures were discussed and also the feasibility of an examination of the mineral content of bones for early diagnosis of bone fluorosis.

### Human Endemic Fluorosis Studies

Dr. S. S. Jolly reviewed human endemic fluorosis studies that have been conducted by his Department of Medicine in Patiala, India, for the last 10 years. The report included manifestations of fluorosis in relation to fluoride toxicity (dental, skeletal, metabolic, biochemical and nutritional). The nonskeletal manifestations of fluorosis, particularly in the kidney, liver, parathyroid gland, and heart muscles were surveyed.

Dr. Jolly also discussed serpentine as a therapeutic agent in human and experimental fluorosis. Results of his balance studies failed to confirm positive results obtained by other workers.

Dr. B. Kerebel and C. Daeulsi, France, reported ultrastructural and crystallographic studies on some biological apatites. Observations on 1340 crystals revealed an increase in their diameter measurements and alterations in their morphology. The faces of the crystals, nevertheless, remain well developed in agreement with their hexagonal symmetry.

High-resolution electron microscopy of sound human enamel, which has received a fluoride treatment in vitro, shows a decrease in parameters, dislocations, and numerous lattice planes, accounting for a higher degree of

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### Rep. Delaney Introduces Bill

Rep. John J. Delaney, (D., New York), introduced a bill, H.R. 328, on January 4, 1977, to prohibit the expenditure of Federal funds by the Secretary of Health, Education and Welfare to promote the fluoridation of public water supplies.

The bill states: *Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That, Notwithstanding any other provision of law, no part of any funds appropriated, or otherwise available, for expenditure by the Secretary of Health, Education and Welfare shall be expended to promote, directly or indirectly, the fluoridation of public water supplies.*



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Ethel H. Fabian ..... Editor and Publisher

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**After 25 Years**

**More Decay, More Dentists**

by Leslie A. Russell, D.M.D.  
Newtonville, Massachusetts

"It seems to me that dentists are taking it upon themselves to decide, not only in matters of public dental health but also in matters of environmental health, a very much more complex subject of which they have little knowledge.

"They are doing this at a time when figures compiled from recent official U.S. statistics show that, after over 25 years of fluoridation, some of the longest fluoridated cities in North America, Grand Rapids, Newburg, and Evanston, have approximately TWICE as many dentists per unit population as the average figure for the whole country, and almost twice as many as the average number for the 'naturally fluoridated' towns.

"There are many reasons for dentist-population ratios, but these figures do not point to a dramatic decrease in dental decay, nor to dentists being done out of their jobs by fluoride, as they are fond of claiming. Quite the contrary. America is going through a remarkable dental crisis with dental decay affecting 95% of school children and with 25 million Americans toothless, despite all their fluoride."

These words from the pen of Anne-Lise Gotzsche, in the introduction of her book, "The Fluoridation Question," describe fluoridation problems within the dental profession that are causing the American public, and some foreign countries, aches and pains not related to dentistry. I have chosen them for the reason that they parallel some of my own personal investigations.

**Fantastic Reduction 75-90%?**

Being one of a few senior resident dentists in the fluoridated city of Newton, Massachusetts, I have read fantastic stories of dental decay reductions in many fluoridated areas around the world, running up to 75-90%, in far away places, of school children who seldom drink fluoridated tap water, in fact, one dental leader, nearly ten years ago, made the following statement: "Some twenty-five years of international cooperation in oral research have now brought a breakthrough by which one major oral disease (dental decay) may be almost completely preventable in the next ten years."

**Increase in Dentists**

Newton's population in the last decade has increased by 1.45% while the number of registered dentists has increased by 21.3%. Also, within this period, a number of dentists have advertised themselves as Children's Dentists on their office doors.

As for the entire state of Massachusetts, a similar increase in the number of registered dentists has been noted in the forty-eight areas that have fluoridated. This increase was 12%, to be compared with a list of comparable unfluoridated places that started out with a corresponding number of dentists in 1963. Here the increase was only 1.2%.

**Grants of 840 Million Dollars**

Mayor Hartsfield of Atlanta, Georgia, is quoted by Gotzsche as follows: "The general public does not realize the gigantic power structure that is pushing fluoridation. The PHS spends over 840 million dollars per year in grants, cooperative programs, and salary supplementations....The World Health Organization is financed by the U.S. Public Health Service; of course they endorse fluoridation."

