

# FLUORIDATION NEWS

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October-December, 1977

## Reprieve for City of Brainerd

A postponement to fluoridate for two years came just in time to save the City of Brainerd, Minnesota. The postponement came in an amendment to a bill providing \$1 billion appropriation for Health, Welfare and Corrections passed by the Minnesota State Legislature, May 23, 1977. The amendment, authored by Rep. Don Samuelson of Brainerd, called for \$15,000 to finance a study on the health aspects of fluoride and for a two year exemption from the Minnesota state mandatory law for communities not yet fluoridated.

### Early History

The Brainerd story started in 1962 when a referendum was held and the vote was 2,846, No; 1,427, Yes. The Minnesota State Legislature passed the mandatory law in 1967 ordering all communities to add fluoride to their water supplies by 1970.

Since that time the people of Brainerd have resisted all efforts of the Minnesota state health department to fluoridate, and even though equipment was installed in April 1972 it was never put in operation.

In 1972 a group of citizens went to court to get an injunction against enforcement of the law but the plea was denied.

### Local Option Bill

The hopes of the Brainerd citizens were dealt a serious defeat by a vote of 9 to 3 in the Senate Health, Welfare and Corrections Committee on February 28, 1974 which killed a local option bill.

### Vote and Convention in 1974

The Brainerd City Council, under pressure to fluoridate, called for a referendum on July 3, 1974. The result was a 9 to 1 rejection of fluoridation (1,863, No; 199, Yes). They also held a Convention of the People on July 5, 1974 (See NFN July-Sept. 1974).

The Minnesota Department of Health then obtained a court order to force compliance and the City appealed on grounds that the law is unconstitutional, an invasion of privacy.

### State of Minnesota vs. City of Brainerd in District Court

The Minnesota Leader on November 18, 1974 reported that "another episode in the age-old fluoridation fight in Brainerd is due to unfold November 19. On that date the State of Minnesota will renew its courtroom rivalry with the City of Brainerd. Both will appear before Judge James E. Preece in Crow Wing District Court. The state is asking the court to coerce, make, force, order, and otherwise cajole Brainerd officials to add fluoride to their City's water supply."

Brainerd's Mayor, Tom O'Brien said that small townpeople are solidly in Brainerd's corner, and that his mail and phone calls have been supportive of the City's defiant stand.

Thomas Anderson, a Brainerd City Council member summarized the issue, "Many of you feel that state government has stepped on our toes. And what we really want is local option, the right to govern ourselves. We are capable. I think we know what we're doing."

John Remington Graham has acted as Special Council for the City of Brainerd from June 3, 1974 until May 16, 1977. He called fluoridation "medication without consent," and based his arguments largely on what he said were the "natural and inalienable rights" reserved to individuals under the state and federal constitutions.

Bob Harder, Executive Director of the Minnesota State Dental Association said, "It is a small minority of misinformed or misguided who, for whatever reason, are depriving their fellow citizens of a public health benefit."

### Judge Preece's Decision

Judge Preece took time in making his decision, but when it came on Thursday, December 5, 1974 he ruled that Brainerd must comply with the state law requiring fluoridation of city water supplies.

### Lt. Gov. Perpich Proposes Option

"Compromise Looms on Fluoridation" was the title of a seven column lead story on page 1 in the Brainerd Daily Dispatch, Dec. 4, 1974. Lt. Gov. Rudy Perpich is shown with others at a noon press conference announcing that he would support legislation to exempt Brainerd from the state-wide fluoridation law for a period of 10 years provided the City would furnish on a subscription basis free fluoride tablets at parental request. Coupled with the exemption in the bill would be a stipulation that Brainerd carry out a special educational program dealing with nutrition and proper dental hygiene as well as provide the free fluoride tablets.

Those pictured with Lt. Gov. Perpich were Mayor Tom O'Brien, Alderman Mary Koep, Rep. Don Samuelson and Sen. Winston Borden.

Borden said he was convinced that the legislature would pass the bill. He said it is the type of compromise that can be accepted both by the city and by the legislators.

Samuelson agreed, "We think it is a fair compromise, one that the legislature can wholeheartedly support and will."

Perpich said, "I am sure this proposal will pass in the next legislative session. This program would be an effective experiment to determine and compare the relative costs and effectiveness of a tablet and educational program, to fluoridation of the water supply." He also said that a special dental program on an experimental basis was under study now and that he will propose that Brainerd be included.

Mrs. Irene Johnson, chairman of the group which has fought long and hard against fluoridation of the city's water supply—Minnesota Opposed to Forced Fluoridation—was at the press conference. She said, "This is the compromise we have been fighting for. This will mark the third Christmas that we have been in court on this matter.

If the compromise is accepted, it will be the best Christmas present the people of Brainerd could receive."

The Brainerd City Council, at a special meeting Dec. 7 voted approval for the compromise plan and urged that the state request the U.S. Department of Health, Education and Welfare to designate Brainerd as a "pilot city study" for the next 10 years to examine its plan as compared with fluoridated water.

The Minnesota State Dental Board said it will oppose "any attempt to weaken the fluoridation law by proposals of special exemption for a community."

Elsie Jernberg, corresponding secretary of the Minnesotans Opposed to Forced Fluoridation, wrote on February 26, 1975, "Right now we are waiting to find out when our legislative hearing will be held. The dentists are doing everything to prevent it from being passed. They are putting up large colorful posters all over in Minneapolis and young dental students are handing out pamphlets at the Mall to 'educate' the people....Sen. Borden hinted that he as well as other members of the legislature are being harassed and threatened by the fluoridation lobbyists. I have never seen anything as powerful and as terrible as this fluoridation monopoly."

The compromise bill in the Health, Welfare and Corrections Committees in both the Senate and House, languished and died in committees.

### Nov. 3, 1975. All Is Not Lost

The people of Brainerd did not feel that all was lost. There was still the Minnesota Supreme Court. On November 3, 1975 Brainerd citizens jammed the court chambers. The members of the Minnesota Supreme Court had been studying the legal briefs of the case for the past few months. The City of Brainerd, represented by John R. Graham, maintained that the 1967 State Fluoridation Law is unconstitutional and it violates the collective rights of the residents of Brainerd. Richard Wexler, an assistant attorney general, appeared on behalf of the State Health Department and said the law is a valid exercise of the state's "police power in the interest of public health and safety of the citizens."

