

Proceedings

FOURTH ANNUAL CONFERENCE

OF

STATE DENTAL DIRECTORS

WITH

THE PUBLIC HEALTH SERVICE

AND

THE CHILDREN'S BUREAU

JUNE 6-8, 1951

FEDERAL SECURITY BUILDING

WASHINGTON, D. C.

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WEDNESDAY MORNING SESSION

June 6, 1951

The conference was convened at 9:40 a.m., Dr. John W. Knutson, Chief, Division of Dental Public Health, Public Health Service, and Dr. John T. Fulton, Dental Services Advisor, U.S. Children's Bureau, co-chairman, presiding.

DR. KNUTSON: The Fourth Annual Conference of State Dental Directors with the Public Health Service and Children's Bureau is now in session. And here to greet you for the Public Health Service is the Surgeon General, Dr. Leonard Scheele. Dr. Scheele.

DR. SCHEELE: Well, I will just say that I want to welcome you again on behalf of the Public Health Service. Hearing the noise as I came down the hall, I felt sure you were going to have a good time while here. I hope you learn a few things, too.

Dr. Bain has an early appointment, and so with your permission, I will sit down again and let her take the floor. Dr. Bain.

DR. BAIN: I simply want to join with the Public Health Health Service in greeting you and welcoming you here. I am sure you are all aware of the long interest of the Children's Bureau in dental services for children.

For a long time, from the very beginning, Maternal and Child Health money has been used for this purpose. We have not been particularly concerned with the administration of it—whether it was used for MCH or school health, or whether it was used in the dental division—but we have been very much concerned that dental service be part of a total child health program.

One of the philosophies of the Children's Bureau is that you can't compartmentalize or categorize a child. You can't think of his eyes or his ears or his teeth without thinking of them as part of him, so we have been very much concerned that dental services be part of a total child health program.

We are often asked how much Maternal and Child Health money goes into dental services. We really are not able to give that answer. We have not had the kind of staff we'd like to have for collecting statistics on services and on expenditures.

In our other program, Child Welfare and Crippled Children, we have perhaps done a more definitive job. We have done a better job of collecting material. We hope within the next few years that we are going to be able to collect more material on how money is expended.

I think you will remember that several years ago John Fulton did a small study of plans from eight representative states, and came out with a figure of about 10 percent of total funds, that is, Federal and matching state funds, going into dental services. Whether that figure holds for the country or not, I do not know. It is the best figure, however, that we have.

Of course, in addition to regular Grant A and B funds that go out under formula, some other money goes into dental activities. As you probably know, we reserve a small amount of the B fund that is used for special grants that have national or regional significance, and under that a number of training grants are made, and some dental training is going on.

Now, I am sure you are going to have an interesting conference, because you are going to discuss that fascinating subject of fluoridation. I had the privilege of being a member of the technical service committee to the Kingston-Newburgh study, and the technical committee set up to work with that study set itself a goal which it wasn't able to achieve. It had hoped to keep the study under wraps for 10 years, and at the end of 10 years come

out with a definitive answer about what fluoride did, what its harmful effects might be.

As you know, that study and other studies began having such results that people became interested, and the pressure was such that people felt we must go ahead with these programs.

There is just one other point of interest I would like to leave with you. Here in the Federal Security Agency we have a number of groups that are interested in the problem of the school age child, and these groups have come together to form an interdepartmental committee on health services for school age children. They are the Office of Education, the Public Health Service, and the Children's Bureau. We have formed this committee to meet and discuss our common interests on what happens to school age children. Some few months ago we got together outside of Washington so we could have a week to discuss our common aims and purposes and what we thought states or communities should be considering as priorities in school health programs in the light of our present knowledge, facilities, money, and personnel. You will be interested to know that one of the "musts" that came out for school health programs was preventive dental programs. It was a program that envisaged the use of fluorides, either as topical applications or in the water supply.

The committee was unanimous in urging school health services to look at what they are doing and see whether they might not readjust their programs to include this kind of preventive services and then use what personnel and money they have for the corrective services that are bound to be left.

I think I have nothing further to say except to wish you a very pleasant conference and to say I am sorry I am not going to be able to sit in on more of it.

(Applause)

DR. SCHEELE: I am not going to give you a serious talk like Dr. Bain did. Dr. Knutson asked me to tell you stories. I won't do that either.

I have just come back from the fourth World Health Assembly. I think all of you will be interested in hearing that interest in dental hygiene is rising in that organization. Dr. Rowlett, who is the secretary of the International Dental Federation, is a very persistent fellow. He began beating a path to the doorstep of WHO two years ago in Rome. He found it a bit hard to get the doors open more than just a little crack, but he was persistent. The United States delegation, too, felt that it had a real obligation to promote dental health all that it could.

We found a great resistance within the staff of WHO at that time to concerning themselves with dental problems, an understandable reluctance because their program was very small. They had a total of less than five million dollars of actual cash coming into the till to spend on health around the world. It is a pretty big world, and problems are pretty large, especially in the underdeveloped countries. That is where they work mostly. Dental problems may be somewhat secondary in groups of people who are living to the ripe age of 25 and 27 and 31 years. Malaria and a lot of other problems were in fact the first priority problems.

Further, they didn't have the personnel to carry on dental programs, anyway. That is, the countries themselves didn't. A year ago in Geneva at the third World Health Assembly we made our first real progress. I say "we." Dr. Rowlett did. The United States delegation sponsored a resolution, one a little unpopular with our own group. We were beginning to feel that WHO was diffusing its program too far, that it might have kept its program on three or four items since it had so little money. We found it shifting t

mental health and a variety of other things. We felt it was spreading itself too thin. That was the general United States view. But in spite of that we did as we have so often done at WHO. We were completely inconsistent. We turned in a resolution we hoped they would adopt, which called attention to the fact that WHO had an obligation to concern itself with problems of dental hygiene. Fortunately, it was passed.

However, that still didn't add up to very much program. So this year, due to the good offices of many folks in the United States, to the fact that WHO itself was settling down and beginning to see the total problems facing it more clearly and in broader perspective, due to the fact, too, that funds will now rise in the course of the coming year to the grand level of about seven and a half million dollars for the whole world, they are going to make some little start in this field. WHO will have a person working in the field of dental hygiene, and they will begin to make some impact on some of the countries. Dr. Rowlett was, I think, a very good person. The International Dental Federation meeting is coming up in a relatively few days at Brussels. I am sure he will glow when he reports that the door is now wide open. And the only thing that will deter WHO from moving out on a wide-scale program in dental health will be the limitation on money.

You may be interested in some of the broader aspects of the international health work of WHO. The number of countries now in WHO is up to 80. There aren't very many more countries to come in, only a handful. Unfortunately, 10 of those countries don't participate: Russia, Ukraine, along with the six Iron Curtain countries, and Communist China—that is, China totally—have attempted to withdraw and are not participating, they say because WHO is not fulfilling its obligations in the health field; that it is steadfastly refusing to give supplies on any large scale, which they feel is its major responsibility.

That has been the major issue between the countries that support our view and Russia and her satellites. They do not wish services. They do not wish consultants, by and large. They do not wish the organization itself to come to see them, to wander about their countries. Instead, they would like to see the money available in WHO divided up on a global basis, the country given an allocation, and then the country would do what it pleases with that allocation. In their mind the ideal thing would be to buy medical supplies, hospital beds, or whatever they might need.

But WHO isn't founded that way. Maybe it is wrong. I don't know. I myself think it is right. WHO has been working on the basis that its job is to be a catalyst, to be a demonstrator, and it is not to take over health functions, not to be a supply and relief organization except in great emergencies. Its job is to have specialists who can go and set up demonstration programs and consult, do an extensive training program through the device of fellowships, try to get the countries to do for themselves, to try to resolve the problems of health supplies, medical supplies, generally and gradually in the country, but not with its limited resources to become in a sense another UNRRA. That kind of program is very badly needed at the end of a war period, but Europe and other countries of the world have made some fair recovery. Our industry and the industry of other countries can produce a surplus, in many instances can produce items of supply at cheaper cost. Those countries can make the same things themselves.

So, as I say, the general tone of the program in WHO is getting countries to help themselves, but staying definitely away from being a supply program.

The letters from the Iron Curtain countries indicated that that superficial issue was the basis for their effort at withdrawal. However, the United States and the other countries did not accept their withdrawals. Instead, they were noted, and the letters were sent back to them by the Director General.

He was told to have them sent by the Assembly with the notation to the effect that WHO would welcome their return at any time. Whether they will ever come back remains to be seen. So the door is open to having the 90 countries sit around the table again.

As I say, 70 sat around the table, including Germany, Japan, and Spain, which this time were brought into full membership in WHO. There were several major accomplishments of the meeting. It seemed to me that one of them was the fact that the government voted to increase the budget by a little over a million dollars, in spite of the effort of the United States to hold the budget at a slightly lower level than it was last year. I am speaking personally, not for the United States Government, because our official view was that we had to hold the line down. Yet I couldn't help but be a bit pleased inside when I saw they wanted to go ahead. I wished we could have supported a view by which we could have moved along and pushed the program out a little bit.

One other major accomplishment: The United States' percentage contribution was reduced to $33\frac{1}{3}$ percent. For some very strange reason one-third has become a magic figure in Congress and in the State Department, and the objective has been to cut United States contributions in international agencies to a third, the theory being apparently that one-third is all right, but if it is 34 or 35 percent it is not right. We have got the percentage down over a period of three years to $33\frac{1}{3}$ percent. Of course, having done that, the countries turned around and voted more money, so it doesn't add up really in the long run.

Another major accomplishment of the meeting was an agreement on a new set of quarantine regulations. This is especially significant because here the health representatives of 70 countries sitting around the table agreed on regulations, which their governments automatically accept, although they will have nine months in which to take exception to items in the regulations. They will take exception to probably only two. There is some controversy over the incubation period of yellow fever. Most of us were attempting to have the regulations indicate a six-day incubation period, but some of the Far Eastern countries, particularly India and Pakistan, and some of the Mediterranean countries, like Egypt, insist they want a 12-day period. In other words, they could quarantine folks or consider them infectious for 12 days. That isn't going to affect the programs too much.

The other controversy has been over the length of time which a smallpox certificate should be valid. Many countries are prepared to accept the view that the validity of the certificate may be extended almost indefinitely. Other countries still want to cling to a three-year period. A few are insisting on a reading of the vaccination after it has been given. We were pushing the view that the time had now come when on a gross basis around the world if the individual had a certificate that he had been vaccinated, we'd consider he was probably immune or had so been. Always the effort in the new set of regulations was to simplify travel between countries.

Another interesting thing was that this year, for the first time, we didn't have to have visas to go into the European countries. I was in only three, Switzerland, France, and Germany. One does have to have a special military permit to go to Germany, but I asked for visas for Italy, Austria, and England, in addition to the other countries I would have a chance to visit. When my passport came back it didn't have the visas, so before I left Washington I had someone phone the State Department and ask what had happened. The answer was that you didn't have to have them. So in other words, barriers are beginning to fall. If we can make them fall in the quarantine area we will really be going places.

The Assembly also strengthened the various categorical programs. It seemed to me they placed a special emphasis and highlight on the training area which I mentioned earlier. I think they firmed up more than ever the concept that the allocation of numbers of fellowships to the various countries, particularly the underdeveloped countries, was one of the most useful things they can do. That coincided with our own view. They are going to continue to sponsor broad meetings of groups of specialists, so-called expert committees. They are going to continue by that device to spread the good word on modern public health techniques.

Significant, too, was the fact that we completed the meeting in about three and a half days less than the usual running time. Usually it takes three weeks to go through the whole routine. This year the thing went off very smoothly. I'd say we had less controversy and argument than we have ever had on issues and points. I think the fellowship was probably better than it had ever been. What I am really saying is that I think there is proof now that countries can sit down together and work together, at least in the health field.

Of course we all have deep in our hearts the hope that there is enough good will among men, even over in some of the political areas, that there will be some day a means of having the countries sit around the table peacefully and arrive at common solutions of common problems.

I am sure you are going to have an interesting meeting. I did have a chance to look over your schedule. Obviously one of the biggest things facing us is the catalyzing of a real national program of water fluoridation. You have to charge, it seems to me, the other personnel in the health department, including the engineering staff, who have some concern with water supplies. You have to work with some of the community officials over the line beyond the health program, who turn valves and make water plants operate. But your toughest job, it seems to me, is going to be with the officials of communities who hold the purse strings and run the cities. I think, however, you will be eminently successful. It seems to me it will mean a lot of work. You will have to overcome the kind of problems that the District of Columbia is facing here, with the health department urging fluoridation, but where one of the District commissioners had taken a firm view that this was not a procedure for them to follow as yet. After all, there was a letter in their files from the Public Health Service which said it was experimental. Of course the letter was sent a year ago.

Finally that thing has resolved itself, at least in terms of the attitude of the commissioners. Mr. Donohue turned out to be a pretty noble fellow. When faced with the new evidence he found it possible, without embarrassment, to change his story, and in a sense apologize to the public and come out in the public press and say that new evidence had been given to him, and his earlier stand, while it may have been correct a year ago, was not correct as of today. He strongly urged that the District supply be fluoridated.

The matter of \$60,000 or \$100,000 or \$80,000 is an obstacle. I hope that is being overcome, too. I think you will be able to sell this program, but you will be facing the problems I have been talking about all over the country. And you will be having to worry about whether or not glass will turn white and plastics will dissolve and bread taste different, and all those little problems. But again I am sure you will overcome them, and finally the pressure of those communities that do move ahead will make the ones who don't decide they had better get on the band wagon, and they will feel pretty good when they do get on.