The problem that strikes me as a dedicated practicing dentist is, how much of this money is going into dental education that teaches its students to place better fillings, perform more effectively in oral surgery, and to make better dentures and orthodontic appliances? All of these divisions of dentistry have always been leaders in the field of preventive dentistry.

I make the unreserved conclusion that there will never be a magic formula that will allow people, especially children, to follow an unrestricted diet and have perfect dentition.

After thirty years of fluoridation promotion, the population, both lay and professional, are stricken dumb with the barrage of words, money, and politics. It still is exciting to have the story wrapped up by Anne-Lise Gotzsche, a knowledgeable and extremely efficient journalist, who uses the King's language in a most delightful manner.

**The Voice of the People Comes Through the Fluoride Pollution**



*Letters to the Editor*

**Equipment not Foolproof**

To National Fluoridation News:

I have been in the chemical business for 23 years and am quite familiar with equipment to automatically feed chemicals into solutions used for cleaning and phosphating metals, plating solutions, boiler compounds and water treating chemicals for drinking and for swimming pools.

Chemical salesmen who use electronic controls and proportioners have to be familiar with their equipment, since it is in need of frequent adjustments as the electrodes become fouled, or the equipment is accidentally turned off, or a temperature change in solution being monitored will alter the feed rate, or a fuse can blow and the equipment will not feed, or unauthorized persons tamper with the equipment. In short, there never has been a piece of mechanical equipment, or electrical equipment, that is 100% fool-proof, and that includes the devices that are used to feed fluoride into the city water supply. With this known condition existing in so many different locations how any intelligent person can say the fluoridation program is "controlled" is beyond me. They simply do not know what they are talking about.

Ken Stofen  
Racine, Wisconsin

**Canadian Corrosion**

To National Fluoridation News:

In your Oct.-Dec. 1976 issue of Fluoridation News, Dr. D. G. Steyn's article mentions severe corrosion of pumping installations. This reminded me of an experience we had in April 1958 when my husband was transferred to Montreal. We rented a lovely house at Pointe Claire.

One day I heard a loud noise in the basement. There was steam all over, and coming out of connections to the hot water tank. I immediately pulled the electric plug and called a plumber. He disconnected the pipe connections and they were so corroded you could barely see through them. He said it was the fluoride in the water. I had no idea the water was fluoridated.

When I mentioned how harmful it was he said: "It good—it good." He was French. Even though everyone was having trouble. "It good."

When I told my husband and showed him the pipes he said if I hadn't cut off the electricity it could have exploded the tank. We were lucky I was home at the time. Pointe Claire was the first town in Quebec to be fluoridated. The tank was only a year old.

Mrs. M. Ethel Ash  
West Palm Beach, Florida

**Corrosion in Seattle**

To National Fluoridation News:

A terrible, wasteful unnecessary corrosion situation exists in the city of Seattle. This corrosion is officially known but has not been officially publicized.

This unnecessary, increased corrosion results in an absolute waste of natural resources, energy, metals and water.

We are told to, and may be compelled to, cut down on electricity and water — perhaps as much as 50% — a situation that could result in real hardship. Yet this unnecessary waste is quietly being permitted to exist.

What is this waste? It is the widespread, rampant increase in city of Seattle plumbing corrosion since 1970 when fluoridation was introduced in Seattle's water system.

In 1972 and 1973 hotel and other building owners began asking the Water Department, the City Council and the Health Department for help with their increased plumbing problems.

In February 1974 the City Council passed an Ordinance (103095) to permit the use of anti-corrosive chemicals in private hot water systems.

But this wasn't good enough. Corrosion is still excessive. The Water Department wanted to experiment with *Liming* the Tolt River water system. But in the fall of 1975 after a public hearing with adverse testimony, the City Council refused the Water Department permission to Lime.

The Seattle City Council directed the Water Department to have an engineering study done on pipe corrosion. The Kennedy Engineers, Inc., of Tacoma were hired to do this study at an approximate original cost of \$90,000. The Phase I Report on this study was submitted to the City Council on the day or a day or so before the last general election.

This report showed that fluoridation significantly increases the rate of plumbing corrosion and is costing water consumers millions of extra dollars a year for increased pipe corrosion.

Water in Seattle has become increasingly dirty and rusty in different areas, and water consumers are told by the Water Department to let the water run until it is clear. Also, since fluoridation, water hydrants have to be flushed out more often.

Is this conservation? All this together is proof that fluoridation, started in February 1970, significantly increases the rate of plumbing corrosion.

Let's stop fluoridation in Seattle to help conserve electric power, water and other raw materials.