### Still Another Local Option Bill

"Local Option Fluoridation Bill Gets Out Of Committee" was the heading of an article in The Brainerd Daily Dispatch of March 5, 1976. For the first time in the long battle against state-imposed fluoridation of Brainerd's water supply, a bill in the Senate Local Government Committee was passed out of committee. The bill's sponsor, Sen. Winston Borden, was elated and said, "This is our first victory in six years. I'm encouraged and expect there is a reasonable chance of getting this bill passed." John Graham, counsel for the City said, "It's the greatest thing that ever happened."

The bill would enable municipalities to call for a referendum on the question at the request of the city council or 15 percent of the population. If signed into law the local option measure would replace the Mandatory Fluoridation Act passed in 1967. The two former local option bills had been heard by the Health, Welfare and Corrections Committee.

But hopes were shortlived. On March 8, Senator Lew Larson moved to send the bill to the Rules Committee. Larson invoked a rule seldom used in the legislature. This was an obvious attempt to defeat the bill by having the Rules Committee send it to the Health, Welfare and Corrections Committee. The Dental Association had been working frantically to prevent this bill from passing.

The rules committee sent the bill the Health, Welfare and Corrections where it never got out of committee.

### Minnesota Supreme Court Decision

March 26, 1976

"Brainerd must conform with the state law requiring fluoridation of municipal water supplies" was the 7-1 decision March 26, 1976 of the Minnesota Supreme Court which had heard the case on November 3, 1975. This was followed by motions by Graham for both a rehearing and a stay of mandate in the case.

Graham said, "After examining the court opinions with care, I have determined that a petition for rehearing is justifiable."

### U.S. Supreme Court Declines Appeal on October 4, 1976

The United States Supreme Court declined to hear an appeal from the decision of the Minnesota Supreme Court which called for the fluoridation of Brainerd's water.

The justices dismissed the appeal on grounds that it did not present a substantial federal question. The action of the U.S. high court meant that an earlier order by the Minnesota Supreme Court to fluoridate was reinstated. Graham said the high court's ruling meant that the city must do one of three things—comply, refuse to follow the court's order, or seek legislative or executive re-evaluation. "If they (the city) refuse," Graham said, "they face contempt and thus possible fines and imprisonment." He also said that every possible legal recourse had been exhausted. This, however, does not mean that he is quitting the battle, "I can keep trying to get our state officials to look at the evidence. Up until now they have refused to look..."

### Graham Speaks Out

In an interview on October 17, 1976, with the Brainerd Daily Dispatch, Graham said that he can now prove "conclusively" that fluoride does indeed cause cancer. He said he is currently conducting negotiations with the Minnesota state health officials. If he can legally obtain another delay, he will recommend that the city council of Brainerd conduct hearings on scientific evidence about fluoride. He said scientists could be called in to testify on fluoride's link to cancer. "What has happened is that Brainerd now has a legal, proper, lawyer-like defense and I am absolutely confident that I can prove it in court.

## Fluoride Dispensing

### Machinery Malfunctions

Some days the average citizen gets more fluoride and some days less. The citizens of five communities in Marin County, California, got more than the accepted safe level when a fluoride feeder valve malfunctioned on October 27, 1977, and was not detected for several days. The sensing device that would have discovered the breakdown was being moved and the other had been sent to Massachusetts for servicing. The communities involved were Woodacre, San Geronimo, Forest Knolls, Lagunitas, and Nicasio.

The fluoride analyses chart of the Marin Municipal Water District showed the fluoride level at the San Geronimo treatment plant was 4.40 ppm at 1630; 4.55 ppm at 2300 October 27. Next day at 1830 it was 4.30 ppm and at 1400 it remained at 4.30 ppm. The Woodacre County station had a fluoride level of 4.10 ppm at 1500 October 30, and 3.65 ppm at 0830, October 31.

James T. Farnkopf, district manager for water treatment and distribution, was reported by the San Rafael Independent Journal as determining that the overdoing took place for seven days between October 26 and November 1. The paper also said that information from the American Dental Association indicated a maximum of .7 ppm in summer and 1 ppm in winter. Fluoridated water is allowed to take in more heavily fluoridated water in winter because they don't drink as much of it as in summer.

Paul Peterzell of the Independent-Journal reported that the water district staff defended distribution of the overdosed water to the public claiming that it would be undesirable to dump the water in a drought year. District directors and its general manager of the water district said the staff didn't notify them of the problem. Several directors argued that the public should have been informed as well. Director K. C. Bishop III who lives in Woodacre said, "I am kind of angry even though state health said we were not required to give notice, that we weren't even given any chance to make a decision on our own whether to drink it. That's something that should have been done."

Recalling voter approval of fluoridation in 1972, Bishop said "people were assured we would not get higher doses than safe." Hazards probably come with longer exposures to the chemical, he said, "but it shouldn't be risked even for a short time without telling the people."

Director Richard Fox also argued "it might have been best to notify the public." Noting that as a citizen he voted against fluoridation in 1972, he said, "I just don't think it's a good idea. People who want the chemical should take it on their own."

## Illinois P.H.S. Doctors Decry Lack of Fluoride

The citizens of Illinois are not getting the right and proper amount of fluoride in their drinking water according to Doctors Bruce Douglas and William Babeaux of the Illinois Public Health Department. The two officials gave their report at the 105th annual meeting of the American Public Health Association in Washington, November 1, 1977 and reported in the Chicago Tribune November 2. The Illinois public and dentists are too apathetic in seeing that the proper amount of fluoride is added to the state's water systems, they said.

The Illinois state legislators passed a mandatory law in 1967 that decreed that all public water supplies serving 10 or more persons must be treated with at least .9 parts per million of fluoride. Many local water at least .9 parts per million of fluoride to the water supplies, sometimes as low as .2 to .6 parts per million and none at some periods in some areas, said Drs. Douglas and Babeaux and they blamed the State Environmental Protection Agency for not enforcing the law.