Our own program Dr. Knutson will tell you about. We are not just sure how we are going to come out finally on the matter of continuation of our

own demonstrations of topical application, although I think we are going to come out finally—we had a feeling about four weeks ago we were going to come out all right. We are fighting a losing battle with Congress, you see, because the topical application was set up as a demonstration program.

Now that we can do something with water supplies, there is a tendency on the part of many Congressmen to say "You don't have to go on so much with this other thing. Besides, you already have demonstrated its usefulness." Obviously our argument is that we must continue to do the topical fluoride thing, because it will be a long day before all our communities that have piped water supplies have fluoride in them. And we do have a lot of people that don't get their water out of an easy running tap. A lot have to get it out of the wells and the pump handle, so we don't want to abandon the topical program and interest in the topical program.

I think, John, I have talked long enough. The time has now come when you folks ought to talk about real dental problems. I hope you have a successful and pleasant meeting. If there is anything we can do for you in the front office—as I told you last year, we are a few doors down the hall—don't hesitate to call on us. If John and his staff don't do all they should, let me know and we will see that something is done about it. We are glad to have you here again.

(Applause)

DR. KNUTSON: Thank you very much. Before Dr. Scheele goes, I think it well to point out that he omitted one of the significant events at the WHO meeting in Geneva recently. He was elected president of WHO.

(Applause)

I believe the next item is the roll call. Dr. Fulton will call the roll.

The following members were present:

ARKANSAS

Dr. Don Hamm.....Clarksville, Arkansas

CALIFORNIA

Dr. Laurence S. McClaskey.....Public Health Dental Officer
State Dept. of Public Health, San Francisco

Dr. Lawrence McClaskey, Livermore, Calif., was representing:

Dr. Hugo M. Kulstad, 3605 Union Ave., Bakersfield, Calif.

COLORADO

Dr. Robert A. Downs.....Chief, Public Health Dentistry Section
State Dept. of Public Health, Denver

CONNECTICUT

Dr. F. M. Erlenbach.....Chief, Division of Dental Hygiene
State Department of Health, Hartford

* Dr. Phil Phair (Illinois).....American Dental Association

DISTRICT OF COLUMBIA

Dr. A. Harry Ostrow.....Director, Bureau of Dental Services
D.C. Health Department, Washington, D.C.

FLORIDA

Dr. Floyd H. DeCamp.....Director, Bureau of Dental Health
State Board of Health, Jacksonville

GEORGIA

Dr. J. G. Williams.....Director, Div. of Dental Health Education
Department of Public Health, Atlanta

Miss Annie Taylor.....Division of Dental Health Education
Department of Public Health, Atlanta

* Should have been listed under Illinois

IDAHO

Dr. W. O. Young..... Division of MCH and Crippled Children's Service
State Department of Public Health, Boise

ILLINOIS

Dr. John E. Chrietberg..... Supt., Bureau of Public Health, Dentistry
State Department of Public Health, Springfield

INDIANA

Dr. Roy D. Smiley..... Director, Division of Dental Health
State Board of Health, Indianapolis

IOWA

Dr. Harry I. Wilson..... Consultant, Div. of Dental Hygiene
State Department of Health, Des Moines

KANSAS

Dr. Willard R. Bellinger..... Director, Division of Dental Hygiene
State Board of Health, Topeka

KENTUCKY

Dr. James F. Owen..... Director, Division of Dental Health
State Department of Health, Louisville

Dr. Charles J. Gillooly..... Division of Dental Health
State Department of Health, Louisville

LOUISIANA

Dr. Paul Cook..... Chief, Section of Dental Health
State Department of Health, New Orleans

MARYLAND

Dr. Richard C. Leonard..... Chief, Division of Oral Hygiene
State Department of Health, Baltimore

MASSACHUSETTS

Dr. William D. Wellock..... Director, Division of Dental Health
Department of Public Health, Boston

MICHIGAN

Dr. Fred Wertheimer..... Chief, Section of Public Health, Dentistry
State Department of Health, Lansing

MINNESOTA

Dr. W. A. Jordan..... Director, Division of Dental Health
State Department of Health, St. Paul

MISSOURI

Dr. C. E. Presnell..... Director, Bureau of Dental Health
State Department of Public Health and Welfare, Jefferson City

MONTANA

Dr. Francis I. Livingston..... Director, Division of Dental Health
State Board of Health, Helena

NEBRASKA

Dr. J. R. Thompson..... Director, Division of Dental Health
State Department of Health, Lincoln

NEVADA

Dr. Omar M. Seifert..... Director, Division of Dental Health
State Department of Health, Carson City

NEW HAMPSHIRE

Dr. H. Shirley Dwyer..... Director, Division of Dental Services
State Health Department, Concord

NEW JERSEY

Dr. Earl G. Ludlam..... Chief, Section on Dental Diseases
State Department of Health, Trenton

NEW YORK

Dr. David B. Ast..... Director, Bureau of Dental Health
State Department of Health, Albany

Dr. Arthur C. Bushel..... Assist Dir., Bureau of Dental Health
State Department of Health, Albany

NORTH CAROLINA
Dr. E. A. Branch..... Director, Oral Hygiene Division
State Board of Health, Raleigh

NORTH DAKOTA
Dr. E. C. Linscheid..... Director, Division of Oral Hygiene
State Department of Health, Bismarck

OHIO
Dr. H. B. Millhoff..... Chief, Division of Dental Hygiene
State Department of Health, Columbus

OKLAHOMA
Dr. Frank P. Bertram..... Director, Division of Preventive Dentistry
State Department of Health, Oklahoma City

PENNSYLVANIA
Dr. Linwood G. Grace..... Director, Bureau of Dental Health
State Department of Health, Harrisburg
Dr. William E. Walton..... District Dental Officer
State of Pennsylvania

PUERTO RICO
Dr. Francisca Guerra..... Chief, Bureau of Oral Hygiene
Puerto Rico Dept. of Health, San Juan

RHODE ISLAND
Dr. Thomas W. Clune..... Public Health Dentist
Division of Maternal & Child Health
State Department of Health, Providence

SOUTH DAKOTA
Dr. David M. Witter..... Director, Division of Dental Health
State Department of Health, Pierre

TENNESSEE
Dr. Carl L. Sebelius..... Director, Dental Health Service
State Department of Public Health, Nashville

TEXAS
Dr. Glover Johns..... Assoc. Dir., Division of Dental Health
State Department of Health, Austin

VERMONT
Dr. Byron W. Bailey..... State Health Commission
State Board of Health, Burlington

VIRGIN ISLANDS
Dr. Rudolph U. Lanclos..... Municipal Dentist, St. Thomas and St. John
Charlotte Amalie

VIRGINIA
Dr. W. H. Rumbel..... Director, Bureau of Dental Health
State Department of Health, Richmond

WEST VIRGINIA
Dr. N. H. Baker..... Acting Director, Bureau of Dental Health
State Department of Health, Charleston

WISCONSIN
Dr. F. A. Bull..... Director, Dental Education
State Board of Health, Madison

WYOMING
Dr. Timothy J. Drew..... Director, Division of Dental Health
State Department of Public Health, Cheyenne

DR. KNUTSON: Was any State or Territory not called? I am sure there are representatives that have not arrived who will be with us later. We have with us today several special guests. One who came the longest distance

is Dr. Lachner from Costa Rica. (Applause)

The next one we have has been a long way off since we had our last meeting, a man who is actively concerned with promoting public health training among dentists in foreign countries, Dr. Phil Blackerby from the Kellogg Foundation. (Applause) Incidentally, it would be my impression from what Dr. Scheele said that Dr. Blackerby's efforts as a consultant to WHO on dental matters are paying off.

Next we have Dr. Phil Phair, representative from the American Dental Association, who needs no introduction. We are certainly glad to have you with us, Phil, to come here and get educated with us.

I have been asked to announce that out on the table in the hall are four sheets of paper on which you are to indicate which group you would like to be assigned to in the work sessions, which leads me to the leader of the work sessions. It is Dr. Nisonger. He is going to be our catalyst.

Now we come to what might be called the *pièce de résistance* on the program. I say that because not so long ago I was scheduled to present the *pièce de résistance* on a program in Wisconsin. They invited me out there to tell about recent advances in the prevention of dental caries. Now, out in Wisconsin they started promoting water fluoridation in 1945. Yet they asked me from the Public Health Service to come out there and tell them of recent advances in the prevention of dental caries. As you all know, the Public Health Service didn't get around to approving water fluoridation until five years later, in 1950.

You all know that Dr. Frank Bull has appeared before us, this group, and also many dental groups during the past five years, asking the simple questions: "What are we waiting for? Why don't we go ahead and fluoridate drinking water supplies?" He is not going to do that today, not going to try to sell you on water fluoridation. We have all, a bit late perhaps, come to the conclusion that he was right in 1945. Now what we want is some guidance and help in doing the job, in bringing about water fluoridation. It is going to be a big job, perhaps a bigger job than most of us realize. There are 16,000 community water supplies in this country that we would all like to see fluoridated this year. Most of those water supplies—in fact, over 10,000—supply people in communities from 500 to 5,000 population. So to give us some guidance, and tell us some of his experiences in actually promoting water fluoridation in communities, we have asked Dr. Frank Bull to come before us again. With that, Frank, will you come forward and proceed?

(Applause)

DR. BULL: Dr. Knutson, Dr. Fulton, fellow public health workers, after hearing that introduction I am kind of anxious to hear myself talk.

A lot has happened since the meeting a year ago. Since the State and Territorial dental directors came out with a resolution endorsing fluoridation a year ago, practically all the top level health groups have come out with similar recommendations. Of course we in Wisconsin have believed for a long time that this is one of the great all-time public health programs. I hope we are right. I feel sure we are.

But now that all of these recommendations have been made, where does that leave us? Well, it leaves us just about where we started. No recommendation or policy ever helped the public. It is only when a policy or recommendation affects the attitude of the public that we are ever going to be able to bring about any improvement. I think we should give a little thought to that.

We thought we in Wisconsin had a pretty tough job in promoting fluoridation, but I think you in the other states are going to have just about as tough a job. I think our experiences are going to be repeated all over again,

and I think there will be quite a challenge to your promotion of fluoridation. And how you handle this challenge will decide what kind of results you get in your communities.

I think the fact that we are new in public health — it has only been in recent years that we have really had some honest to goodness public health programs — has some bearing on the matter. We haven't had a background of experience in promoting public health programs, and I think that a little review would be in order.

If we study the history of all public health programs we find certain similarities. One is that they all started at the local level. Public health programs don't start at the national level. They all start at the local level. That is where they should start. John talks about the Public Health Service's being five years late. Well, most public health programs never had national level approval for 15 or 20, or even 30 years. So I don't think we have anything to apologize for on that, John. We needed that waiting period. We have had it, and it hasn't been too long.

If you study these public health programs you will come to another conclusion, and that is this: We have more data based on human experience with our fluoridation program than was ever collected on any public health program in the past. That is a thing we should stress, because when people start raising objections to fluoridation, if we cannot handle them with all the data we have on humans, not on guinea pigs, how would we have ever handled any of these programs in the past where you had practically no human experience?

I think there is another thing that comes in, and that is this: All of our past public health programs have been a matter of weighing the good that is in them against the bad. Now, every one that I know of had some bad, and quite a bit of it. Some of our oldest programs, like our immunization programs, are examples of this. Two years ago we really had a mess in Wisconsin with immunization. We had two county nurses that nearly went crazy, because they had so many sick children from an immunization program.

Now, we have never had any public health programs in the past that didn't involve some bad, and it was a matter of weighing it and deciding that there was also much good connected with it. This was the case with penicillin. We still know the trouble we have with penicillin, but the good is great and the bad is comparatively little, so the program is promoted.

Well, we are into a program, fluoridating the water, which has absolutely no bad connected with it. If you can't sell that, then you are certainly going to wonder how these other programs were sold in the past.

I think there is another historical factor that is well to remember, and that is that none of these public health programs ever had a hundred percent approval when they were started. None of them even after 30 or 40 years of experience has received 100 percent approval. We still have people in high positions in health work who are against some public health programs, absolutely against them, but does that stop the program? If you let that sort of thing stop your program then you would be acting according to the approval of one-quarter of one percent of the people, and after all, that isn't democracy in action. But those things are from history. If we are going to be able to go out and sell fluoridation, we have got to know what is considered evidence, something like court work. After all, courts take into consideration past decisions when they are making a present-day decision. Well, we have to do that in public health. We dare not let these people write a whole new standard for us when we introduce our dental program. We must not let

them say that it has got to have 100 percent approval, or advance as a valid objection the fact that it may possibly have some bad to it.

Well, perhaps that will give us a little more confidence in our approach to the program. I often wonder how these engineers — and it was the engineers, by and large, that sold chlorination of water supplies — did it. If we had one-half as much opposition to the fluoridation program as they had to the chlorination program we wouldn't have a fluoridation program today at all. They did a bang-up job. Here they were selling something that made the water stink, in most cases tasted bad, and had other offensive characteristics. They put it over, and they did one of the greatest pieces of public health work that has ever been done.

Surely in this modern age we should be able to do something with our fluoridation program. But one thing is going to happen to you, just as it has happened to us in Wisconsin and is still happening to us. You must be able to answer all of the objections that are brought up to fluoridation. Maybe in your state those objections haven't been brought up as yet, but they are going to be brought up. They will be brought up to test you out.

It is like a ball player who starts getting good and moves up in the leagues a little bit. The higher he gets the more they test him to discover a weak, vulnerable spot. If they find his weakness, that is what they pitch to. And that is exactly what will happen on this fluoridation program. If there is a spot you start to stutter on, that is the spot they are going to work on.