Elizabeth M. Boyd  
Seattle, Washington

**Pandora's Box of Aids**

To National Fluoridation News:

Since our water supply is to be used as a treatment center for our human ills, I suggest we consider the overall possibilities. I offer a real Pandora's box of aids.

For those of us that suffer from vision problems, add a little vitamin A. This would help cure night blindness, and aid us in seeing our pretty fluoridated teeth after dark.

I have noticed several of our citizens suffering from tired blood. We certainly can't deny them a few drops of Geritol.

If you are not affected by poor eyesight or tired blood then perhaps this will get you off and running. After minutes of research I have concluded that almost as many people are suffering from irregularity as tooth decay. Some people are suffering from both. Since any action taken on this pressing problem would be felt by all citizens the officials should act at once.

A little iodine for the thyroid might prevent those horrid-looking goiters from protruding. Anyway, that doesn't matter, "Shut up and drink the water."

Most people today are suffering from stress and nervous tension. They aren't getting the proper rest and they worry too much. A tranquilizer added to the water on a Friday at 5:00 and continued 'til Sunday at noon would assure all citizens of a restful weekend. This would prepare all for a productive work week and cut down on nervous tension which contributes to loss of hair, nail biting, and scratching which is very embarrassing.

We might add a little vitamin D. We certainly don't want epidemic beri-beri cropping up.

A little Listerine added to the chlorine and fluorine would treat those with bad breath.

Could we put in a few drops of sodium pentothal? We would be assured that everyone is telling the truth.

Some of these ideas are no more far-fetched than putting fluorine in the water to prevent tooth decay. When our government will spend several thousand dollars to study the sex life of Polish frogs, I don't believe anything is impossible. Do You?

Jack O'Brien  
Linton, Indiana



# The Legal, Ethical and Political Implications of Fluoridation

by Paul M. McCormick

Research Fellow, Nuffield College, Oxford

The arguments for fluoridation are presented by doctors, dentists and administrators who appear to be unaware of the legal, ethical and political implications of fluoridation of the water supply. They seem to think that if fluoridation reduces the incidence of dental caries and provided it does not cause damage to physical health, there is no more to be said on the matter. Let us assume that these propositions are true and concede them at the outset (a very generous assumption considering the very real doubt as to whether fluoride is dangerous to health). I would still argue that the case against fluoridation is overwhelming.

From the legal point of view fluoridation is compulsory medication. It is done without the permission of the person at the receiving end. In English Law medical treatment without the consent is only permitted by court order or for the mentally ill or for minors with the consent of their guardians. It therefore implies that either a person has forfeited his legal rights by criminal activity or that he is unfit through youth or insanity to exercise them. Fluoridation of the water supply puts every individual in this position. It is an affront to the human dignity which is explicitly recognised as a major objective in the United Nations Universal Declaration of Human Rights. The foundation of the legal rights and liberties of the individual is the principle of his responsibility for his conduct and his own interests, chief among which is his health. As John Stuart Mill wrote, "over his own body and mind, the individual is sovereign". However, fluoridation encroaches on this sovereignty and the selfsame principle that justifies fluoridation would also justify adding tranquillisers, vitamins, antibiotics, contraceptives and countless other drugs to the water supply. That principle is that the State is sovereign over the mind and body of the individual, and however benevolent in any given case, it is the principle of totalitarianism\*. Indeed, on the face of it, it would appear to be illegal for the water authorities to fluoridate the water supply as they would be acting ultra vires. Their powers and duties in this matter are determined, for the time being, by Section II of the Water Act, 1973, interpreted in the light of the Water Act, 1945 (3rd Schedule). Fluoridation thus appears to be not only contrary to the spirit of the laws of England but also contrary to the letter of the law. It raises the basic question of the Rule of Law—are powerful bodies, especially of an official or quasi-official kind, to be above the law? When one arm of the Executive offers (as it has done) an indemnity to the water authorities to cover successful legal claims against them arising out of fluoridation, the Law is mocked. The water authorities are freed from the legal consequences of their actions and thereby encouraged to break the Law. Law is one of the first casualties in the battle for fluoridation.