However a federal study estimates that 86 percent of Illinois residents are drinking fluoride treated water, making it the most fluoridated state in the union.

Science, when you have enough evidence, really isn't arguable. We have far more evidence that fluoride causes cancer....than we do that fluoride reduces tooth decay." Prior to the accumulation of new scientific evidence, Graham said, Brainerd's fight in the issue was based on philosophical claims.

### Order by District Judge Preece

March 15, 1977

The request for a hearing by the City of Brainerd to reopen the fluoridation suit in order to hear medical evidence, aimed at attempting to show that fluoride causes cancer, was held in District Court, Dec. 9, 1976.

On March 15, 1977, the District Judge James Preece denied the city's motion and also ordered the city to fluoridate its water within 90 days.

### Fight Continued in Minnesota Supreme Court

Despite yesterday's District Court order, the battle in the courts will continue with another appeal to the Minnesota Supreme Court, John R. Graham said. "Scientists with whom I have been in regular contact have emphasized the grave importance of carrying on. They told me it is my moral duty to pursue every avenue because it literally is a matter of life and death."

Mrs. Johnson said she believes the "fight" in one form or another will continue. "It's not over yet. If they can get away with something like this, we'd better kiss our freedoms goodbye."

### Fourth Option Bill in Legislature

Meanwhile the City's efforts at obtaining a local option bill through the Legislature also continued. Bills were introduced.

Continued on Page 4



National

**FLUORIDATION NEWS**

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

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**N.Z. Dental Officer**

**Gives Safety Demonstration**

"'It's Harmless' she said, Then Vomited" was a three column headline on the front page of the Wellington, New Zealand, *Evening Post*, December 9, 1977. The incident described by health reporter Schouten took place in Greytown in September, 1977, during a Plunket Mother's meeting just before a fluoridation referendum.

Mrs. Betty de Liefde, a Wellington dental officer who lives in Greytown, was one of the speakers. During the debate the lady opposing fluoridation said fluoride was 15 times more poisonous than arsenic. Mrs. de Liefde took a small vial containing what the pro-fluoridationists considered a three month dose of fluoride, placed the contents in a glass of water, and drank it to prove the absolute safety of fluoridation. She began to feel ill as she drove home. Four or five hours after she had swallowed the fluoride she forced herself to vomit. She went to the hospital the next day and received treatment involving administration of calcium to ensure that the calcium level in her blood was maintained. Mrs. de Liefde remained in the hospital for six days.

The Wellington Board of Health felt Mrs. de Liefde's demonstration was "ill-advised" and issued a circular to all medical officers of health, dated December 2, 1977. A copy was anonymously sent to the *Post* and the story made the front page, three months late. The circular, written by R. R. Harcourt for the Director, Division of Public Health, sent to all Medical Officers of Health, is as follows:

**DEMONSTRATION VIALS OF SODIUM SILICO FLUORIDE**

Over the period 1959-1977 a large number (400-500) of vials of sodium silico fluoride were prepared for the Lower Hutt City Corporation, and distributed to people who visited the Hutt Park Pumping Stations to observe the fluoridation plant there, and who expressed a professional interest in the addition of fluoride to water.

The vials are of colourless glass, 16-17 mm in diameter, and 41-66 mm long. Each is labeled with a tie-on label reading "This bottle contains the average three-monthly intake per person of Sodium Silico-Fluoride of which only 60% is fluoride (Based on one quart of water per day)." The vials were prepared for the purpose of demonstrating the very small quantity of sodium silico-fluoride required for effective fluoridation of public water supplies, and by implication the very large safety factor inherent in its use.

Following a recent incident, in which a dental officer consumed the contents of a demonstration vial with untoward effects, fortunately with full recovery, the contents of several of the vials were weighed and found to contain much more than three months supply of sodium silico fluoride. The quantity in each vial amounted, on average, to two years supply of fluoride.

Accordingly all such vials should be regarded as containing greater than the stated amount of fluoride. On no account should the contents of any vial be consumed.

James R. Billings, acting chairman of the Wellington Pure Water Association, went to the pumping station at Lower Hutt on December 13 to obtain a sample demonstration vial to find out exactly what quantity of fluoride the vials did contain. He was told sample vials were no longer available.

Fluoridation in the Greytown referendum was rejected by a 70% landslide.

**Jasper, Canada**

"Do you believe it is your moral right to decide what shall be done to your own or your children's bodies by means of the public water supply without regard to the rights of your fellow citizens?" was a question asked in a letter sent to every householder and post office box holder in Jasper, Canada by the Jasper Safe Water Association shortly before the October 19 plebiscite on fluoridation. The letter also pointed out the estimated annual cost of \$118,000.00 or almost \$30.00 for each person for administering a doubtful controversial chemical to Jasper's 4,000 citizens. The vote was 603, No; 196, Yes.

**Jimmy Carter Joins the Out on the Limb Club**



**Editorial**

**President Carter Sends Warm Greetings to Wrong Political Group**

President Carter sent his "warm greetings" to the annual meeting of the American Dental Association held in Miami, Florida, October 9-12, 1977 and his personal endorsement of fluoridation. His message said:

"For more than a quarter of a century, you have carried the banner of fluoridation of our municipal water supplies. You have done so in the face of aggressive and sometimes slanderous campaigns in which even the basic loyalties of fluoridation proponents have been brought into question. Because of your steadfast support, millions of children now enjoy far better dental health. While Governor of Georgia, I had the satisfaction of signing a mandatory fluoridation bill. I believe now, as I believed then, that fluoridation is safe and that it is the most effective public health measure available to improve the Nation's dental health and reduce unnecessary dental health expenditures.

"I congratulate and thank you for your steadfast backing of this and many other worthwhile and important programs, and I call upon you to keep up your good work. I assure you that my Administration will not shirk its responsibility to help to speed the time when all Americans will share in the benefits that modern medicine has made possible.

"May I close by wishing you Godspeed and success in carrying out the aims of your annual meeting, and success in the months and years ahead."