Now, this isn't something new. It has been true of every public health program that has ever been put into use. I can tell you that the state health officer we had for 45 years told me that the toughest program he ever ran into in public health was to discontinue the public drinking cup. You see, each of the programs has gone through pretty much the same thing, and we might just as well know it, because we are going to get it whether we want it or not. What are some of the objections that are brought up on this fluoridation program?

I think the first one that is brought up is: "Isn't fluoride the thing that causes mottled enamel or fluorosis? Are you trying to sell us on the idea of putting that sort of thing in the water?"

What is your answer? You have got to have an answer, and it had better be good. You know, in all public health work it seems to be quite easy to take the negative. They have you on the defensive all the time, and you have to be ready with answers.

Now, we tell them this, that at one part per million dental fluorosis brings about the most beautiful looking teeth that anyone ever had. And we show them some pictures of such teeth. We don't try to say that there is no such thing as fluorosis, even at 1.2 parts per million, which we are recommending. But you have got to have an answer. Maybe you have a better one.

They are going to bring up the question of whether fluoride added to the water supply is the same as natural fluoride. And, incidentally, we never use the term "artificial fluoridation." There is something about that term that means a phony. The public associates artificial pearls or artificial this or artificial that with things that are not real or genuine. We call it "controlled fluoridation." In natural fluoridation you take whatever amount of fluoride happens to be in the water on a particular day coming from the ground. In some areas that will vary a great deal from week to week or season to season, but with controlled fluoridation you get just the exact amount you want.

Well, we now have enough evidence from cities that had demonstrations to show that controlled fluoridation has the same effect as natural fluoridation. Incidentally, we never had any "experiments" in Wisconsin. To take a city of 100,000 and say, "We are going to experiment on you, and if you survive we will learn something"—that is kind of rough treatment on the public. In Wisconsin, we set up demonstrations. They weren't experiments. Anyway, there has been enough experience now to show that it doesn't make any difference whether nature puts the fluoride in the water or we do.

Now, in regard to toxicity—I noticed that Dr. Bain used the term "adding sodium fluoride." We never do that. That is rat poison. You add fluorides. Never mind that sodium fluoride business, because in most instances we are not adding sodium fluoride anyhow. All of those things give the opposition something to pick at, and they have got enough to pick at without our giving them any more. But this toxicity question is a difficult one. I can't give you the answer on it. After all, you know fluoridated water isn't toxic, but when the other fellow says it is, it is difficult to answer him. I can prove to you that we don't know the answer to that one, because we had a city of 18,000 people which was fluoridating its water for six or eight months. Then a campaign was started by organized opposition on the grounds of toxicity. It ended up in a referendum and they threw out fluoridation. So I would hate to give you any advice on that deal. (Laughter) It's tough.

I don't believe you can win approval of any public health program where there is organized opposition, I mean clever, well thought up opposition. I think it is possible to beat almost anything, and I know that is what has happened to us. So when you get the answer on the question of toxicity, please write me at once, because I would like to know. We have answers, but apparently in some places they don't work.

But in that there is a lesson, and it is this: If we had let such things interfere in the promotion of our fluoridation program, we wouldn't be the kind of people that those men who went before us and promoted more difficult public health programs were. We still have good sized communities that will not chlorinate water. They just won't do it. By and large we are getting our water chlorinated, but you will hit spots where even after 30 years you still cannot do anything along certain lines. So we can expect that same kind of problem in fluoridation.

I am sure we have a few communities in Wisconsin that will be the last ones in the United States to fluoridate their public water supplies. Whenever you get a community that talks about the wonderful water it has, look out. (Laughter) You are getting into trouble. You go to that community, and you'd swear that the only thing the water was any good for was to run under a bridge, but to the people who live there it is wonderful water, and if anyone attempts to add anything to that water — and I am talking about chlorination as well as fluoridation now — you are up against something.

Now, while some of these objections to fluoridation are made by sincere people who want information, there are a lot of people who just throw them out as stumbling blocks to fluoridation.

Another question — the difficulty in maintaining the correct amount of fluorides in your water — is generally a sincere question. People may hesitate just on that thing. They are concerned. Well, you have to reassure

those people. The fact that in our small communities that are fluoridating—I am talking about communities of 500 people—they are able to maintain to within one-tenth of one part per million the correct amount of fluorides in the water is a powerful argument. It is an argument not only on that question, but on the belief that you need chemists, and I suppose biochemists and astrologers (Laughter), in order to carry out this program successfully.

Of course we are not trying to belittle the chemist's or the engineer's part in this picture. We want adequate controls, and we have them. We make sure of this by checking them at a higher level, where better and more exact tests can be run. But our experience has been this, that if a community is large enough to have a public water supply, that supply should be fluoridated and can be fluoridated efficiently and economically.

Another charge sometimes made is that you are handling something that is bad, dangerous, and that the workers have to take all kinds of precautions. That isn't so. Of course, we don't want these fellows inhaling the dust, whether it is sodium fluoride dust or whatever it is. We don't want them inhaling the dust 24 hours a day or even for shorter periods. But with ordinary, just ordinary, precautions there is no danger involved in handling fluorides.

Now, the cost is going to be a factor wherever you go. And on this cost item you have got to know a little bit more than just the cost of fluoridation. You have got to know some other costs, because people are going to talk as if the only thing that costs them anything in this community is fluoridation, and its estimated cost sounds like a lot of money to them. That is a stumbling block, you see.

We tell them this: There is only one thing wrong with fluoridation. It is too cheap. And I believe that, I honestly believe that. It has been a drawback to fluoridation. People just can't conceive that for so little money such a great amount of good can come.

Now, every once in a while, the engineers, and the waterworks men particularly, are really going to give you the business. They will say, "Well, if we can get this reservoir in over here and a new 10-inch line from Padukahville in, and one thing and another, then we will go along with fluoridation." They have many reasons for stalling, and they are all good. But don't pay a bit of attention to a single one of them, because if you do the waterworks people will stall you from here to doomsday, and don't think we haven't had that experience and in the form of a postgraduate course. They have got more ways of keeping fluorides out of the water than you will ever imagine, but we simply say this: If your water is good enough for people to drink today, then you should have fluorides in it today.

They are always going to drill another well or change this and that, and then they'd be very happy to consider fluoridation. Well, don't hold still for that. Or they need more installations in their community, which may be a fact. But you see, the fact that a good size community needs several installations shouldn't hold anybody up. The per capita cost, even where several installations are needed, would probably be only 30 cents per capita. We think nothing of going to a community of 400 people and saying, "You should fluoridate your water," when we know it is going to cost them \$50 per capita to get their equipment. So why should we let these big communities stall us?

You know, some of the big cities spend money on things without even thinking about it. There is more money that just trickles through their fingers than the whole fluoridation program costs. For example, Milwaukee usually buys 10,000 tons of salt and sand a year to spread on the icy streets during the winter. That costs money. Well, this year they used 50,000 tons,

five times as much as usual, and that means five times the amount of help spreading it on the street, and about 10 times the amount of help to go around and shovel it up afterwards when spring finally came. It cost hundreds of thousands of dollars. Well, they dug up the money for that stuff. Another eight inches of snow costs the town \$200,000, \$300,000, or even \$400,000. Don't let them try to fool you into thinking they can't afford the money when it comes to health. (Laughter)

One question that a community should ask is the effect of fluoridation on the industrial uses of water. Right here I have got to say something. We might as well face it—we are going to have to live down for quite a while some of the things we have been saying the last three or four years in regard to fluoridation. You heard Dr. Scheele say something about the fact that the Public Health Service's attitude had changed. Well, you know a lot of letters have been going back and forth, and a lot of this stuff is in print, and people are going to show it to you, telling where this fellow is against fluoridation; it is experimental; it is this, that, or the other thing; or someone has come out with statements that are hard to live down.

I suppose we have all made statements that we'd like to live down, especially that "I do" we all went through. (Laughter) But when you get a state coming out with an official policy that reads something like this—I won't read the first part of it; it is standard—"Since there is some indication, although not of a specific nature at the present time, that some interference may be encountered with industrial processes where fluoride treatment is applied, it is recommended strongly that communities considering the adoption of the practice investigate locally to determine whether or not interference with industrial processes will result because of fluoride treatment."

I can kill fluoridation with that. Either we know about these things or we don't. Now, naturally we don't know anything about what fluorides are going to do to some industrial processes that are developed 50 years from now. We don't need to know that. We do know that there is no known industrial process—unless you are an antique collector and pick up one of these old ice making machines like they use down in Charlotte, North Carolina (Laughter)—there is just no known industrial process that fluoridation has any effect on.

Why not say that to the people? Why, we have had deans of dental schools coming out with the statement, particularly in reference to sodium fluoride, that high pressure boilers would blow up. Some day you have got to live some of those things down.

The question of taste and odor being added to the water is an important thing a community wants to know about, and you have got to assure and reassure the people. We simply tell them that you can't taste 100 parts per million in the water, let alone one. You can rig up a test or demonstration for that quite simply.

You also hear of fluoridation's being wasteful. Some of the engineers will advance that argument. They generally do it in a weak sort of way. If you grab hold of it and squelch them they will forget it. If you don't know quite how to handle it they will pursue that line of argument a little further. Sure, fluoridation is wasteful, just as a lot of things we do are wasteful, but unfortunately we don't know any other way of doing them. We chlorinate all

the water in a community—maybe 175 gallons a day per capita—and the individual drinks a quart. You have chlorinated all that other water for no reason. You are going to do the same thing with fluoridation. You are going to fluoridate 175 gallons per capita daily and drink a quart or a quart and a half. If there were any great expense involved, you would be up against a valid argument, but the fact remains that to do all of that, to do it the wasteful way as they might call it, will in most communities cost only 10 cents per capita annually.

One thing that is a little hard to handle is the charge that fluoridation is not needed. They talk of other methods, and when they get through adding up all the percentages of decay that we can reduce by such methods, we end up in a minus. When they take us at our own word they make awful liars out of us. And that will be brought up. Cut out sugar and do this and that. We simply tell them this: With all that we think we know about the prevention of dental caries, we are having more of it today than we have ever had in the history of mankind. Instead of being on the decrease it is on the increase. And if they want to do something on a mass basis they must go into their urban areas and start fluoridating the water.

Another thing that will be brought up is that all of the dentists, all of the physicians, all of the public health people, and especially research workers, are not for fluoridation. Well, that is a correct thing to say. But you have got to have the answer for it. All of our physicians aren't for immunization, either. And all of our physicians are not for the use of iodine in goiter prevention. We don't have all our physicians in back of any of our public health programs, and we are never going to have all of our dentists for them either. But the great majority of them are for them, and we adopt our policies accordingly.

As far as the research workers are concerned, I suppose fluoridation will always be an experiment, at least during our lifetimes. Maybe that is just as well. But there has to be a time, you know, when the research fits into common sense.

If you have had any experience with people who are interested in inventions you know they never get them perfected. There is always another thing to be done, and on and on. We would never make any progress if we held still for that. The unfortunate thing is that some of the research workers are going around the country telling the public they cannot recommend fluoridation. That is going to happen in your community. It is happening all over the United States, so you are going to have to combat it. We tell them this, that if the evidence we have on fluoridation isn't sufficient for its general use by the public, then we shouldn't have any public health program. We shouldn't have one, because we have so much more data on fluoridation than on any of the others. Just think of penicillin. How old is penicillin, seven or eight years? Well, we knew a lot about fluoridation seven or eight years ago, too. But they practically brought penicillin up to its peak in seven or eight years.

Medical men are a little more used to public health programs than we and are not quite as afraid of them. People are going to say to you, "Isn't it a fact that you don't know all about fluoridation? Do you know how this thing works?" We say we don't know all about it. But still you want us to try it, they say. That's right. We don't know all about anything. Why, even one of our oldest public health programs, the chlorination of public water supplies, has been undergoing changes. I think in the last couple of years the engineers have re-evaluated their chlorination techniques and are doing

things differently. We aren't to the perfection stage on anything. If you let the people know that, then they will back up, but if they think they have made a point you can't answer, then you are a little bit behind the eight-ball.

Another tough question is that of the liability of the water department. We never had that one until pretty recently, when someone thought it up. Maybe it is an honest thing, too. I wouldn't know. But you are going to have to answer it. The water department will say, "What is our liability in fluoridation?" Well, we say "You are going to look bad if they start suing you because you are not doing it." (Laughter) You pretty nearly have to turn the thing around. If they get you answering questions for them, then they have you on the defensive, and you are like any salesman, you are sort of up against it.

I think several state attorney generals have ruled that there can be no liability in connection with a thing like fluoridation as long as what the water department is doing is an accepted procedure and it is doing it within accepted standards.

Well, we could go along with this for some time, but I am sure you will have some questions that will be more pertinent than these things I am bringing up.

So you have got along to the stage where you have sold yourself, and after all, if you haven't, then don't start in on this deal. If you are not convinced, if you are not ready to go out and do battle on this thing and maybe be called a few names along the route, you'd better not get in it. But now you have got to the stage where it is the thing to do. The question you will ask is: How am I going to do it?

Of course it would be sort of presumptuous on my part to be telling you how, but I can give you a few of our experiences, and you can take them for what they are worth.

First you need a positive policy by your state dental society and your state board of health. Now, I mean a really positive policy. Don't put any ifs, ands, buts, or maybes in the thing, because the minute you do you kill it. You simply give ammunition to the fellow who is against it. Say you recommend fluoridation within certain limits where there are proper controls—that's definite to the public. I could read you some policies that could furnish plenty of ammunition to the opponents of fluoridation. Let's not do that. You have got to get a policy that says "Do it." That is what the public wants, you know. What kind of public health program is it if you say to the community "If you want to do it." You have to go to the public and say "Do something or don't do something," and make it emphatic. Otherwise they wouldn't need public health people. What are we here for?