From the ethical point of view fluoridation is wrong on several counts. It is an assumption of moral superiority. It amounts to saying "Some people's wishes can be ignored because other people know what is good for them whether they want it or not". It tends to weaken the individual's responsibility for his own health and that of parents for their children's health by offering a panacea that demands no effort or sacrifice. It encourages bad medical ethics—thinking that it is permissible to prescribe, not for the individual, but indiscriminately for the masses irrespective of individual differences; and thinking that it is permissible to prescribe and virtually coerce patients to take drugs that many of them strongly wish not to take. The crucial question is who defines health? Is it the individual or the State? It

is not a simple, technical, medical problem any more than abortion. It is a value judgement to be made in the light of an individual's philosophy of life. Health is one value among many and people are entitled to sacrifice it to some extent for other values if they so wish. Even if fluoride does significantly lessen the risk of toothache (which itself is questionable), some people may prefer to take the risk of toothache, which is not a fatal or permanently disabling condition, to the risk of fluoride, which is a cumulative poison, and may have such untoward effects in a small number of cases. It is arguable that even if these fears are groundless the psychological damage that they can do may itself be more detrimental to health than toothache could ever be. Surely all these kinds of decisions should be left to the individual and his decisions best his own values and priorities are.

From the political point of view fluoridation sets a dangerous precedent. The force of precedent must not be underestimated in the determination of public policy which characteristically proceeds incrementally and by analogy with existing policies, rather than with reference to first principles. This factor can turn a precedent into the "thin end of the wedge". In a democratic society it is for the people through their elected representatives to determine what is and is not conducive to the public welfare. Yet in a supposedly democratic society fluoridation is being introduced not by Parliament but through the back door by non-elected Area Health Authorities in which the majority of members are medical personnel appointed to the committee. They are neither elected by, nor representative of, the people. Indeed, to take an example, in the summer of 1976 virtually every (elected) local authority and Community Health Council in West Sussex had voted (often by a large margin) against fluoridation yet the Area Health Authority recommended (by 9 votes to 6 votes) that it should be introduced. Not only is this procedure undemocratic but the thinking behind it is undemocratic too. In fact it is anti-democratic because from the Ancient Greeks to the present day one of the most notorious arguments against democracy has always been the paternalist one that the administrators know best, and that contentious questions are really only "technical" questions best left to the "experts". The decision on fluoridation was in the 1960s in the hands of elected local authorities and was thus clearly and officially recognised as a political issue. It was later transferred to the Area Health Authorities and this act has presumed to turn it into a simple medical issue with no political element (and health is defined in a very narrow way to refer only to physical health). If this convenient method of depoliticisation works on this occasion it will be a great invitation to try it again. Why bother with all the fuss and time-wasting involved in consultation, discussion and legislation when administrators can be appointed to take decisions on "technical" grounds? In a democracy ultimate control and the power to make the final decision must rest with the people and its elected representatives. In the British context this ideal is made operational by the twin principles of the supremacy of Parliament over the Executive and the subservience of civil servants to Ministers of the Crown (elected politicians accountable to Parliament). The introduction of fluoridation through Area Health Authorities puts the final decision in the hands of medical administrators and thus breaches these principles. This makes it not only undemocratic but also unconstitutional.

The crucial question is not "Will fluoridation do some good?" It is "Has the State the right to

fluoridate the water supply?" The issue revolves round the question of the legal, moral and political rights of the individual. Medicine must be the servant of the individual, not his master. It is the business of the medical profession to offer help to those who ask for it, not to impose treatment on those who do not wish to receive it. It cannot be denied that fluoridation is medical treatment in the strict sense—it is not purification in the sense of "treating the water" but medical treatment in the sense of "treating the person". It is exactly the same as a doctor treating a patient—except that he does not know his name, or his medical history, or what precise dosage of the drug he will receive, or indeed whether he even needs the treatment. One fact, however, is known—that a large number of people who will be forced to drink fluoridated water are strongly opposed to doing so. It is no consolation to them that they will also be forced to pay for the privilege of this unwanted treatment and that it may also do them some real harm.