Apparently President Carter's Human Rights program is nothing but political rhetoric. He proposes to force all Americans to drink medicated water contrary to their medical, health, religious, moral and ethical beliefs. President Carter's congratulatory statement concerning the noble way the promoters have "faced the aggressive and sometimes slanderous campaigns in which the loyalties of the proponents have been questioned" is

a bit exaggerated. When we first heard of fluoridation we thought it could be a good idea and we attended a promotional meeting to fluoridate our town in New York. The first speaker was a New York State Dental officer and he launched into a bitter denunciation of anyone who didn't want to drink fluoridated water. During his forty-five minute talk he called those who were in opposition crackpots, pseudo scientists with no scientific background, befuddled old ladies who wore tennis shoes, religious freaks, health nuts and cranks who were against progress. The rest of the pro speakers were not quite so belligerent. No one was allowed to speak or question the speakers from the floor. The result was that we joined a committee to keep our town's water supply the way it was and that is how we became involved.

In the sixteen years since, we have heard of all kinds of dirty tricks, smear campaigns, closed minds, innuendos and we think President Carter ought to examine his own fluoride pot to see how black it is.

Bruce Catton states our problem in his column in the October 1977 *American Heritage*, *The Way I See It of Human Rights and Wrongs*.—"We complain because human rights are denied elsewhere? Aha, what about our own record! Let us, cry the critics, put our own house in order before trying to remedy the world's ills."

Of course, President Carter could change his mind so that his Human Rights program would make sense and send his "warm greetings" to the millions of Americans who have voted against fluoridation WHEN THEY HAD THE OPPORTUNITY. The people who vote against fluoridation are many times more than they who vote for it. If the President pursues his present political path of alienating large blocs of voters such as farmers, blacks, and now all those who vote against fluoridation, he could very well be a one-term president as many of our prestigious journalists and commentators are commencing to predict.

**Allentown, Pa., Voters Heed Court's Admonition**

by Emanuel Roth

Culminating a three-year fight against fluoridation in Allentown, members of the Coalition For Pure Water were instrumental in defeating the president of the Allentown City Council, a pro-fluoridationist, who had sought another term on the city council, in the November election.

Karl Kercher was the third incumbent defeated since the Coalition marshalled its forces and heeded an admonition from Pennsylvania's Commonwealth Court to use political action if the citizens disagreed with elected officials' pro-fluoridation actions. Having lost all its legal battles to prevent fluoridation, the Coalition took to the streets, and individual members campaigned against pro-fluoridation legislators. Defeated previously were Robert Lang and Samuel Costa, who also sought election to city and county posts.

The significance of Kercher's defeat was enhanced since

he was not only president of the council but had full union backing and a large edge in Democratic party registration.

Boy Scouts, volunteers and members of the coalition as individuals went door to door with 15,000 circulars detailing Kercher's pro-fluoridation record and his actions on increased taxes.

Elected to City Council were Robert Smith and Rev. Guy Kratzer, both anti-fluoridationists. The election victory gives the Coalition a 4-3 edge on City Council.

The fluoridation ordinance was rescinded on the mayor's recommendation over a year ago following 3 years of legal battles during which the Coalition prevented implementation.

The Coalition previously had helped to elect two anti-fluoridation members—Councilwoman Thelma Barnes and Councilman Alton Frey, Jr.



# Brief Report on Water Fluoridation

For presentation to The Subcommittee on Intergovernmental Relations and Human Resources of the Committee on Government Operations, U.S. House of Representatives, Washington, D.C., Oct. 12, 1977.

## Introduction

During the first part of the present century, drinking water consumed by children in certain localities was found to be the cause of brown-stained teeth or mottled enamel. Not until the year 1931; however, was the presence of fluorine in such water supplies—even at a concentration as low as one part of fluoride ion per million parts of water—recognized as the toxic agent responsible for this permanent and oftentimes unsightly dental defect. Later surveys also showed that there was less tooth decay (dental caries), particularly among children, in many—but not all—areas where mottling was endemic. This discovery, together with a finding need felt by the aluminum and phosphate fertilizer industries for a convenient and profitable use for fluoride wastes, then led to the proposal to add commercial inorganic fluorides to municipal water supplies as a public health measure to raise the fluoride concentration to levels that would be optimal to prevent dental caries yet not cause significant dental mottling.

## Fluoride in the Diet

Fluorine is the lightest and most reactive of the group of chemical elements known as the halogens—the others being chlorine, bromine, iodine, and the radioactive element astatine. Although widely distributed and occurring naturally only in combined form, mainly as relatively insoluble inorganic fluorides, fluorine is present in freshwater lakes and rivers at concentrations that usually do not exceed 0.2 ppm. Spring and well waters often contain more than this level, but in the United States the average fluoride content of such supplies is still less than 0.5 ppm.

Physiologically, the fluoride ion is an avid bone seeker and a potent enzyme inhibitor. Although proponents of fluoridation now claim that fluoride is an essential trace nutrient, they have not shown that it is required for mammalian growth or reproduction nor for any specific biological mechanism or function in man. Since healthy, decay-free teeth are found even where very little fluoride is consumed, the claim that fluoride is essential because it helps prevent dental caries is not convincing. (Recent reports claiming fluoride to be essential for growth and reproduction have been shown to be invalid because of an iron deficiency in the test-animal diets that was partially offset by fluoride.<sup>1</sup> A similar situation exists in the vitamin E-sparing action of selenium.) Furthermore, tooth decay is not caused by any lack of fluorine in the drinking water or diet (see below). Rather, tooth decay in today's society is primarily the result of diets overburdened with refined carbohydrates, especially sugar. Such diets are often also lacking in adequate amounts of the major tooth-building minerals—calcium and magnesium—as well as certain other known essential nutrients such as vitamin B-6 and other factors.