You need a state fluoride committee. In Wisconsin that has been, I believe, the most important thing in our set-up. We have a state committee on fluoridation established by the state dental society. And we have got, outside of myself, I think the best dentists in the state on that committee. Now, that committee is not just a list of names; those fellows really have a job to do.

You need teamwork in your state department of health. You are not going to get any place if your state health director, or your dental director, or the engineers are against it. Between these two groups, your state board of health, with the dental department taking the lead, and the committee of your state dental society, there are a lot of things to do. One is the collection of all the data on fluoridation. Those data should be made available to the component or local dental societies, lay groups, and so forth.

There is a lot of publicity that the local fellows can't handle that must be gotten out from the state level. They don't know how to do it, or they are

afraid to do it or something. Those are things that can come from the state board of health or the fluoridation committee of the state dental society. And that committee can assist in the pre-fluoridation surveys to be made in a community.

Now, why should we do a pre-fluoridation survey? Is it to find out if fluoridation works? No. We have told the public it works, so we can't go back on that. Then why do we want a pre-fluoridation survey?

Well, gentlemen, what is going to happen five, six, or seven years from now, when we may have a little recession? I mean a lot of people without much cash in their pockets, will be looking around for some way to cut down expenses. The alderman is going to sit on the council and say, "You know my dentist just sent me a bill for 68 bucks for my kids. We have been fluoridating our water, and I don't see that we have done a bit of good. I am still getting these bills. Let's throw fluoridation out."

How can you counteract this? You want your pre-fluoridation data so three, five, or any year from now you can go back into those same areas and do the same type of survey and show the people what they have got for their money. And we owe it to the public to do that. We have no right to be spending public money unless we can show them that what we have done has done them some good.

Have you had any programs on fluoridation at your state meetings? I don't mean programs on fluoridation where most of the members get up and say: "It's all right, but it is experimental. Don't do it now."—or give some other excuse. How can you expect the dentists of your state to go very far on fluoridation when they have never even heard anything on it? They assume if a thing is important they hear about it at a state meeting.

Since 1944 we have had a positive presentation on fluoridation — I want to stress that, positive presentation on fluoridation — at every annual meeting we have had, and we are going to have it on our 1952 meeting. You just don't go out and tell dentists, any more than you can go out and tell people, that this is the thing to do and they automatically go ahead and do it. You have got to keep this thing before them, and you have got to make it look important enough so you have it on the state meeting level. And when you have it on that level, don't get somebody on the program who ends up with, "But I don't think you should do it." (Laughter)

You are laughing now, but in your state someone may come in and say just that. I am talking about June of 1951. I am not talking about 1945. I just came back from a meeting in Seattle, Washington, and a fellow said, when he got through with his presentation, "But I couldn't recommend that anybody do this."

Now, what are we trying to do? Are we trying to promote this thing, or do we want to argue about it? If we want to argue about it, let's get up a debate before our dental organizations and talk the thing out. But when we are inviting the public in and the press in, don't have anybody on the program who is going to go ahead and oppose us because he wants to study it some more. Unfortunately, that is happening right along.

Your local component dental societies also have got to have programs on fluoridation. Who can supply them? The committee from the state society and your state board of health can. When they have the first meeting at the local level, that is the time to get the press in, and as a rule we don't even wait for that. If we are going to present something this evening in a certain community, we get over to the newspaper office this afternoon. They like that. You invite them personally to this meeting. They will want to write

about fluoridation. Have a little material. You know that series of articles that was gotten out by the Cleveland Press on fluoridation? That was a terrific piece of publicity. Show the newspaper people some of those things. They get warmed up. They are pleased that you came in. You remind them how the press has been one of the greatest factors in the promotion of public health. You tell them how fluoridation helps the poor devil who can't afford proper dental care, and all that. You will have a pretty sympathetic press. Have them at the first meeting.

And at that meeting you have to have a definite program. There are certain things you have to put over at the local level. I think some of the things you should include are a discussion of the public health aspects of fluoridation, noting that we haven't got enough dentists to take care of the present dental caries, how much dental caries fluoridation prevents, and its economic aspects. That is something they all understand, and is a strong point to make before the lay groups. You can tell the people that after this thing gets going it is probably going to cost \$7.00 to fluoridate the water for an individual throughout his entire lifetime. Now, that fellow sitting at the meeting has paid some dental bills. He knows how little he gets for seven bucks, and he can understand that language.

There again is a place to promote or emphasize community responsibility. You have got a program which is ideal. The people can afford it, but nobody can put it in effect but the community. Now, do they want to do something? After all, it is the finest kind of public health education when you get down to where the local fellow can do something for himself, and in most cases they are apt to do it.

You have got to come out of that local meeting with a resolution from your local dental society on fluoridation. You have got one from the state. You have got one from the state board of health, and you have got one nationally, but that doesn't mean much at the local level. The dental authorities in a community are the local dentists. They are the ones who treat the dental ills of the community, and they are the ones that the people have a right to look up to.

Another thing you have got to come out with at the local level is a committee to follow up the fluoridation program. They passed a resolution on it, but again that is just a resolution. It won't help anybody till you get it working. How are you going to get it working? If you don't have a definite group to follow this thing up, then you might just as well have never started, because somewhere along the line it will just die out. So the local committee is a must.

In addition, the state committee and the state director can do a lot before the medical groups. I suppose we have appeared before every medical society in the State of Wisconsin. Now, the local man generally isn't in a position to do that. He is afraid that when he gets before the medical fellows, they will have a lot more knowledge about things than he has. Well, from your state level you can have a man come in who knows how to present fluoridation, and let me tell you this: The medical audience is the easiest audience in the world to present this thing to. They are used to carrying on public health activities. This worry about toxicity doesn't mean much to them because of all the human experience we have had.

So you come out with a resolution from your county or local medical organization. You do the same thing with your local board of health. In many places the next thing to do is go before lay groups, service clubs, PTA's, and always invite the public officials, water men, aldermen, mayors, anybody you can get. Have them at as many of those meetings as you have meetings.

Now, this is before any proposal is made to the council to adopt fluoridation. In other words, it is a sort of lobbying procedure you are carrying on, just as if you are going to present a bill before your state legislature. You know there is a special way of doing that if you expect to get it done. You can't just walk up to a legislator and say "Here is a bill." It gets no place. The same way with fluoridation. Have the press at every one of those meetings. Then we have a sample ordinance all drawn up, because you can have six months' delay just on that. Have one all drawn up, so that all they have got to do is either to strike something out, or add what they want, put in the name of the town at the top, and it is an ordinance on fluoridation. Otherwise that thing is going to get lost in the shuffle.

Now you are at the stage to present the ordinance to your city council or your community council. The officials have had an opportunity to listen to this proposal on the way up. They have had an opportunity to hear questions asked about it. They have heard the answers to those questions. They have seen the reaction of the PTA groups, of the service groups, union groups. It doesn't make any difference what groups; public health is everybody's business. It isn't just the physicians', the dentists', and nurses' business. It is everybody's business, so talk to anybody that is interested.

Then our technique has been to ask the council for a meeting, and have either a local dentist or a representative from the state health department or the state dental society present. You have one meeting of the community council as a question and answer, explanation session, before they have to vote on the question. They resent being handed a resolution and being asked "How many yes and no." They don't want that. They want a little time to think this over. They have that meeting. It is explained to them. At the next meeting it is voted on.

We have the representatives from all the groups that we can get to attend the meeting where there is the question and answer period. Why? Because it shows interest. And the local officials are pretty apt to go along if the people show enough interest.

Now, what about the small community where you have one dentist or two dentists or no dentists? After all, because there isn't a dentist in a community, that is no reason you can't fluoridate the water, as long as there is a public water supply. Maybe you will promote a physician if there is one there, or maybe you will just pick out an influential citizen and work through him. Have a meeting at which you can explain the program and talk it over.

Now let's get into a couple of don'ts. We have had a little experience on some things to avoid. Don't use the word "artificial," and don't use sodium fluoride. You don't know what a community is going to end up using as its fluoriding agent. But don't let them raise the question of rat poison if you can help it. And certainly don't use the word "experimental."

Don't try to promote fluoridation from the state level in the local community. Communities resent that. We made just that error in one of our early experiences. We learned a lesson from that. You build a fire under somebody at the local level. Now, where dentists don't seem to be interested, don't let that stymie you. After all, this is a public health program, and just because some dentist isn't interested, that is no reason why the public should be denied this benefit. What we do in a case like that is to arrange to have the PTA or some group ask for some of us to come in and talk about fluoridation. In this way you get in without forcing yourself, and you can build a fire under the dentist. That is promotional work. It is being done in all kinds of programs. It isn't something we just thought up.

Frequently, after an inquiry from a physician, you can go back to the community and say to the dentist, "Isn't it going to look bad if the physician promotes this program?" You say, "I got a letter from him. He wants me to come in and see him about fluoridation. I don't like to do that. This is a dental matter and should be kept that way." Well, maybe he will move. If he doesn't, go to the physician. Go to anybody.

If you can guard against the negative approach, you will save yourself some trouble. By that I mean you have got to be positive. If there is anything in your mind that you can't hit directly, then don't say it, because that is not the way to talk to the public on a public health program. If we were to tell the people that maybe they should immunize or if the physicians of the community are in accord they should immunize, what kind of foolishness would that be? It is either a public health program or it isn't.

If it is a fact that some individuals are against fluoridation, you have just got to knock their objections down. The question of toxicity is on the same order. Lay off it altogether. Just pass it over, "We know there is absolutely no effect other than reducing tooth decay," you say, and go on. If it becomes an issue, then you will have to take it over, but don't bring it up yourself.

Now, there are times when you get the wrong people promoting a program, and that is bad. I know we have had that experience and that we don't know just how to handle it, but we do try to avoid it. You know, sometimes a dentist in a community, no matter how enthusiastic he is about fluoridation, is just the wrong fellow to promote it. Or some civic group or some public-minded citizen may be the wrong one. So you have to get in there and kind of feel your way around, so that you do not create any more obstacles than you are going to have anyway.

And certainly don't stress the cost. It is just too cheap. Even when you are talking to these people, they are going to have to pay \$1.00 or \$1.50 per capita to install the equipment. After all, this is health, and let's not minimize the importance of it.

Now, when you go into a local community on any of this promotional work, have a pretty good idea of what the waterworks set-up is there. In other words, if it is a community that is going to need six or eight installations you should know that before you go in, and you should have a pretty good idea of what these installations are and what they cost and what they look like. Don't think because you have read a couple of articles that you are going to be able to know all the answers, because you aren't. You have got to know what these things look like and what they cost, how complicated they are, and similar details. If you don't have any other place to find out, come on up to Wisconsin and we will show you.

We recently had people from seven states come to Wisconsin to look over some of our outfits. I don't think there was one state out of the seven where the engineer really believed us. So we just took them to several little installations where the village barber is the waterworks man or the hardware man is the waterworks man and turned them over to him, and let the engineers question him, find out what he is doing and how he is doing it. Until they saw that, I don't think they believed us. I don't think some of you are any different from them. It is one of those things you have to see, and I think we should make an effort to see it.

In our large communities we have engineers and chemists, so there are fewer problems. But you have got to sell yourself on the idea that fluoridation can be done and done properly in a small community. Unless you are sold you are going to have a hard time selling anyone else. Now, be sure you

get your public officials in on your first meeting. Say it is a local dental society meeting. Invite your alderman and your mayor. Let them hear this thing discussed — not the second and third time it is discussed in a community but the first time. Have your water man there. And don't believe all the water man tells you. They are not going to believe all you say, so why should you be so prejudiced? Those fellows will frequently confuse the issue. For instance, it is not unusual to have one of them get up and say, "We estimate that fluoridation will cost up at least \$30,000 the first year." What are you going to say? You are not supposed to know anything about the water department or anything else. The thing to do, if you know what you are talking about, is to say, "Listen, let's leave those jokes to the radio comedians. Let's get down to some common sense. Here is a community 20 miles from you. You need one more installation than they need, and theirs cost them \$2,000 or \$3,000."

Well, then the waterworks man says, "We thought we'd have to enlarge the building." If you are going to invest in big trucks and probably subsidize the railroad for a boxcar in order to bring the stuff up, you can get into some pretty good expense accounts. But don't let them give you that kind of argument.

How can you stop such talk? By having at least some idea about the expense. You don't have to be a dentist to know that a fellow can get an upper denture for somewhere under \$200. Now, when you say you can't get one for less than \$2,500, even the man in the street knows you are lying. Some individual may charge that much, but he is the exception. And by and large we can do the same thing about engineering.

Whether a thing is going to cost \$500 or \$700 isn't a thing for us to be quibbling about, or whether it is going to cost \$4,000 or \$5,000. But we should have some idea of what the cost will be. And certainly don't fail to push community responsibility. They will let you do this whole business, and you will end up a flop just like we did where we tried to do it all ourselves. You have got to get that impressed on them. Your local dental society, the PTA, any of them — this is their baby. If they want to do something for their children, they have to take action. How? They have got to get an ordinance passed.

Let me tell you the PTA is a honey when it comes to fluoridation. Give them all you've got. They will pay you back. We had one community where for a year and a half the council had let this thing be tabled. Then the PTA got together and said, "I wonder what we can do about it." The local dentist called me up and asked when I was coming through. He said he would get some of the PTA people together.

They said, "What can we do?" We said, "How many of these PTA people can you get down to your council meeting on Monday night?" They didn't think they'd have any trouble getting a couple of hundred. "Well," I said to this dentist, "How much does that room hold?"