The proponents of fluoridation have not taken account of the legal, ethical and political factors discussed in this memorandum. Yet it is foolish to suppose that merely because these factors have been overlooked or ignored by those introducing it, fluoridation cannot therefore have deleterious legal, ethical and political implications and consequences. These factors are so weighty that either the legal or the ethical or the political factors on their own are sufficient cause for strong opposition to fluoridation of the water supply. If it is a question of weighing one set of factors against another, who should do this—the individual, Parliament, or medical administrators? It seems to me that there is a responsibility upon the academic community to ensure that, upon this, as upon other issues in public affairs, public debate is informed and wide-ranging and that, above all, attention is drawn to the questions of principle that are implicit in various policy considerations, especially where these are in danger of being overlooked or not understood. Academics are eminently well qualified for this task since their training and their being at one remove from day-to-day public administration enables them to discern the broader issues and underlying questions of principle that are so easily overlooked. A number of scientists in the academic community have not been backward in alerting the public to possible benefits to dental health from the use of fluoride. Surely it is incumbent on their colleagues in the Arts and Humanities faculties to alert the public to the legal, ethical and political repercussions of fluoridation of the water supply as the chosen method of administering fluoride. Unless and until the pro-fluoridationists manage to come up with a rebuttal of the legal, ethical and political arguments raised here and one that justifies fluoridation within the bounds of a liberal democracy (without resorting to principles that are an integral part of totalitarian ideologies), the policy of fluoridation should be vigorously opposed. The pro-fluoridationists have not won the intellectual argument; they have simply run away from it.

\* In the Nuremberg trials some of the Nazis defended their infamous medical experiments by pointing to the more benignly-inspired American malaria experiments where free consent was not obtained. Once the principle of no medical treatment of sane adults without their consent is undermined it sets a precedent as it did in this case.

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## PTA Withholds Endorsement

The Parent and Teachers Association has been one of the strong supporters of fluoridation. However there seems to be a trend to the contrary.

In April 1976 the Nassau District PTA in New York with a membership of some 100,000, unanimously voted to delete its former endorsement of fluoridation. Last November at the State PTA Convention in Rochester, endorsement was also dropped. The question will again be considered at the 1977 state convention.

For further information contact Joy Grand, Associate Director, Nassau District, PTA, 3778 Dunhill Road, Wantagh, N.Y. 11793.

## Fluoride Caused Death

A fluoride malpractice suit was allowed by the screening panel of the Brooklyn Supreme Court of New York in June 1977.

Mrs. Inez Kennerly of 300 Dumont Avenue, Brownsville, Brooklyn, took her 3-year-old son, William, to the Brownsville Dental Health Center, 259 Bristol St., for routine dental work on May 24,

1974. The center workers smeared a fluoride paste on the youngster's teeth. William started vomiting, complained of a headache and lapsed into a coma. His mother rushed the boy to the Brookdale pediatric care unit located in the same building. She had to wait three hours for treatment for the boy before taking him to the Brookdale Hospital, where he died two hours later. An autopsy showed death was caused by an overdose of fluoride.

Mr. and Mrs. Kennerly have seven other children. They are suing New York City and the Hospital for one million dollars.

## FDA Seizure

The Federal Drug Administration, in its *Consumer Bulletin* of June 1977, lists charges against "Ospor-25" tablets, seized in St. Petersburg, Florida, on February 16, 1977. The manufacturer and shipper is Alpha Pharmaceutical Co., St. Louis, Missouri.

The charges were: "Article's label statements 'For Special Dietary Use Only' and 'Caution: Federal Law Prohibits Dispensing Without Pre-

scription' are inconsistent with each other; new drug without an effective approved New Drug Application; contains the non-conforming food additive sodium fluoride."

## Fish Kill

The City of Syracuse, New York, accidentally pumped 1,200 gallons of fluoride acid into Skaneateles Creek March 29, 1977. According to the *Auburn Citizen*, local health officials said the mishap did not create a health hazard to humans. Unfortunately, for the fish in the creek it did. Hundreds of dead fish were lining the banks of the creek from the Village of Skaneateles to about four miles downstream within a few hours of the acid spill, and 1,900 previously stocked brown trout were assumed to be dead, - small consolation for the trout fishermen waiting for the fishing season to open April 1.

## CORRECTION

In an article entitled 'Switch in Thinking' in the Jan.-March 1977 issue Dr. Samuel J. Foman's name was misspelled.



## Eighth Annual ISFR Conference

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mineralization. The fragility of crystals due to dislocations is balanced by this higher degree of mineralization. The fact that fluorapatite is very likely localized in the outer part of the crystals could be the reason why such teeth are more resistant to demineralization.

Dr. G. L. Waldbott, U.S.A., outlined the early diagnostic stages of human fluorosis. He presented data from approximately 400 cases which have been evaluated by clinical observation, laboratory tests, consultation with other physicians, and double blind tests.