The amount of fluoride present in foods and beverages depends on their nature, source, and method of processing. Foods grown in uncontaminated areas usually contain only 0.1-0.3 ppm fluoride. (Notable exceptions are tea, gelatin, and bone products, which ordinarily contain many times these levels.) When foods are cooked in 1 ppm fluoridated water the fluoride content increases 3- to 5-fold.<sup>2</sup> On the other hand, the recommendation of 1 ppm fluoride in drinking water is based in part on the 1943-1949 view of the U.S. Public Health Service that "the average diet appears to provide 0.2-0.3 mg of fluorine daily" and that, "in the case of children 1-12 years old, drinking water containing 1 ppm fluoride will contribute an estimated 0.4-1.1 mg fluorine daily above the fluorine in food."<sup>3</sup> Adult fluoride intake was estimated to be at most twice these amounts. For safety, the total fluoride intake of children under age 8 should not exceed 2.0 mg/day in order to avoid undesirable degrees of dental fluorosis;<sup>4</sup> for adults 4.0-5.0 mg "may be the limits of fluorine which may be ingested daily without appreciable hazard of body storage of fluorine."<sup>5</sup>

Currently, however, because of the greatly increased fluoride content in commercial food products, the average dietary intake of fluoride has increased to 0.5-1.0 or more mg/day even in nonfluoridated communities. In localities with fluoridated water, the fluoride intake from food has been reported to range from 1.7 to 3.4 mg/day, exclusive of the intake of at least 1-2 mg/day.<sup>6</sup> For an adult an additional intake of at least 1-2 mg/day is obtained from the drinking water, thus making the total daily intake anywhere from 2.7 to 5.4 milligrams—well within the range recognized as potentially toxic by the Public Health Service in the mid-1940s.<sup>5</sup>

## Fluoride in the Body

Upon ingestion, fluoride is absorbed into the blood from the stomach and upper intestines (also from the lungs from air-borne sources). Within a few hours much of it is excreted, mainly through the kidneys, although some of it is deposited in various parts of the body, primarily in the bones and teeth. The total concentration of fluoride (both bound and unbound) in the blood stays fairly constant at about 0.15 ppm (except after heavy intake), but the concentration of "free" ionic (unbound) fluoride is only about one-tenth this level, i.e., 0.005-0.02 ppm, depending on the amount of fluoride that is being ingested regularly.<sup>7</sup>

Drinking water that contains 1 ppm fluoride therefore has a 50- to 200-fold higher concentration than the ionic level which the body tends to limit in the blood. Increased intake causes elevated levels in the blood and body fluids and leads to toxic effects such as, during childhood, interference with the ameloblasts (enamel-forming cells), thereby resulting in dental fluorosis.

In children only about half the fluoride that is ingested is eliminated. The rest accumulates in the skeleton, teeth, and (to a lesser extent) soft tissue organs. In adults the proportion of fluoride that is retained is significantly lower except when kidney function is impaired. Persons with nephritis have been shown to excrete, on the average, only 60 percent as much fluoride as persons with healthy kidneys.<sup>8</sup>

According to U.S. Public Health Service surveys, about 10 to 20 percent of the population exposed from birth to 1 ppm fluoride in drinking water develop mottled teeth, but only in the "very mildest" forms. Nevertheless, in warmer

## Albert W. Burgstahler, Ph.D.

regions, where water consumption is greater, undesirable degrees of mottling (moderate and above) have been found with only 0.7-0.9 ppm fluoride in the drinking water.<sup>9</sup> Even at the time fluoridation was being proposed, reports of skeletal fluorosis (abnormally dense and brittle bones) with debilitating (crippling) arthritic and neurologically complications from drinking water containing only 2 ppm fluoride began to appear from North Africa, the Middle East, Asia, and South America. These and other nondental toxic effects, however, were claimed not to be observed in natural high-fluoride areas of the United States.

## Fluoridation Studies

Artificial fluoridation was initiated in 1945-1947 in a number of cities, including Grand Rapids, Mich., Newburgh, N.Y., Evanston, Ill., Brantford, Ont., and Ottawa, Kansas. Within a few years favorable caries-reduction results, especially for younger children, were reported from all these cities except Ottawa, Kansas. There the percentage of decay-free 5- and 6-year-old children decreased after three years from 82.3 percent in 1946 at the start of fluoridation to only 45.0 percent in 1949.<sup>10</sup> A different problem arose with the Grand Rapids study in that the control city of Muskegon, Michigan, started to fluoridate its water supply when its 6- and 7-year-old children showed a 22 and 28 percent decrease in dental caries, respectively, even without fluoridation.<sup>11</sup> Other shortcomings in the data from the Grand Rapids, Newburgh, Evanston, and Brantford studies have been pointed out by the Australian dental researcher P. R. N. Sutton in his book *Fluoridation: Errors and Omissions in Experimental Trials* (Melbourne Univ. Press, 2nd ed., 1960) and by the Austrian fluoridician R. Ziegelbecker.<sup>12</sup>

Although the fluoridation trials were scheduled to run at least 12-15 years<sup>13</sup> to allow time for evaluation of potential health hazards as well as the amount of reduction of tooth decay, the U.S. Public Health Service urged fluoridation on a nationwide scale as early as June 1950.<sup>14</sup> Following this lead, officials of the American Dental Association, the American Public Health Association, and various other organizations rapidly followed suit and gave their support and endorsement to fluoridation so that, today, despite steadily mounting evidence of adverse health effects, an impressive number of leading health bodies are on record in favor of fluoridation, even though comparatively few of them have made a thorough study of the current status of the available evidence.