He said, "Fifty."

I said, "That will be good. Get them down." They were down. The council pulled it out from underneath the table, put it aboveboard, voted, and they got fluoridation.

Now, Milwaukee has given us the run-around for so long I don't know whether we will ever get fluoridation there. One year they leave the whole business out of the budget. Nobody knows it. The whole budget goes through, and a couple of months later we find we are stuck a year. Nobody was following that thing closely enough.

Then they let the bids. It takes them three months to let the bids. It

takes three months to decide who was the lowest bidder. A month later they decide the bids weren't right. They say they just want bids on equipment this time, not the installation. They can install it themselves. This is the kind of thing that happens. You might as well be prepared for it. You may not have it, but we certainly have.

I think one mistake that is made at the local level is in some individual dentist's trying to carry the program alone. That makes the other dentists resent it. It makes the lay groups resent it. So make it a community thing as much as you can. And be sure not to present the ordinance to the city council before you have had an opportunity to really sell them. They will resent it if you do.

If you can — I say if you can, because five time we have not been able to do it—keep fluoridation from going to a referendum. After you have just a little experience you will find you can walk into a mayor's office, and after about three sentences you know whether he is for fluoridation or against it. He is never going to say he is for or against it, but you can detect that. It is the same way with the waterworks men. They will say, "Well, if the people want to do it, let them vote for it." If we get public health by referendum, God help us, because I think that on most of these programs you can beat anything that requires money. When a mayor brought that up to me, I said, "How would it be if we submitted to referendum at the same time the question whether your salary should be \$7,000 a year or \$3,000." I said, "How do you think that referendum would come out?"

He said, "Probably come out \$3,000."

I said, "Sure."

After all, this isn't a thing you are going to try to sell to every individual member of the community. The community elects people or appoints people to carry out certain duties, and they expect them to perform those duties, just like with the health set-up in the community. If your health officer is sold on fluoridation, your dentists are sold on it, your medics are sold, you should present it to the council. It is their duty and obligation to either adopt or reject it instead of passing everything to a referendum. If you are going to have government by referendum, what do you have the city council for?

Then there is this matter of not trying to make fluoridation your whole dental problem. I think you will find fluoridation much like the topical applications in that it is a good entering wedge for a dental health program. At the same time don't tell the people that you are just starting on the fluoridation program in order to promote something else, because you are never going to promote anything that comes up to fluoridation in an urban community.

I think maybe one of the things about fluoridation is that it's been too big for the whole profession. I don't think the profession yet grasps the significance of fluoridation. When you stop to think that suddenly something has come in the picture that has the possibility of knocking out two-thirds of the dental decay of the urban population, you are talking about the prevention of more decay, gentlemen, than the entire dental profession has been able to repair. This thing is tremendous. Let's not underestimate it. But by the same token, let's not over estimate it. It doesn't do the whole job.

In our small communities, frequently we use this technique when we are trying to get them to fluoridate. We say, "Of course it really isn't necessary for you to fluoridate, because you are only 12 or 15 miles from Padukahville, and they are fluoridating. After all, your people have got to go somewhere and shop, and they can go over to Padukahville and do their shopping and

pick up a couple of gallons of water and use it for their children." You mention about their going shopping in another little town 10 miles away, and they hit the ceiling. But you are giving them an alternative, and frequently that is the most effective approach.

We have frequently said this before a city council, if they didn't seem to be very impressed with what was going on: "We have got the data here. Of course if you don't care to fluoridate your water, then we had better begin thinking about a program of care, and we have got the thing pretty well figured out. It will cost us about \$68,000 a year." You get into the big brackets, and then they begin to pay attention. If they don't want to do the one you tell them, they are certainly interested in the other. They are not going to say they don't care about dental health. None of them will say that. If you will give them an alternative, sometimes that is a factor in helping things along.

I think I have exhausted what little I know. If you have any questions, maybe we could get more out of them than we could out of further talk.

(Applause)

DR. KNUTSON: Thank you very much. Again you have done a masterful job. As Dr. Bull has indicated, he is willing to answer questions, but before the questions start, let's give Frank a chance to get a drink of water. Let's take five minutes' recess.

(Whereupon a short recess was taken.)

DR. KNUTSON: We have about 15 minutes in which to ask questions. Questions are now in order.

DR. FRANKLIN M. ERLNBACH (Connecticut): I haven't a question. I have an observation to make on one point Dr. Bull made in his address. I mention it, because it happened to me only recently before our General Assembly or at least a committee of the General Assembly considering the fluoridation problem.

The observation I believe Dr. Bull made was that the charge will be made that there is no accurate way of keeping control of fluoridation processes. That statement was made by a waterworks official before a hearing group of our General Assembly, at which I happened to be present. My response to that was this, that if that were true, then the waterworks officials had better do something quick about their other processes, because the same equipment companies are furnishing the equipment for fluoridation as for chlorination or any of the other processes. I assume it made its mark, because there was no response.

My other thought is this, that perhaps it might be wise for this body to consider a specific committee to be appointed to help out other dental directors with some of their problems. I mention that because just recently, again at this same hearing, there was an observation made about the New Jersey situation. I did not at that time have available the information that I subsequently got through direct contact with Dr. Ludlam. I called him on the phone. He very promptly sent the material of the Atlantic City meeting to me, and it did help me in putting over my point.

I wonder if perhaps a smaller group might be appointed from this body to handle specific problems as they arise from the different dental directors so they would have some place to turn to for consideration of problems in their different states. Maybe that will come up later.

DR. KNUTSON: Dr. Bull.

DR. BULL: The first one, I think, Doctor, is an example of our trying to do too much alone. Before our state legislature or a big city council I would not answer questions on testing. I would have the director of our state labora-

tory of hygiene there. They are going to pay attention to him. They figure, "This man is a dentist. What is he doing talking about the technical phases of waterworks operations?" I think they are right. Some of the medical problems should be handled the same way. If you have a good M.D. as health director, refer the medical questions to him. I think that is an example of utilizing everybody to the best advantage.

I think we have a tendency to make the mistake of supplying all the answers ourselves, even if we do know them because frequently those we are talking to don't pay much attention to us. I think the same thing applies to costs. The companies that manufacture equipment have engineers in the local areas, usually by districts. ~~They are available to give a community a definite bid on what it will cost to furnish the equipment and install it.~~ Now, if I say that it is going to cost \$700, they say, "Sure, that guy says \$700, but it will probably end up costing us \$7,000." If they have an estimate from the representative of the company which will install it, which has installed other equipment in the area, and is a nationally known outfit, then there can be no doubt or argument about the cost.

I think the state dental directors and sanitary engineers who recently visited with us in Wisconsin were impressed with the way our engineering division talked, with the way our state laboratory of hygiene talked, with the way our medical director talked about this subject. I think that it is only by that kind of cooperative endeavor that you get results.

DR. FLOYD H. DeCAMP (Florida): May I ask Dr. Bull one question?

DR. KNUTSON: From now on will you address your questions directly to Dr. Bull?

DR. DeCAMP: I would like, Dr. Bull, for you to go back to Milwaukee and do something to the vitamin products company of Milwaukee which recently passed out this pamphlet, a copy of a speech which Raymond Girado of Michigan made some 15 months ago. This copy was sent to the mayor of Tampa, where they were all ready to put the final touches on fluoridation for the city of Tampa, serving 200,000 people. The medical societies had approved the plan, but the mayor and the city council got copies of this speech, and they tried to turn thumbs down on this thing at once. We were stymied. By a strange coincidence, the vitamin products company of Milwaukee has an Orlando, Florida, branch which had a booth one month ago at the state dental society meeting in Hollywood, Florida. They were advertising their vitamin products. As a side issue they gave to each one of the dentists a copy of this speech. We have that to cope with, and those things have gone to many dentists and officials in the State of Florida. I am sure you will be getting some of them. Frank, can't you do something about it?

DR. GLOVER JOHNS (Texas): We have something parallel to this. We had some 30 or 40 cities discussing fluoridation. Various ones had procured equipment and were thinking and talking about it. The University of Texas had a research project on some white mice. I must say there was no animus in the University of Texas work. But there was the rumor that this research project indicated that fluoridation of water supplies causes cancer. That has knocked the pins from under us. We don't know how to combat it.

DR. BULL: I wish I knew the answer to these questions. The only thing I can say, Dr. DeCamp, is that you don't know how fortunate you are if all you have is the Girado letter. I don't know why they didn't include a letter from about two-thirds of the deans of the dental schools of the universities saying fluoride is rat poison and shouldn't be used. I think you are fortunate you have only got that one thing, because we have had many more. We have had some of that kind of help from the higher levels. But that is just one of those things. Incidentally, this fellow Girado is a dentist. He made about 20

million dollars from his vitamin products business. The naturopathy business is having its heyday right now. But you can get that same kind of literature, Doctor, on immunization. You can get that same kind of literature on using medication to prevent gonorrheal blindness at birth or on using iodine to prevent goiters, or anything that you can think of. Pasteurization of milk is another example. Here we are supposed to be the great dairy state of the union, or pretty close to it, and we have communities which will not pasteurize milk. We had one community which just recently decided to pasteurize. Now, how did we finally get them to do it? It happened only because the health officer's wife and child came down with a terrific case of undulant fever.

You see, you are going to go through all that, and you have just got to knock them down the best you can. That is all there is to it. Now, as the doctor from Texas mentioned, we have had, I think, every known disease or disability of mankind attributed to fluoridation. We have gone from cataracts to cancer. Well, maybe we went at this thing wrong. You know, there are data that definitely show that our fluoride areas are the healthiest places in the United States. We didn't feel that it was the right thing to do to take that information and go out and say to these people, "Fluoridate your water, and you will have less heart trouble." For the 10 leading causes of death in our area, the fluoride belt is the best belt to live in except for accidents. (Laughter) It seems if you mix whisky and a hot rod car with fluorides, you are more likely to end up in a ditch.

When they brought this cancer charge up to us, we discovered that the least cancer we have in Wisconsin is in our fluoride area. When they threw this thing at the fellows in Texas it was discovered that Texas has a cancer rate about one-half that of the rest of the United States. In Texas as in all of our states that have large fluoride areas, the cancer rate is very low.

You know it was a technique in advertising years ago to take the weakest point and stress it as the best part of the thing that you were trying to sell. You take an automobile. Every time you went around the corner the rear end fell off. You'd see billboards showing how they had a rear end in that car that could haul 50 tons of freight. They do the same thing with this. That is the sort of technique that is difficult to knock down. When we had this information, you know how we handled it on this rat business. We said it was unfortunate it didn't kill every rat that got fluorides. What do we care what happens to rats? We know what happens to humans. You know these research people—they can't get over their feeling that you have to have test tube and animal research before you start applying it to human beings. They can't get over the fact that nature set this thing up and set it up in human beings. We have millions of those human beings who have been using water with high amounts of fluorides over generations. They think you have got to go back to the rat again.

DR. JOHNS: There was no animus. The University of Texas hasn't said a word. It was just rumor. The University of Texas is now sorry it happened and doesn't know how to stop the rumor.

DR. BULL: But any of those rumors might stop you. If you can't knock them down right off the bat, the time element works against you. No matter how much you have behind this program, it can all be forgotten by just an innuendo of some kind. We have had the same experience where a city voted to fluoridate because another city had fluoride in the water and ended up by throwing it out. I don't know the answer, Doctor. But of course we have got to remember this. We can't feel sorry for ourselves. These same

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things happened with every public health program we have today.

DR. JOHNS: We are preparing a refutation statement of three or four pages. Is that good technique?

DR. BULL: Yes, anything you can do is good technique. I think the best technique is the reverse technique, not to refute the thing but to show where the opposite is true.

DR. JOHNS: We are showing that in the statement.

DR. BULL: That is the best technique. When they say yes, you say no.

DR. FRED WERTHEIMER (Michigan): This is not going to be in the nature of an argument, Frank. You and I stopped arguing—at least I did—last October. But since Dr. DeCamp brought the publication of the vitamin company up, and it came from Michigan, I think I had better do a little explaining. The title of it is, "They Didn't Know The Gun Was Loaded," and it was read at a meeting of the Detroit District Dental Society a year ago last February when they were holding a meeting to decide whether or not they wanted to recommend the fluoridation of the water supply. It did more to sell the dentists of Detroit on the idea of fluoridating than it did to kill it. It is so ridiculous I think all you have to do is show it to intelligent people, and they will be in favor of fluoridation.

It was written by, as you said, Raymond Girado, an excellent dentist. He has been a personal friend of mine for 25 years or more, but he has been in ill health and has taken up naturopathy, or something like that. He is opposed to adding anything. He is opposed to chlorination. He threw all the sugar out of his house, and his wife wouldn't stand for it, so now he has a sugar can, and it has a great big sign on it, "Poison." He doesn't use sugar, but his wife does. I wouldn't be concerned with articles like his at all.

DR. BULL: I tell you, it is all right to talk about not being concerned with them. Nevertheless, this all brings out one thing. We are living down some past history a lot of us helped create. These fellows can just take the statements of the American Dental Association or the U.S. Public Health Service or the deans of dental schools or research workers around the country, and they can prove to you that we are absolutely crazy for even thinking about fluoridation. You are going to have to live that down. There is no way of avoiding it.

How are you going to stop half-page newspaper advertisements that start like this: "Will Manitowoc Bite?" Or newspaper advertising like this, "Poison." You can't stop it. And in some places it may take 20 years to get anything done. I don't know how it is in your state, but we are just bypassing Manitowoc, for example, because of the organized opposition there. What is the use of working there? They aren't going to do anything. You go up and get in a fight. Go on and work some place else. We could have spent six years trying to get Manitowoc to fluoridate its water and not have gotten anything done. That wouldn't be the smart thing to do. In the meantime you go out and pick up a hundred places.