Dr. A. W. Burgstahler, U.S.A., was a featured speaker at the Society banquet on May 30. His talk was followed by a thought-provoking discussion. Contrary to previous findings of Rapaport, several investigations in recent years have concluded that Down's syndrome (mongolism) is not significantly influenced by the presence of supplemental fluoride in drinking water. Other evidence demonstrating that fluoride can exert potent mutagenic action in mammalian cells, and therefore that it might play a role in the etiology of Down's syndrome, has also been recorded recently.

In his presentation Dr. Burgstahler reviewed several recent investigations on Down's syndrome in relation to fluoride in drinking water, particularly with regard to maternal age effects. New research on the occurrence of Down's syndrome in a large North Central state during the period 1951-64 confirmed a higher incidence of Down's syndrome in urban areas with, or after, fluoridation than in those without, or before, fluoridation of the municipal water supplies.

Dr. V. R. Narla, India, reported on plasma and salivary fluoride in endemic fluorosis. He concluded that free fluoride in plasma can rapidly move across glandular membranes. Elevated levels of fluoride were found in the saliva and plasma of patients drinking water containing 6.8-10 ppm fluoride.

### Fluoridation and Cancer Death Rate

In a follow-up report, Dr. D. Burk and Dr. J. Yiamouyiannis, U.S.A., reported on age-dependence of cancer mortality related to fluoridation. Data indicating a fluoridation-linked increase in cancer death rate in major U.S. cities were analyzed to determine to what extent the increase observed could be attributed to changes in age, race, or sex distribution. Between 1952 and 1969 no significant fluoridation-linked increase in cancer death rate could be observed in persons 0-24 and 25-44 years of age. In persons 45-64 years of age, a fluoridation-linked increase in cancer death rate of 15 per 100,000 population was observed ( $P < .02$ ) and in persons 65+ years of age an increase of 35 per 100,000 population was observed ( $P < .05$ ). The fluoridation-linked increase in cancer death rate could not be ascribed to changes in the racial compositions of the fluoridated and nonfluoridated cities. Trends in sex ratios of the fluoridated and nonfluoridated cities did not differ from one another.

Dr. S. P. S. Teotia, India, gave a comprehensive report on endemic skeletal fluorosis carried out in his laboratory over the past 10 years. The metabolism of calcium, magnesium, vitamin D, parathyroid hormone and calcitonin and their role in the pathogenesis of bone lesions in skeletal fluorosis were stressed.

Litter-mate pigs were fed diets including either milk or water containing 16 ppm fluoride in a study conducted by R. L. Speirs, England. The dietary F intake was reflected in all the tissues examined. The amounts of F incorporated from milk and water were similar. Fluoride was taken up in mineralizing enamel particularly in density fractions, 2.1-2.3 g/cm<sup>3</sup>, and in mature unerupted enamel (2.9-3.0 g/cm<sup>3</sup>) in which it was concentrated at the surface.

M. H. Yu, U.S.A., reported on the effect of sodium fluoride on one-day-old white Leghorn cockerels (*Gallus domesticus*) raised for 4 weeks in cages provided with feed containing added NaF (150 ppm) and distilled water *ad libitum*. A slight increase (6%) in body weight was observed with the NaF-treated birds toward the end of the experiment. Birds on the fluoride treatment had an increase of ascorbic acid (16%) in the kidney. Levels of ascorbic acid decreased in the brain, heart, pancreas and spleen.

### Effects of Fluoride in Air and Water

H. N. Egedy, Israel, C. J. Lovelace, U.S.A., and G. W. Miller, U.S.A., described effects of fluoride pollution in the intermountain west. This preliminary study showed the individual and additive effects of fluoride in air and water on humans, animals and vegetation. Synergistic effects of heavy metals and fluoride on vegetation and animals were suggested.

Several interesting papers on fluoride effects on vegetation were presented. Dr. C. W. Chang, U.S.A., reported on biochemical mechanisms of growth retardations in plants caused by fluoride and ozone. Chloroplasts are the site of fluoride accumulation and also the subcellular target, which ozone attacks preferentially. Both fluoride and ozone cause growth retardation by affecting sites of protein synthesis (polysomes) and the amount of ribosomal RNA. The main biochemical alterations induced by fluoride are the disintegration of polysomes into smaller particles. These changes result from enhanced specific activity of ribosomal ribonuclease and destruction of messenger RNA.

Dr. G. P. Garrec, France, showed how accumulation of fluoride in fir needles modifies their chemical composition. Concentrations of Mg and Mn were reduced in a similar manner, while that of Ca, as well as fluoride, were increased. There were no consistent effects on the levels of the major nutrient elements nitrogen, phosphorus and potassium. Nevertheless, when fluoride concentrations reached 400 ppm in tissue, concentrations of Mg and Mn were not reduced further and had no significant effects on other mentioned elements.