A notable exception is the International Society for Research on Nutrition and Vital Substances, which was one of the first scientific bodies to warn about the hazards of lead in auto exhausts, now recognized as a serious menace to health, especially in congested urban areas. In its Resolution 39, supported by over 90 percent of the 400 members of the Society's Scientific Council, it recommended that "all governments, state parliaments, and city councils . . . should refrain from fluoridating water, which measure is actually a medication, as long as the scientific aspects . . . are not satisfactorily clarified."<sup>15</sup>

## Contrary Findings

Most official studies in the United States and Canada claim 50 to 70 percent fewer cavities in children with lifetime exposure to fluoridation compared with children residing in low-fluoride water areas. Data reported by other investigators, however, do not always agree. For example, recent surveys in India show that more, rather than less, tooth decay, is found among persons drinking water containing the recommended 0.8-1.2 ppm fluoride than among those using water with 0.4 ppm or less.<sup>16</sup> Similarly, in Japan more tooth decay has been observed with 0.5-2.4 ppm fluoride in the drinking water than with only 0.2-0.4 ppm.<sup>17</sup> In poverty areas of Puerto Rico relatively little reduction of dental caries was found with fluoridation, but dental fluorosis was common.<sup>18</sup> Even the results of an official survey in the United Kingdom revealed that, after 11 years of fluoridation, there was only a retardation of cavities by 1.2 years, while the rate of caries formation remained essentially the same as in the non-fluoridated control areas.<sup>19</sup> This same feature can also be seen in many of the U.S. studies.<sup>12</sup> Moreover, contrary to what would be expected with a 50-70 percent reduction in dental caries, the dental repair needs of children residing from birth in eight fluoridated midwest communities have been shown not to differ significantly from those in eight carefully matched nonfluoridated communities.<sup>20</sup>

It has also been claimed on the basis of a North Dakota survey<sup>21</sup> that fluoridation benefits the bones of the elderly and helps prevent bone loss and softening known as osteoporosis. British Medical Research Council investigators, however, have completely refuted this claim: "a study of cadavers in the high natural fluoride town of

Hartlepool and the low-fluoride area of Leeds" provided "no evidence" that fluoride in the Hartlepool water "has any effect in preventing osteoporosis."<sup>22</sup> Chemical analyses performed "on unselected post-mortem iliac crista . . . showed a considerable difference in bone fluoride levels between the two towns [but] there was no statistically significant difference in the numbers or degree of osteoporosis." The authors made the further comment: "The American study was extremely inaccurate and did not use any objective, quantitative method." (It also should be emphasized that many of the so-called high-fluoride areas in the North Dakota study were in reality moderately low-fluoride areas and vice versa.)

## Adverse Effects

However beneficial fluoridation might be to a portion of the population, whether for their teeth or their bones, the question of the health safety of the measure is of overriding importance. Unfortunately, the original studies were not designed to detect nondental side-effects of the type that have been reported since 1955. For example, in the Newburgh study, the examination of urine specimens for kidney disease contained this admission: "No specimens were taken if there was any history of clinical illness, no matter how mild, during the previous two weeks."<sup>23</sup> (Emphasis added.) Since intermittent episodes of urinary tract disease are not uncommon in the preskeletal stages of chronic fluoride poisoning, the very persons who might have been found to be suffering ill effects from fluoride were excluded from the study!

Although largely ignored and/or denied by proponents of fluoridation, direct clinical evidence of reversible toxic effects from 1 ppm fluoride in drinking water has been demonstrated repeatedly, not only in the United States but abroad as well. Many of the symptoms are the same as those first recognized as a preskeletal phase of fluorosis by the distinguished pioneer Danish medical researcher, Kaj Roholm, in his studies on Danish foundry workers afflicted with osteofluorosis.<sup>24</sup> Because they are so common and yet vary in pattern from person to person, depending on age, sex, dietary habits, water consumption, kidney function, environment, heredity, and other factors, they are easily and often mistaken as being due to other causes, especially because physicians and the public have been assured repeatedly that they cannot ever be due to fluoride in drinking water. Nevertheless, these ill effects are real and have been personally verified by the writer. Salient features are:

- chronic fatigue not relieved by extra sleep (thyroid depression)
- excessive thirst resulting in polydipsia and polyurea
- migraine-type headache (also from fluoride in tea)
- muscular weakness; joint pains; backache; paresthesias
- sharp pains and bloating in the stomach; intestinal disturbances
- stomatitis (mouth soreness); lower urinary tract irritation
- dermatitis; urticaria; pinkish red spots not due to trauma (Chizzola maculae)
- visual disturbances involving the retina.<sup>25</sup>

When caused by fluoride in the drinking water and beverages, the symptoms disappear without medication, usually quite promptly, simply by substitution of low-fluoride water for all drinking and cooking.<sup>25</sup> Likewise, they return whenever fluoridated water is again used, or with fluoride in double-blind tests.<sup>26</sup> Since these same effects have been observed with fluoride supplements,<sup>27</sup> their association with fluoride is well established. At present, because drinking water is rarely suspected as the source of these disorders, incorrect diagnosis ascribing them to other causes is undoubtedly very common.

## Osteomalacia Accelerated

Since 1965 another important toxic effect of fluoridated water has come into focus, namely the acceleration of osteomalacia (bone loss and fragility) in long-term hemodialysis. A recent Canadian-U.S. investigation has fully confirmed this effect by showing that defluoridated water used in hemodialysis did not produce bone damage to the extent that fluoridated water did.<sup>28</sup> These findings recall the warning Dr. Gerald J. Cox gave in 1939 when he proposed fluoridation to the American Water Works Association:

"Use of water to which a part per million of fluoride has been added for other than drinking can conceivably lead to undesirable effects. Plant and animal life may be injured. There may be interference with industrial uses. Every use of water must be examined as well as current water treatment practices before fluoridation can be begun."<sup>29</sup>

It has also been shown that persons with kidney impairment not only store more fluoride but also that they are at greater risk for acquiring debilitating skeletal fluorosis than are persons with normal kidney function.<sup>30</sup> Moreover, persons with either nephrogenic diabetes insipidus or untreated pituitary diabetes insipidus can develop disfiguring dental fluorosis from excessive consumption during childhood of 1 ppm fluoridated water<sup>31</sup> or even 0.5 ppm fluoride water.<sup>32</sup> In nephrogenic diabetes insipidus, which cannot be relieved by vasopressin therapy, it was recommended that "a portion of the ingested water that these children consume should be supplied from a nonfluoridated source."<sup>31</sup>

The ability of 1 ppm fluoridated water to cause adverse effects in the kidney has been challenged but has never been well demonstrated with *in vivo* studies in mammals. Thus, after nine months on fluoridated drinking water, golden hamsters were found to have undergone a 48 percent reduction in the activity of the enzyme succinic dehydrogenase in the kidney compared to animals on fluoride-free water.<sup>33</sup> Similarly, in squirrel monkeys, "Significant cytochemical changes" were also observed after 18 months in the kidneys of animals drinking 1 ppm fluoridated water compared to those drinking distilled water.<sup>34</sup> Moreover, in the final 10 months of the study, water consumption of the monkeys drinking fluoridated