But don't think you are going to get them all, and don't think you are going to be lucky enough that none of this past history will catch up to you. And remember this. There isn't a program in public health today that hasn't got this same kind of stuff against it, even those that have been in operation for 25 years, and we are just starting. There is no short road on this thing. But if we go out and work we will get most of the communities to fluoridate.

DR. DAVID B. AST (New York): I would like to go back to the question raised by our friend from Texas and the mouse cancer problem. The point

was made that it would be advisable to publish a refutation to the alleged rumor. I wonder whether that is the best procedure, since the publication of a refutation will bring this information to the attention of the very group that is looking for every possible opportunity to capitalize on information with which it could fight fluoridation. If this thing is rumor it does get around, but it doesn't reach the entire public. If a refutation is published it will reach a very much larger number of persons. I wonder if it would not be preferable for a refutation to be prepared at the University of Texas and made available to those who make inquiry for it, and for the dental directors to write to the University of Texas for that information. So if the question comes up in their community they will be well heeled with information to answer the question rather than to publicize this rumored information.

DR. JOHNS: May I answer that? The University of Texas is not saying anything. They haven't published anything. The University of Texas is not willing to say anything. They say, "We haven't done anything. Therefore, we haven't anything to say." They are right about it. They are on our side.

Now, in regard to the refutation, we are going to send it generally to our health units, some 45 or 50 in the state and to certain selected people, but I don't know of anybody in Texas who has anything to do with water that doesn't know it. It reached Chicago three days after we knew about it.

DR. AST: It was up in Albany, too.

DR. BULL: I think Dave has got a point there.

DR. JOHNS: We have thought about that, yes.

DR. BULL: There is this, Doctor: When I talked about refuting this thing I didn't mean bringing up the argument and knocking it down. When this thing came out we never mentioned it in Wisconsin. All we did was to get some publicity on the fact that there is less cancer and less polio in high fluoride areas. We got that kind of information out to the public, so that if the opposition did bring up this rumor they would be on the defensive rather than having us on the defensive.

I think Dave's point is that we shouldn't bring up their argument and then refute it, but all you have got to do is look at the cancer statistics in the United States. When you take a state like Texas, where they have a cancer rate of about half that for the rest of the United States, you certainly have some information to work with. Leave theirs alone. That is what I had reference to when I talked about the positive presentation of fluoridation. We have found that if you let the other person get you on the defensive, he's got two strikes on you to start with. Now, if you can swing that around the other way you do a lot to head off some of these objections.

DR. WERTHEIMER: You said something about having an ordinance ready for city councils. I am wondering why that is needed. In our state the councils have full authority, without an ordinance, to decide whether they want to fluoridate or not. We have 10 cities, 10 communities, actually fluoridating. Eighteen when I left were waiting delivery of equipment, and they were coming in at the rate of two or three every day for approval. None of them has ever been done with an ordinance. I was just wondering if you need it.

DR. BULL: Well, again Fred, I am talking about a local situation. I don't know how it will apply to other states but in Wisconsin we require an ordinance. Why do we do that? If a particular community does not carry on the fluoridation program the way the standards are set, we don't go to the waterworks man, but we go to the council and say "In 60 days we are going to stop your fluoridation." We say, "Now, either your water department is going to put the right amount of fluorides in the water or we are going to stop it."

We have a sheet printed so that when a city is considering the fluoridation of its water, it will know what procedure to follow. The first step is to have an ordinance adopted. Then the plans and specifications for the equipment and its installation are furnished the state board of health, and those plans must be O.K.'d. In our state the ordinance is a must. Whether or not that will be so in your state I don't know. It takes official action. We wouldn't want our water department doing a lot of things by itself.

DR. WERTHEIMER: We have an ordinance where they can't fluoridate or add anything else without their plans being approved by the state health department. Up to now we have felt it was all that was necessary.

DR. BULL: That happens to be our case. We found that especially in our small communities a part-time city attorney or someone who acts in that capacity draws up the ordinances. It may take him three months to draw one up on his own, so we provide a sample ordinance which he can use. It states just what amount of fluoride we allow them to have. It can't exceed 1.5 parts per million although we recommend 1.2. It is all in there. Otherwise you have endless correspondence on one point or another.

DR. KNUTSON: It is time to eat. Thank you again, Frank, very much.

(Applause)

(Whereupon, at 12:20 o'clock p.m., the meeting was recessed, to reconvene at 1:30 o'clock p.m., this date.)

WEDNESDAY AFTERNOON SESSION

June 6, 1951

The conference was reconvened at 1:30 p.m., Dr. John W. Knutson presiding.

DR. KNUTSON: Our next speaker is Mr. Maier, Sr. Sanitary Engineer, a member of our staff, that is, the staff of the Division of Dental Public Health. Mr. Maier.

MR. F. J. MAIER:* Mr. co-chairmen, and ladies and gentlemen: This year might well mark a milestone in the history of fluoridation. As you know, for several years past, the State of Wisconsin has been adding more fluorides than all the rest of the country combined. Probably after this year, although not because Wisconsin will be less vigorous in pushing it, that will no longer be true because there will no longer be any place in Wisconsin to fluoridate.

One question that is almost always asked in communities considering fluoridation is: "What does one part per million mean?" In Wisconsin, we were told, the fluoridation promotion groups that go around to the different communities take along a half a keg of beer. Then by adding one drop of water to this beer, they illustrate "one part per million," because there are a million drops of beer in the keg. Wisconsin can illustrate it in this way because everybody there understands how much is in a keg of beer. In other parts of the country we had to resort to other means.

Dr. Bull's discussion, it seemed to me, was confined to answering three questions that are almost invariably asked at all meetings where you are trying to promote this procedure.

They always ask: "Will it do any good? Will it do any harm? How much does it cost?"

In order to answer those questions completely, it is almost necessary to get additional data from your state sanitary engineers. This will involve

*Mr. Maier's original presentation has been revised in part because of difficulty in reproducing color slides used to illustrate his remarks.

principally the fluoride content of these supplies that are deficient in fluoride.

There have been several instances already where groups have promoted fluoridation of the local water supply only to find that the supply already contained the optimum amount.

The state sanitary engineer would be the only person to ask for an opinion as to the quality of the operation of the local water plant. He has dealt with the waterworks operator for many years, and he has an instant reaction when you ask him what he thinks of the work of that particular person who will control the success of the program in that town.

Then, of course, in order to answer the question about costs, he will have to know pretty much in detail what fluoride compound is the best one to use in the community, and what type of feeder and what type of other equipment to use.

We in the Public Health Service are speaking of supplementing the fluoride content. That, of course, involves knowing how much is already in and how much you want to deliver to the consumers.

We believe that the optimum fluoride content varies in different parts of the country. In those places where the environment stimulates a higher water consumption, the fluoride content, we believe, should be lower.

We will show the first slide which includes the complete data we have so far on those places in this country where the fluorosis index has been measured. (see Page 30)

The biggest difficulty with this, and the biggest drawback, and the most obvious reason for criticism, is the lack of data. Of course, we are all working to get more data. These show that as the temperature rises, the fluorosis experience increases with the same fluoride concentration in the water. The criterion that we have been using is that if there is some 10 to 20 percent fluorosis in the community, that would not be objectionable, because in those places the degree of intensity is not greater than the accepted designation of "mild."

However, the data we have recently accumulated seem to indicate that the temperature might not be the best means of measuring this phenomenon—that is, in places where the daytime temperature is very hot, and the nights are rather cool, you will get a mean temperature which is misleading. It would be much better to measure this with the mean daytime temperature. Such data are not available at the present time from the weather bureau reports.

From the standpoint of costs, of course, we are mostly concerned with the type of fluoride to add and what size feeder to use.

From the engineering point of view, where you have a problem that can be solved equally well in two different ways, and one can be done cheaper than the other, we always try to use the one that can be done less expensively

See Page 31

This table includes the compounds which are possible sources of the fluoride ion. The first one (calcium fluoride) we can probably rule out because of its very low solubility.

The last one (hydrofluoric acid) we would like to rule out also, although it is being used in at least one place.

That leaves us then with three sources of fluorides, sodium fluoride, sodium silicofluoride and hydrofluosilicic acid. From the last column you can see that sodium fluoride costs a little over twice as much as sodium silicofluoride, and hydrofluosilicic acid costs three times as much.

FLUORIDE CONCENTRATION

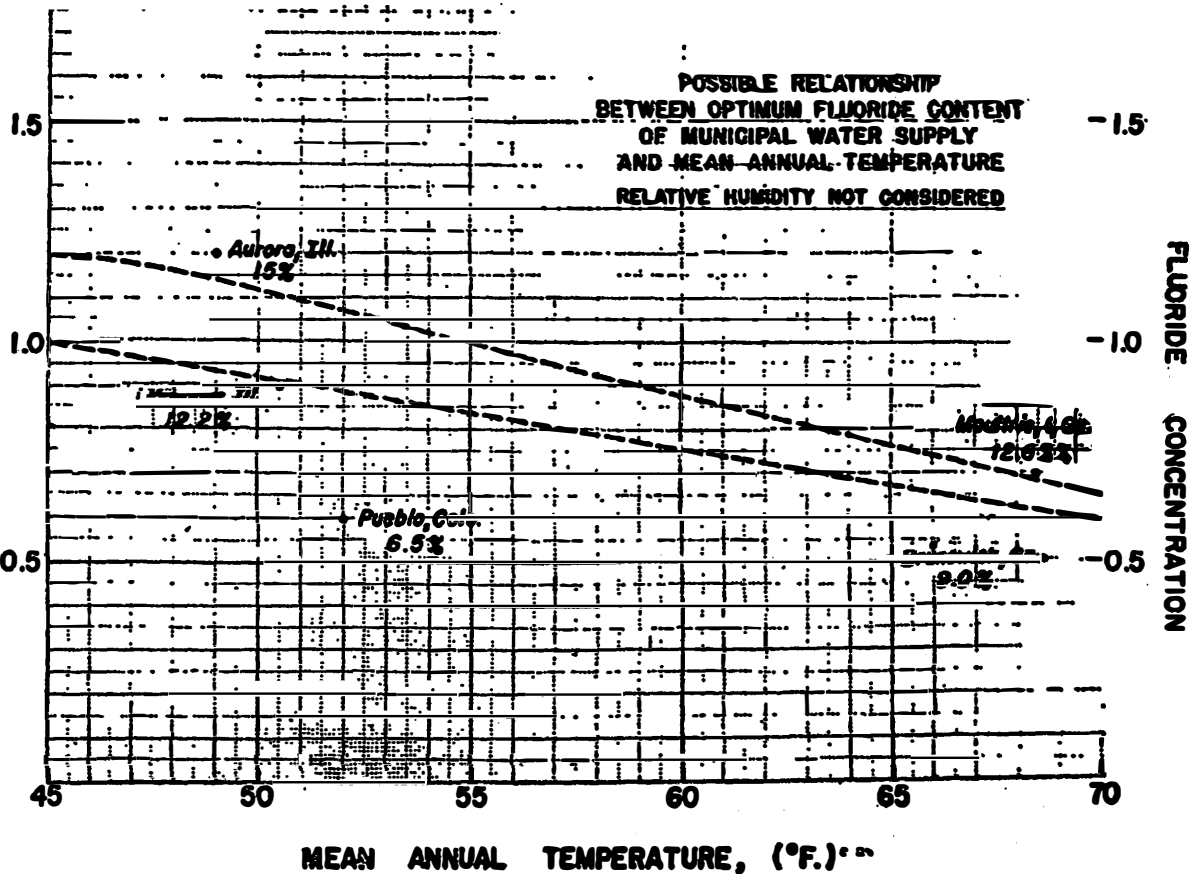


TABLE 1

Chemicals	Formulae	% Fluoride in pure Chemical	% Purity in Commercial Chemical	% Fluoride in Comm. Chemical	Solubility g/100 ml. at 25° C (3)	PPM F ⁻ in Sat. Solution at 25° C	Cal. Solution req'd at 77° F. per M.O. of 1.0 ppm F. water	Cost cents/lb.	Cost Cents/lb. Commercial- ly Avail- able F ⁻ .
Calcium Fluoride	CaF ₂	48.8	98.0	47.7	0.004	19.1	52,500	2.0	4.2
Sodium Silicofluoride	Na ₂ SiF ₆	60.64	98.8	60.0	0.762	4572	219	6.0	10.0
Sodium Fluoride (90%)	NaF	45.3	94	42.5	4.05	17,200	58.2	11.0	26.0
Sodium Fluoride (98%)	NaF	45.3	98	44.4	4.05	18,000	55.6	11.5	26.0
Hydrofluosillicic Acid	H ₂ SiF ₆	79.0	30	23.7	- - -	Fed directly	3.35 (Sp.Gr. 1.26)	7.0	30.0
Hydrofluoric Acid	HF	95.0	60	57.0	- - -	Fed directly	1.42 (Sp.Gr. 1.24)	13.5	23.7

Consequently, we are very much inclined to use sodium silicofluoride extensively wherever possible.

In order to understand the subject of the best combinations of fluoride compounds and feeders, we ought to know something about the various types of feeders.

Devices for feeding fluorides accurately have generally been adapted from those machines originally designed for feeding a variety of chemicals in water treatment and industrial plants. Feeders can be broadly divided into two types: (1) solution feeders, where a measured quantity of accurately prepared fluoride solution is delivered during a specified period; and (2) dry feeders, where a predetermined quantity of the solid material is delivered during a given time interval. The choice of a feeder depends on the rate at which fluoride is required. This rate, in turn, is determined by the water consumption and the fluoride content of the untreated water. Solution feeders are used for smaller supplies and dry feeders for larger ones. There is, of course, a wide area within which either type would be equally successful.