Dr. M. Diouris, France, analyzed the inorganic and organic soluble phosphate fractions in potato. A pretreatment in CaCl<sub>2</sub> before the application of NaF increased the incorporation of radioactive <sup>32</sup>P into the potato. Only the inorganic <sup>32</sup>P acid-soluble fraction was increased. Evidently, pretreatment of potatoes with

NaF, as measured by <sup>32</sup>P incorporation, does not affect the metabolism of the phosphorylated compounds.

When sodium fluoride was given to the potato disks for 25 hours at the beginning of the experiment, there was a consecutive decrease in <sup>32</sup>P incorporation for both the inorganic and organic acid-soluble fractions.

Dr. A. M. Lhoste, France, reported on the effect of fluoride on tobacco. Electron microscopy revealed that chloroplasts are the first organelles damaged by fluoride in plant cells. Plants of *Nicotiana glauca* L. var. PB 91 were fumigated for several weeks with 250 mcg HF/m<sup>3</sup>, and the polyphenoloxidase activity of the leaves was compared with that of control plants. Spectroscopic measurements of the extracts revealed that fluoride increased the polyphenoloxidase activity.

### Detecting Fluoride Damage in Montana

A useful tool to detect fluoride and disease damage in forests was described by Dr. C. E. Carlson, U.S.A. A vertical-stud Soderberg aluminum plant consisting of 600 pots emitting between 1150-1800 kg fluoride per day in western Montana, U.S.A., has caused serious injury and damage to nearby forest ecosystems. An extensive forest insect epidemic involving five insect species occurred between 1971-1975. The combination of insects and fluorides has drastically stressed coniferous trees, causing considerable diameter growth loss and mortality. Aerial infra-red photography was especially useful in detecting stressed stands and estimating tree mortality. Trees on nearly 8100 hectares were in various stages of decline; diameter growth loss attributable to the fluoride-insect problem was about 30% of the predicted normal growth. Up to 50% mortality of coniferous trees, primarily lodgepole pine, occurred in stands 8 km from the aluminum plant.

Studies on uptake and translocation of fluoride in sunflower seedlings grown in sand culture were described by Dr. J. A. Cooke, England. In a six-week study the dynamics of uptake and translocation differed markedly. The total fluoride in the plant increased steadily in proportion to increased root weight, but the amount of fluoride translocated each week was reduced to almost zero after four weeks. The dynamics of leaf accumulation suggested that a portion of the fluoride in an older leaf could be retranslocated to younger leaves.

### Next ISFR Conference

The next conference of the Society is planned for the summer or autumn of 1978 in either India or Switzerland. Information about the Society (membership restricted to scientists) and its quarterly journal *Fluoride* can be obtained by writing to the Secretary, International Society for Fluoride Research, P. O. Box 692, Warren Michigan 48090.

## Expenditure Committee

(Continued from Page 1)

application should be available on the National Health Service.

4. That there should be more research on the long-term effects of fluoride.

The National Pure Water Association was one of the groups giving evidence to the Committee during its investigation of the British dental service. In his paper entitled *A Policy for Dental Health*, Lord Douglas of Barloch, President of the N.P.W.A., submitted that "the only effective way of insuring dental health is to attack the cause of dental disease, viz. faulty nutrition; and that the use of suitable foods will prevent not merely dental decay but periodontal disease also. Fluoridation is inefficacious in reducing dental decay, does nothing to prevent periodontal disease, involves a danger to health of at least some and perhaps a considerable number of people, and is repugnant to the morals of a free and democratic society."

The Expenditure Committee's decision was the occasion for a celebration lunch held by London members of the N.P.W.A. in Westminster, April 4, 1977. Mrs. Anna R. Cooper, Secretary, told the members, "The positive measures recommended by the Expenditure Committee are, to a large extent, what the National Pure Water Association has been advocating for the last 17 years and this Report is a tremendous victory for common sense." A toast in unfluoridated London water was drunk to Lord Douglas of Barloch.