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water was significantly greater than that of those on distilled water, just as has been found with human adults in fluoridated communities.<sup>25</sup>

Another laboratory (and commercially significant) demonstration of the toxicity of 1 ppm fluoride in water is seen in the dramatic effects reported on gladiolus and rose cuttings. Significant tip burn, delayed floret opening, bending of the peduncles, and stunting of the flowers have been shown to occur after several days in 1 ppm fluoride holding water compared to the absence of such effects in fluoride-free water.<sup>25</sup>

### Down's Syndrome Affected

Although mutagenic effects of fluoride continue to be disputed, there is now considerable evidence that the incidence of certain birth defects such as Down's syndrome (mongolism) is, in fact, affected by fluoride in the drinking water. Recent data from the National Disease Control Center in Atlanta, Georgia, not only show a 15 percent higher overall rate of Down's syndrome births in the fluoridated Metropolitan Atlanta counties but also reveal a distinctly higher maternal-age specific rate among younger mothers in the fluoridated areas and among the older mothers in the nonfluoridated areas, just as the late Lonel Rapaport had observed some years ago in his much larger-scale studies in Wisconsin and Illinois.<sup>26</sup> Differences in maternal-age specific rates between fluoridated and nonfluoridated areas are obviously extremely important and clearly point to the influence of fluoride added to the water supply. Curiously, the authors of the Atlanta report were apparently unaware that their findings actually confirmed those of Rapaport, who, incidentally, also found only a comparatively small increase in the incidence of Down's syndrome within 5 to 10 years after the start of fluoridation (in Wisconsin) compared to areas with lifetime exposure to natural fluoride water. Considered in the light of recent laboratory findings demonstrating a marked ability of fluoride, even at very low concentrations, to produce chromosomal aberrations in mammalian germ cells,<sup>27</sup> the above-cited evidence for a positive association between waterborne fluoride and the occurrence of Down's syndrome takes on added significance. Even with only a 10-15 percent increase in incidence from fluoridation, this would still amount to at least 150-200 additional mongoloid births each year among the 100 million people in the United States who regularly drink fluoridated water.

Finally, there is unrefuted evidence that fluoridation is associated with an increase in cancer mortality, at least in the 10 largest fluoridated U.S. cities. In new work involving data on actual age-group-specific cancer death rates, not hypothetical, extrapolated standard mortality ratio calculations, the increase in cancer death rate among persons age 45 and over in the 10 largest fluoridated U.S. cities has been shown to be significantly higher since the start of fluoridation, compared to the 10 largest nonfluoridated cities with similar cancer death rates in 1944-1950. This difference amounts to about 15 extra cancer deaths per year per 100,000 persons in the age group 45 to 64 ( $P < 0.02$ ) and to about 35 extra cancer deaths per year per 100,000 persons age 65 and over ( $P < 0.05$ ). This work was presented at the Eighth Conference of the International Society for Fluoride Research, Oxford, England, May 29-31, 1977, and a full report has been published.<sup>28</sup>

### Safe and Effective Alternatives

For a review and discussion of safe, effective, economical, and practical alternatives to fluoridation for the prevention of dental caries, see the writer's "Scientists and Fluoridation," *The Register of Phi Lambda Upsilon*, Vol. 55, No. 1, Spring 1970, pp. 17-25. Basically, these measures consist of: (1) optimum tooth nutrition from infancy through adolescence, primarily in the form of broad-spectrum dietary mineral enrichment; (2) substitution of whole-grain for white-flour bakery products; (3) substitution as far as possible of fresh and frozen foods for canned goods; (4) greatly reduced consumption of sugar and refined sugar products and beverages; (5) proper attention to good dental and oral hygiene. *Completely decay-free teeth and superior periodontal health have been demonstrated repeatedly to be the result of this approach.* By contrast, even at best, only partial prevention of dental caries is claimed for fluoridation.

### Summary

Even though initiated over 30 years ago and strongly endorsed by most dental and public health authorities, water fluoridation remains highly controversial in scientific as well as lay circles. In this report various aspects of fluoride intake and the effects of fluoride on the teeth and body have been considered. Despite whatever reduction in tooth decay can be achieved by fluoridation, there is a steadily growing amount of solid evidence showing that fluoride in drinking water at the officially recommended concentration of 0.7 to 1.2 ppm causes serious harmful effects in its users.

### Comment

State and local health officials everywhere have been and continue to be provided with publications and promotional literature in support of fluoridation by the U.S. Public Health Service and the American Dental Association. These materials invariably present fluoridation entirely in a favorable light and convey the impression that there is no substantial or reliable evidence of any serious adverse effects. Although there is in fact a wealth of such evidence, usually it is either ignored or "determined" to be unconvincing or invalid.

Actually, as is clear from the present report, there is far more direct, well-documented evidence against the supposed universal safety of water fluoridation than there is for harm from the use of cyclamates and saccharin as artificial sweeteners. On the other hand, because of their longstanding endorsement of fluoridation, various leading dental, medical, and public health officials are understandably reluctant to alter their position, even in the face of new evidence. Scientific responsibility, however, requires that we should not only be willing to acknowledge such evidence but also be prepared to act accordingly.

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duced in both the House and Senate committees. The bill passed the full House, but was tabled in the Senate committee.

### Letter from Governor

At this same time Brainerd Mayor C. Elmer Anderson received a letter dated Monday, March 14, from Gov. Rudy Perpich. Anderson had written to Perpich about fluoridation some time ago and this was the Governor's reply:

"As you may know, I took a personal interest in this issue while I was lieutenant governor, and that interest remains.

"I have informed legislators this session that I will support legislation changing the fluoridation law under the following condition: A municipality must fluoridate its water supply until a referendum is held and the public votes against fluoridation. I feel this is a fair solution to a very difficult situation. I share your interest and concern."