Solution feeders in single units have heretofore been used for supplies delivering up to about 2 million gallons a day. Such units have a maximum delivery rate of about 400 milliliters per minute. When sodium fluoride is used, the solution strength is usually brought up to 3.0-3.5 percent, although this concentration can be made much lower, if desired, where the water supply is very small.

A more concentrated solution of sodium fluoride can be obtained with a recently developed saturator, in which water passes down through a bed of crystalline sodium fluoride. The sodium fluoride rests on a straining device so that a saturated solution of the fluoride can be withdrawn by the feeder. For this purpose, a sodium fluoride of larger particle size (20-40 mesh) has been produced which permits an increase in the rate of flow of water through the bed. The withdrawal rate must not exceed the rate of flow through the fluoride. A similar grain size for sodium silicofluoride would be most desirable.

Dry feeders are of two general types: (1) volumetric feeders which deliver a measured volume of dry chemical within a given time interval; and (2) loss-in-weight feeders (gravimetric) which deliver a measured weight of chemical within a given period.

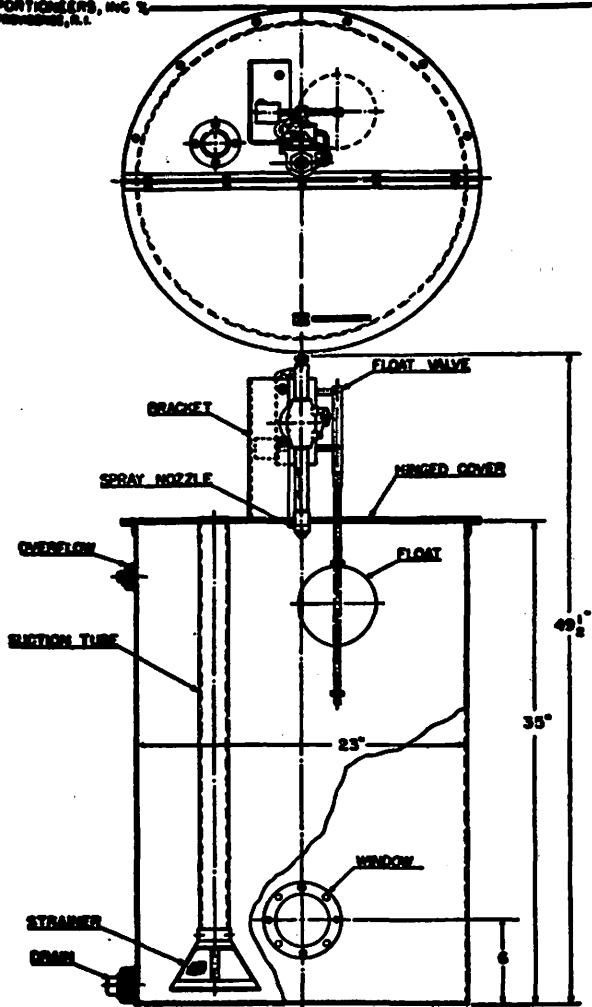
Single volumetric feeders have been used for supplies delivering between 2.0 and 5.0 million gallons a day. Disk type volumetrics, however, can deliver up to 25 lbs. of sodium fluoride per hour and roller types, up to 18 lbs. per hour. If these maximum rates could be used, up to 32.6 million gallons a day could be treated. The volumetric feeder is utilized while resting on scales. The hopper holding the dry chemical may be fitted with a dust collecting system.

Gravimetric, loss-in-weight feeders have been used for the larger supplies. They are capable of feeding up to 5,000 lbs. per hour, which exceeds the greatest demand on any supply in the United States. On the other hand, they are capable of feeding accurately as little as 10 lbs. per hour. They are fitted with solution boxes and their built-in weighing mechanism provides a constant indication of the rate of feed. The hoppers are generally filled from the floor above and are fitted with dust collectors.

In places that deliver between, say, 100 gallons and 8,000 gallons of water a minute, it appears that sodium silicofluoride, fed dry in a volumetric feeder, would be the best method.

However, it is true that volumetric feeders are more expensive than solution feeders in the range of something like \$400 to \$800.

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4-17-30

FOR ORDER

FILE NO. **DD-7266-1**

But if we consider that you are fluoridating a water supply of 20,000 people, it can be shown very easily that in one year you will have saved \$1,000, at least, just in the difference in the cost of the chemicals involved. That is the difference between the cost of sodium silicofluoride, fed dry, and sodium fluoride fed as a solution in a solution feeder.

It is quite obvious that in a town of 20,000 people, it would be very advantageous to use a dry feeder. However, in the case of a town of, say, 1,000 people, it would take about eight years to pay off the difference in cost between this solution feeder and the volumetric feeder. That may be quite desirable in some cases — in most cases, perhaps, when you consider that the life of the feeder is somewhere between 20 and 30 years. So it is quite obvious that this method may be desirable even in towns of a few thousands.

At the present time there are two methods being used for the control analysis of fluorides. One is the standard method which is specified in the American Water Works Association Standard Methods for the Examination of Water and Sewage wherein the sample and a series of standards are treated with a zirconium-alizarin reagent.

This is a much more accurate method, we believe, because the shades of color are deeper, brought about by the greater length of the tube.

However, this method is laborious in that these standards have to be made up every time a sample is examined. It involves considerable effort to make up these standards.

Many plants are now using a device where the standards are previously made up in sealed glass tubes, and it is only necessary to treat a small amount of the sample with the reagent. By inserting a slide underneath the tubes, the color of the samples can be compared with the color in the various tubes.

This is a much quicker way from the standpoint of untrained operators, and probably more satisfactory. It eliminates a large number of errors. However, it is not much more accurate than perhaps one or two-tenths parts per million.

Another consideration is that these operators must not be colorblind.

As shown in Table 2, interference by other ions using the present standard method (Scott-Sanchis) is considerable. In addition, a 0.10 part per million free chlorine residual considerably decolorizes the lake, producing an apparent increase in fluorides. It has been reported that water containing 1.8 parts per million chlorine can be dechlorinated by adding one drop of 0.1 N sodium thiosulfate per 100 ml. of sample. Ultraviolet rays obtained either from sunlight or lamps will also dechlorinate the fluoride sample.

TABLE 2

Upper Limits of Ionic Interference Using Scott-Sanchis Reagent to Give Maximum Error of Approximately 0.02 ppm. Fluoride

Substance	Fluoride Reading Too Low If More Than:	Fluoride Reading Too High If More Than:
	ppm.	
Chlorides	500	
Aluminum*	0.10	
Alkalinity (as CaCO ₃)	150	
Sulfates		150
Iron		0.5
Phosphates (PO ₄)†		1.6-3.3
Phosphates (PO ₃)6†		0.3
Chlorine		0.02‡
Manganese		0.02‡

*Ref. 15. †Ref. 16. ‡Ref. 14.

The state laboratories will have to determine just what errors are involved in each community so that the operator will know the actual fluoride content of each sample.

The state sanitary engineer will also have to approve the safety equipment provided for the operator for each installation when plans are submitted to him.

If reasonable care is used in handling the fluorides so as to produce the least dust, little danger to the operators is involved. Actually, the greatest hazard occurs in the larger plants, where the fluorides are dumped from a barrel into a hopper opening which is at floor level. In such installations a dust exhaust system should be made part of the hopper equipment and, when filling hoppers, the operators should wear masks.

In smaller plants where the hopper or solution tank is replenished by means of a scoop, little or no dust is generated if the fluorides are handled carefully. Here, too, however, a mask should be worn. Rubber gloves should also be worn and the hands washed after each filling. Spilled fluorides should be wet-mopped and discarded.

The point of application of the fluorides will also have to be studied by the state sanitary engineer, principally from the economic standpoint. At some water plants the treatment itself is an effective fluoride removal method. This is particularly true of places that are using other chemicals for softening the water.

In those cases, it is, of course, better to add the fluoride after those processes have been completed. It is better to do it after filtration, if filtration is involved.

DR. FULTON: I think Mr. Maier will be perfectly willing to answer any questions, if you wish to ask them.

DR. BULL: There might be one point that might have some significance. Mr. Maier spoke about using these dry feeders where small amounts of chemicals are needed.

Well, that is a thing that you have got to watch, because if you have a small community with a dry feeder, the chemical starts caking up and feeding problems start.

Everybody within a hundred miles of that community is going to be saying, "Well, they tried to add fluorides over there, and they had an awful time with it."

We have got to be interested in a small community getting something that is fool-proof and that will work. We have found out that in the small communities the dry feeder is no good. It has given us a lot of grief.

We are still hearing about the trouble they had at Evansville and at Sun Prairie. They installed dry feeders, and when they fill them up there is enough chemical in there to last a couple of months. Since the feeder is in a wet, damp building, the chemical gets all caked up.

We have talked to the engineers who are selling the equipment, and we have come to an agreement with them, that when they go into these small communities to give estimates, they will not talk about dry feeders.

Sure, the salesmen would like to sell them because there is a bigger commission on them. It is an \$800 job, or up; whereas, the solution feeder would probably be \$400, \$500, or \$600. But in the interest of fluoridation they have gone along with our suggestion. In our small communities, the State Board of Health will not okay plans for these small dry feeders, just because they have given us so much trouble.

MR. MAIER: What limits do you use?

DR. BULL: We do not set any particular limit, but in communities of 1,200 and less—we certainly would not talk to them about anything but a solution feeder. Generally these communities have no industry which uses a lot of water, so their per capita gallonage is low. It may be 50 or 60 gallons per day, or less. When you get into big cities, it is 175 or 200 gallons per capita a day.

Now, in a large city, we do not concern ourselves, because they know how to handle the equipment and have trained help. But in a small community, where the barber is going to operate the feeder, if anything goes wrong, he throws up his hands. We found that if we use sodium fluoride or the hydrofluosilicic acid we do not have any trouble.

QUESTION: Mr. Maier, I wonder if you could give us some information on the availability of the various types of salts.

MR. MAIER: You probably heard that the supply was limited; so did we, and it has been for almost a year. The situation is gradually improving, though. At the present time it appears that the supply is barely keeping up with the demand. As the demand increases, somehow they find a source for it.

QUESTION: Does that apply to sodium fluoride and sodium silicofluoride?

MR. MAIER: Yes. The sodium silicofluoride is perhaps more difficult to obtain than sodium fluoride. The reason is, we think, that the manufacturers have not yet realized the potential market.

We are in a state of transition. This is a new use for an old product.

We have, of course, tried to make the manufacturers aware of this. There is more fluoride now being thrown away in the fertilizer industry, and other industries, than the whole country will ever use for fluoridation of water supplies. There is also a Federal ceiling price on sodium silicofluoride. This price is now at a point where it is not attractive for those manufacturers who are now discarding these fluorides to add equipment or to convert equipment to the manufacture of a useful product.

We are now attempting to get the people in OPS and NPA to come to a decision as to what increase in price should be involved to attract new producers. That has not yet been done.

QUESTION: How difficult is it to get the various types of feeders? Are the machines available? How long does it take to get the type of feeder that is needed?

MR. MAIER: As far as we have been able to learn, there is no difficulty whatever in getting feeders. They are available. You do not need a Defense Order. The procedure of trying to get bids on a feeder takes longer than the delivery.

QUESTION: How frequently do you take samples?

MR. MAIER: The Conference of Sanitary Engineers has recommended that at least one sample per day be taken in the smallest places. That, of course, implies that the system has been stabilized and that several months have elapsed since the beginning of fluoridation.

In the beginning, of course, and for several months afterwards, there should be many more samples taken all over the distribution system in order to determine whether the optimum fluoride concentration is reaching all points in the distribution system.

QUESTION: Does the company install the machines or give consultant service, or is the machine just bought and installed by the local people?

MR. MAIER: That depends entirely on how the town wants it done.

Generally, in a small town they hire a consulting engineer who draws up plans and specifications. Then bids are let, and they buy a machine. Then, with the drawings that the consulting engineer has made and the State has approved, the town will either hire a contractor to put it in or do it themselves.

In the larger cities, of course, they generally have their own engineering staffs, and it is a routine matter for them to do the whole job.

QUESTION: Could you give us an estimate of the cost of removing sodium fluoride, if there is too much of it?

MR. MAIER: It is very difficult to say. There is only one plant that is doing it, and that is our own in South Dakota. We are having some difficulty with it, which increases the operating cost beyond what we thought it would be originally.

The process is being changed now, and whatever figure I would give you would be out of date. We will be glad to talk to you about it a year from now. I could give you a figure, say \$50 a million gallons, but that is not strictly accurate.

QUESTION: How long will it be before the project in Texas is completed?

MR. MAIER: The project will be completed by this fall. Construction has started on it. Our equipment will be in in a matter of a couple of months.

QUESTION: Do you have to take all the fluoride out, or can you cut it down?

MR. MAIER: We are not taking it all out. We do take it all out during part of the cycle, then make it up later on. You see, the cycle starts with practically a zero effluent and then the media gradually loses its effectiveness. We will then continue the cycle until the equivalent fluoride content of the total quantity of water delivered is one part per million.

QUESTION: What are you using to remove it?

MR. MAIER: Where?

QUESTION: In Texas.

MR. MAIER: We are going to use activated aluminum oxide.

QUESTION: Have the engineers set a maximum as to whether they would approve a project using fluorides in natural form, say at 2.5 parts per million? Would the engineers approve a water supply containing that much? Have they set a maximum?