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## News Briefs

### Fluoride Feeders For Sale

Casselberry, Florida, fluoride problems began in December 1974 when a non-binding straw vote indicated that 463 of the areas water customers would like their water fluoridated and 358 said they wouldn't. A second poll was taken so that those who didn't vote in the 1974 straw ballot could express an opinion. Of the city's 7068 water customers only 1,157 responded, - 657 said yes, 500 said no. Former Mayor Curtis Blow, who said he was not opposed to fluoridation, reported to the council that the entire city water system should be modernized to cope with the chemical. "The lines are not looped but dead-headed which makes safe, adequate fluoridation impossible," he wrote the council in Jan. 1977. The starting date had been set for February 1, 1977. Council chairman Nathan Van Meter, supported by Councilmen Carl Robertson and Don Willson decided to call a halt to the mounting expenses on March 21, and sell the new unused fluoride feeders and recoup some of the city's \$20,675.36 investment.

### Third Time for Meadville

Councilman Joseph Kulwicki of the Meadville, Pa. City Council, (population 16,573) in a lengthy prepared statement on April 4, 1977 extolled fluoridation as a "modern day health miracle." His fellow councilmen were not impressed. The vote was 4 to 1, Kulwicki being the only one for his motion. This is the 3rd time that fluoridation has been rejected in Meadville, 1st time in 1955 by referendum (3 to 1) and the 2nd time in 1966 by a 3 - 2 vote of the Council.

### Fourth Time for Cadillac

As reported in our October-December 1976 issue, Cadillac, Michigan voted on November 2 against fluoridation but the vote was close and the proponents demanded a recount, but the count remained the same.

The proponents then asked for another ballot which was held on April 19, 1977. The vote was 1513 against to 969 for. This was the 4th time Cadillac has turned down fluoridation at the polls, —first in '65, then in '73, again in '76, and now on April 19.

### Health Board Changes Mind

The North Adams, Mass. health board changed its mind and decided not to fluoridate the city's water supply on February 16, 1977 ending a six year controversy. Naturally the decision won praise from the North Adams Taxpayers Association and others interested in keeping the chemical out of the public water system and condemnation from the county's dental society.

The hassle began in July 1971 when the board of health ordered the city to fluoridate. The question was placed on the November 1971 city election ballot and won by a narrow margin. The health board placed planning funds in the 1972 budget to finance a study. The city council refused to appropriate the \$2,500, despite the referendum vote. The board of health filed suit against Mayor Joseph R. Bianco and all nine city councilors. In 1973 the council again refused to appropriate the funds and city solicitor James A. Bowes filed a response in court claiming that the phrasing of the 1971 ballot question was illegal, unconstitutional and misleading. The referendum asked voters whether they wanted fluoridation to be "continued" when no such program had ever been started.

Judge George J. Hayer of the Superior Court ruled in favor of the health board on December 1973 and ordered the council to appropriate the necessary funds despite the state law that only public school committees enjoy complete fiscal autonomy. The case was taken to the state Supreme Court and in September 1975 the court upheld Judge Hayer's ruling.

The next month the health board, composed of three new members, commissioned Haley & Ward, Inc. of Waltham to begin a study. The council appropriated the necessary \$3,100, to do so. One year later the firm had produced no information.

According to Peter Gosselin of the North Adams Transcript, Dr. Elliott Greenfeld of the county's dental society said it was unlikely the society would take any action to reverse the February 16, 1977 decision of the health board by lobbying at the local or state level or taking the matter to court. "Everytime we get involved, we get clobbered," he said. "We will not press action."

### Clanton Jaycees Lose

Voters in Clanton, Alabama rejected a proposition to fluoridate on May 3rd by a vote of 305 to 210. The referendum was the result of a campaign by the local Jaycees to add fluoride to the towns water supply because they said, "It is good for teeth and hardening of your bones." The Committee for Preserving Our Freedoms crusaded against the proposal.

### Deadly Drinking Water

The following item is a translation of a brief synopsis from a German journal which digests consumer literature, *gdi information*, 2/77 (By Gottlieb Duttweiler-Institute für wirtschaftliche und soziale Studien, Rorschlikon), page 86. It refers to research by the Dutch Health Ministry, and is titled *Deadly Drinking Water*.

"After thorough scientific investigations it has been proven that the childhood death rate rises when children drink fluoridated water. This applies especially to undernourished youths. In the South American states, it has been reported that from this cause the death rate rises per year by 36,000."

### Film Available

A 25 minute TV Interview film in color entitled "Perspective," exposing fluoridation, which features Robert J. H. Mick, D.D.S. and Albert Schatz, Ph.D., is available on loan from Edith Kirby, 1101 Columbia N.E., Albuquerque, New Mexico 87106. (Telephone 505-255-6559). The only cost is postage.