The appropriations bill including the postponement to fluoridate for two years was signed into law by Governor Perpich on May 26, 1977.

### John Remington Graham Wrote July 28 to N.F.N.:

"From June 3, 1974, until May 16, 1977, I acted as Special Counsel for the City of Brainerd, Minnesota, against efforts of the State Board of Health to compel fluoridation of the municipal water supply by writ of mandamus pursuant to Chapter 603 of Minnesota Laws of 1967, over citizen protest expressed both in a special election and a convention of the people.

"It was during the summer of 1976 that Drs. John Yiamouyiannis and Dean Burk presented their paper before the American Society of Biological Chemists. Throughout the course of those months, I invested several hundred hours in detailed study of the emerging evidence on the fluoridation-cancer link, including the exchanges among various scientists on biometric adjustments for age, race, and sex, various congressional hearings, etc. At length, I had assembled a team of distinguished, internationally known medical research scientists who volunteered to testify in behalf of the City of Brainerd; in addition to Drs. Burk and Yiamouyiannis, Dr. Albert Schatz and Dr. Harold Kletschka. During the summer months, I tried to conduct discussions with the State Board of Health, but these were expressly forbidden by Warren Spannaus, Attorney General of Minnesota, who had determined to end the resistance of Brainerd, whatever the cost.

"When, therefore, we were notified of our defeat in the federal supreme court, I appeared before the Brainerd City Council on November 5, 1976, and brought along Dr. Kletschka. After he explained the status of the new evidence of fluoridation-caused carcinogenesis, the Council authorized me to make a new motion to vacate the writ of mandamus directing the City to fluoridate. This time the issue was not health freedom, but health hazard which we were prepared to demonstrate in open court.

"In any event, on December 9, 1976, our motion was argued with much public fanfare: the pressmen in the courtroom were like boys in the bleachers at a baseball game! There followed an exchange of scientific affidavits back and forth, which took months.

"Meanwhile, our new Governor, Dr. Rudy Perpich, a dentist who as a state senator introduced and secured passage of the mandatory fluoridation law in 1967, announced that he had changed his mind, and that he favored a local option law on fluoridation.

"The fight in the district court for a new hearing, and the fight in the legislature for a local option bill took place at the same time. Throughout the late winter and spring, we were faced with the full array of the American and Minnesota Dental Associations which sought to prevent both reevaluation and local option. In late February, 1977, the bill passed out of the house subcommittee. In mid-March, the district judge denied us a hearing on technical considerations, but he granted us a temporary stay of 90 days, whereupon we immediately sought a permanent stay and reversal in the state supreme court, both by way of appeal and petition for writ of mandamus. In late March, the bill passed out of the house committee. But in early April, the bill was tabled in the senate committee. In late April, the bill passed the full house. On May 10, the Minnesota Supreme Court denied us a permanent stay pending the full appeal on the question of whether we

were entitled to a hearing on new evidence of fluoridation-caused carcinogenesis. By all appearances we were finished.

"On March 16, 1977, I appeared before the Brainerd City Council, and tendered my resignation. As an officer of the court, I could not advise disobedience of a court order. Yet, under the law of nations, I could not advise compliance: murder need not be willful, it can be reckless and wanton carelessness which results in death, and if many, even hundreds or thousands of deaths result from such conduct, there is mass murder or genocide; in my judgement, given all that I knew, the state board of health were guilty of genocide, contrary to the law of nations; moreover obedience to domestic law will not excuse an act of genocide contrary to the law of nations, and even complicity with genocide is an offense. I told the council that I could not withdraw without their consent; that if they would not consent to my withdrawal, I would have to resolve the conflict of principles, allowing the more fundamental to prevail over the less fundamental; but that I would appreciate their acceptance of my resignation. They complied with my request. I advised them that if they should refuse the order, one of my trusted colleagues would defend them, and I would help him in every ethical way. Dr. Yiamouyiannis was there, and he gave a blistering statement to the press. Dr. Kletschka wrote a similar statement for our local newspaper. Where I had spoken of the law of nations, they spoke of the Hippocratic Oath, etc. The news media picked up the story like hungry dogs in a meat market, and reports swept all over the central part of the State.

"My heart has never sunk so low in the practice of law. I had done what I could, and now awaited the tragic consequences of the irresponsibility of the Minnesota Dental Association, the State Board of Health, and the Attorney General, all working together like three men in a tub.

"On Friday, March 20, I wrote my opposing counsel a letter of congratulations. Over the weekend, I read of some legislative activity in connection with fluoridation: the papers reported that a house-senate conference committee had appended a provision onto a large appropriations bill, which granted all non-fluoridated cities a 2-year stay, and directed the Governor to appoint a study commission. In the last few hours of the legislative session, the bill passed both the house and the senate. On Monday morning, I was called into the Governor's office, and Governor Perpich extended his hearty congratulations. He promised an unbiased panel. The bill is now Section 6, Subdivision 1, of Chapter 453 of Minnesota Laws of 1977. Governor Perpich has already refused, without delicacy, efforts of the State Board of Health to stack the commission and control the study. He will appoint three practicing doctors of medicine, who have had nothing previously to do with the fluoridation question, and who will hear both sides. We will place primary emphasis on the recent laboratory and epidemiological evidence on mutagenesis, carcinogenesis, and teratogenesis by Drs. Burk, Yiamouyiannis, Mohammed, and Burgstahler. Our presentation will be oral and written. The other side can try to refute if they can."

## Letter from Austria

To National Fluoridation News:

In spring 1973 the Mayor of Graz stopped the fluoride tablet program. He said he would not allow such a disputed medicament to be tried on children.

In autumn 1973 the Styrian Government stopped the funds for the fluoride tablet program in Styria.

In the other federal districts of Austria the fluoride tablet program was continued. In summer 1976 in the federal district Upper-Austria a child died. He had swallowed too many fluoride tablets. As a consequence parents and organizations are collecting signatures against the distribution of fluoride tablets. They want the Federal Government to stop the distribution of fluoride tablets everywhere in Austria. Many thousands of signatures have been collected up to now.

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