MR. MAIER: The Public Health Service drinking water standards specify 1.5 parts per million as the maximum.

QUESTION: If it is over that, do they have to restrict the community from using that water supply?

MR. MAIER: No. What could the community do?

QUESTION: We have that situation. That is the reason I am asking that question, whether engineers will refuse to let them use the water.

MR. MAIER: No. That is generally done only when it is bacteriologically unsafe.

I have never heard of a community being refused the use of water because of its chemical analysis. You see there are other things in the water besides fluorides that have a much more serious systemic effect. Water contains a number of substances that are undesirable, and fluorides are just one of them.

QUESTION: Is there a practical method to remove excess fluorides where the water supply is soft to start off with?

MR. MAIER: Yes.

QUESTION: Does the ordinary domestic water softener have any effect on fluorides?

MR. MAIER: The so-called salt regeneration method was investigated very early in our work on fluoridation and, fortunately, it had no effect.

QUESTION: Could you give me a reference as to how to remove fluorides from soft water?

MR. MAIER: I could do that.

QUESTION: Could you give me some reference where I could get some information on it?

MR. MAIER: Yes: I can give you a copy of some papers which we have.

DR. FULTON: Thank you very much.

(Applause)

DR. FULTON: You men were strong for the group discussion method of examining a topic that was started first last year, and wanted it continued, so it was decided to continue it this year, as your second day's program shows.

To lead this discussion, to put it together and see that it works, we think we were fortunate in getting one of the outstanding men in this field in the country, a man who has had worlds of experience in workshops, seminars and group dynamics. He comes from my old school, Ohio State. Dr. Nisonger has been since 1946 the Director of the Bureau of Special Adult Services at Ohio State. He has been teaching since 1919. He has been in adult education for at least fifteen years—at least since 1936, and probably before that.

In the next hour he wants to discuss with you his plan for the group discussion of water fluoridation. I want to present to you Dr. Herschel W. Nisonger of Ohio State University.

DR. HERSCHEL W. NISONGER: Dr. Fulton, Dr. Knutson, and members of the conference: I am honored to be invited to take part in this conference.

I want to say right from the beginning that I claim no expertness in the field of dental health education, or in water fluoridation. I hope, as I go along, to learn the terminology so that I do not get too badly mixed up.

I am reminded of a story of an Italian woman in Cleveland, Ohio, who was living with her daughter. This daughter was expecting a baby.

The Italian lady went down to the store to buy some diapers. She ordered two dozen. When the saleslady came to her with the bill — I suppose I should say that we have a sales tax of three percent in our State — the saleslady said, "That will be \$6 for the diapers and eighteen cents for the tax."

The Italian lady looked somewhat confused, and then she said, "Well, I won't need the 'tax' because we use safety pins at our house." (Laughter)

Now, as Dr. Fulton said, you at your last year's conference used a portion of the time for work groups or work discussions, and a decision was made to continue that this year and even expand it. We will have all day tomorrow, Thursday, and the larger part of the next day, Friday, for group discussions and reporting on the results of those discussions.

As the first step in the planning for these discussions, I sent you a communication asking you to do two things; first, to indicate the questions you would like to have discussed in the area of water fluoridation, because that would be one of the central themes in this conference; second, I asked you to list any other questions or problems that you might want discussed in the general field of dental health education.

I would like to say now that the response you made was excellent. We have the questions. They will be here in a few minutes. I just received the high sign that they would be here shortly.

Now, if you will notice on your program, in the area of water fluoridation, we rather arbitrarily made a division grouping of that general subject. We felt that if we simply gave you a list of questions about water fluoridation with each group discussing the same set of questions, we might not arrive at the specific objective that we would like to arrive at in this series of groups.

I want you to understand there is no ironclad division in these groups. It seemed they should be areas that we would like to have the respective groups consider.

Group One: "What facts about water fluoridation and topical fluorides should be made available to the different groups?"

Dr. Bull, in his discussion this morning, indicated the types of groups you need to reach, need to work with—your health department staff, your dental societies, your health commissioner, your city council, your engineers, and a wide variety of civic groups.

We felt that in that group you need the various facts and tools in your kit of tools in order to meet the questions, the objections that are raised by the different groups.

Of course, I am looking at this, being an educator, primarily as an education problem, helping people become informed, and interpreting the facts for the people, and so on. We need to have lots of help. We hope that in that group, not only the types of facts that we need, but perhaps the sources of facts, will be considered, so that we will have a body of information that can be brought together.

Group Two: "What provisions should be made for evaluating the results of water fluoridation?"

I suppose there comes a time of reckoning. We get communities to install equipment, and somebody some day is going to raise the question: "What results are we getting with this type of thing?"

We need continuous evaluation all along the way. We hope that that group will work out rather specific suggestions on survey methods and evaluation methods needed.

Group Three: "How essential information is communicated to the different groups."

We feel that all types of media and all types of methods need to be used. We hope that that group will come up with some suggestions as to how to proceed.

Group Four: "Certain technical, financial and personnel problems in water fluoridation, tests, financing, materials, and so on."

Now, I would like to suggest, Dr. Knutson, that the group leaders attempt to develop these areas in these small groups as thoroughly as possible.

We have provided lists of questions for each group. Now, that does not mean, of course, that you need to confine yourselves to just that set of questions, because there will be other questions arising as the discussion proceeds. It will be up to the leader to chart the direction so that you are moving toward certain goals at all times.

Now, I wonder if you have distributed these questions. You will have in your hands five sets of questions. Where is Dr. Hagan?

MR. FULTON: He went out.

DR. NISONGER: I think the plan is for you to have all of the questions that the different groups are discussing, so as to give you some idea of what is being discussed in the other groups.

You will have a list of questions headed Group One, Group Two, Group Three, Group Four, and then there will be one headed General Topics, Community Dental Health Programs.

We are making no assignments to the groups on that list of questions. You should have five sets of questions, plus the one that was just handed you, which is a statement of principles and methods of dental health education.

There has been no attempt on my part to segregate these questions except to these groups. They were listed just as they came on the questionnaires. I have made no attempt to organize them. You may want to do that.

I am going to ask the group leaders and the recorders to use a few minutes — I have not had a chance to meet them—in the beginning of tomorrow's session to think in terms of your agenda on your particular topic. You will have a chance to go over the questions, I hope, before nine-thirty tomorrow.

Now, did you all get the names of the discussion leaders? Dr. Knutson read them. I just wondered if you all got them.

Shall I repeat them again? In Group One, the leader is Dr. Paul Cook, and the recorder is Dr. Richard Leonard. The room is G-755. That is in the basement.

Group Two, the leader is Dr. T. W. Clune, and the recorder is Dr. Sebelius. The room is G-759-A.

Group Three, the leader is Dr. Shirley Dwyer, and the recorder is Dr. Smiley. The room is G-747-A.

Group Four, the leader is Dr. Owens, and the recorder is Dr. DeCamp. The room is G-743-A.

The rooms are all in the basement, I understand. Dr. Hagan tells me that tomorrow morning a bulletin board will be located —

DR. HAGAN: Just inside the entrance way to the conference rooms.

DR. NISONGER: There will be a bulletin board with your name listed under the group to which you are assigned. I think they will respect your wishes as far as they can. There may be some regrouping because of the necessity of keeping the groups in comparable sizes.

I hope these groups can be run informally. All of you will have a chance to raise questions and to make your contributions. After all, in this kind of a program, the results depend primarily upon you people, and the way you participate in the work sessions.

It seemed to me, being a layman, of course, in the field of water fluoridation, that here is a very significant program which is moving, if I interpret it correctly, like wildfire.

Is that right, Dr. Millhoff? The people are catching on, and moving forward, and sometimes too fast. So you people are in a position to guide this program. It seemed to me that when we are through here, and I hope this is your ambition, Dr. Knutson and Dr. Fulton, we will have in the report of this conference a useful handbook — a handbook that will be useful to you for some time to come.

I am mindful that a program as new as this is going to change from time to time. We should have what is the best thing at the present time in this field in an outline form in our record.

Let me say just a few words about education in general. I have put in

your hands a small statement. There are ten points in this statement, which are not stated exactly as principles, as practices, or as methods, but more as basic areas of concern. They were alluded to by Dr. Bull this morning. All I am saying is that I hope we can keep these things in mind as we discuss this problem, or these problems, in the next couple of days.

Being an adult educator, I presume you would expect me to say what is said in this first point. Adults can learn. Human behavior can be changed through education. Here we are dealing with habits, attitudes, ambitions, motives, knowledges, skills, beliefs, prejudices, and personality patterns. To be effective through education, we need to understand why people behave as they do, what motivates their behavior and how patterns of behavior can be changed.

I think there are some people in our State who still believe that the children's first teeth are not important. If they believe that, it is going to affect their way of behaving toward their children.

This I think we have to keep in mind: "People are continuously confronted with a multiplicity of social forces which are competing for their attention, interest, time, and money."

It seems to me we have got to keep that in mind. Sometimes we do not get the attention for certain programs that we would like, but we must remember that there is a multiplicity of forces trying to get the attention of people. If we are going to get the attention, we have to be effective in our methods of doing it.

Dental health education programs should make maximum use of existing educational resources and in so far as possible be geared into existing community educational programs.

Since I have been here, I have heard remarks indicating that you are doing more and more work with public schools, providing in-service training programs for teachers who are with the children, and teachers who are working more and more with the parents and with the adults in the community. We are getting more and more adult education programs, either through public or private agencies in our communities. We are trying to gear total public health programs in those programs.

A good deal has been said about methodology. Sometimes I think we have become so in the habit of lecturing to people that we have not explored all the various methods, especially the thinking, in terms of the methods that are the most effective for the particular results that we desire. I hope that that will be explored considerably in your discussions. That is, we are going to talk about water fluoridation, about your method of approaching that problem. It seems to me the methods need to be explored.

Provisions should be made in all communities for continuous planning and growth of dental health programs. We are hearing more these days about community planning and community organization. In many of our communities we are getting rather effective planning bodies, whether they be dental health or public health councils, or community councils, or whatnot.

Dr. Bull mentioned this morning the importance of routing this into the community, getting local people to take the responsibility. I hope we will keep that definitely in mind tomorrow and the next day.

We are also hearing a great deal more about citizen participation in planning and in the development of action programs in dental health education. People are generally more willing to assume responsibility for programs which they feel they have a part in developing.

I would like to emphasize this point by saying that there was a time —

I am not criticizing school administrators when I say this, because I was one at one time, and I have made the same mistake — when school administrators in the development of a school program in a community thought in terms of a few people, the power sources in the community. If they knew how the banker and the big industrialist, and a few other people stood, and could get their support, they did not worry much about the rest of the community.

Today, we find quite a different thing. I had a school superintendent say to me the other day, "What do you think about citizen school committees?"

I said, "There are more and more people who want to have a part in the planning of the school program in my community."

He said, "How do you keep them under control?"

We are seeing a reaching out — larger number of people wanting to participate in what is going on in the community. I do not think we have done a very good job of training school administrators to know how to bring people into a participating relationship in the planning of the program.

Now, you people know more about public health programs and dental programs than I. We are finding more people manifesting an interest in these programs. Sometimes they have ideas of their own, and we find it difficult to carry out the things that we want because of their ideas.

Dentists as individuals and through their societies should give professional guidance to the development of dental health programs. The community should understand their role as professional people and make maximum use of their leadership.

Of course, that is a truism. I have spent a good deal of time in my life trying to help those laymen to see the role of the professional in this whole program. Sometimes they are afraid of the professional. They think he has an axe to grind. Sometimes the professional does not have much use for the opinion of the layman. I am trying to get those groups working together. That to me seems to be one of the problems.

I do not need to emphasize the next one to you people because it has been indicated here a number of times that dental education is a part of a broad public health program.

I remember attending the National Health Assembly three years ago; one of the central things that came out of that was the emphasis upon stronger, better financed, better staffed local public health departments. I think we all have to unite on that.

The next one is a re-emphasis of something that was said above, sound community planning for dental health programs may develop slowly, and sometimes we get impatient, but unless we do build a firm foundation and route our programs into local leadership they will not be lasting.

I think one of our most important objectives should be the discovery and the training of potential leaders in our communities. Now, that is not solely your job. It is not solely the job of the educator. The professional people need to help do that job.

I think that is all. I do not know whether there are any questions. Is it clear that we meet at nine-thirty tomorrow morning in these rooms that we indicated? We spend the full day tomorrow on that and part of Friday morning.

I think that is all.
(Applause)

DR. KNUTSON: Thank you, Dr. Nisonger.

Again I want to remind the group leaders and recorders that you are scheduled to meet with Dr. Nisonger in this room immediately after the meeting of the state dental directors.

We are trying to make arrangements for holding that meeting in some other room should the meeting of state dental directors go beyond four-thirty. There is going to be a recess shortly before the meeting of the state dental directors. The meeting of state and territorial directors is closed. No ADA representatives, no Public Health Service people, no visitors, are allowed to attend.

I have here a letter from the President of the State and Territorial Health Officers Association which points up one of the subjects you as a group might want to take under consideration at this meeting. I would like to read the letter.

(The communication was read to the group.)

DR. KNUTSON: If you have any good reasons for wanting to continue this Conference on an annual basis, you may want to provide objections to the rule that it be held biannually.

I believe the sanitary engineers are continuing to have their meetings annually under a slightly different arrangement. Is that right, Mr. Maier?

MR. MAIER: As far as I know, it is annually under the same arrangement.

QUESTION FROM THE FLOOR: Did they cite any definite objections?

DR. KNUTSON: Objections?

FROM THE FLOOR: Yes; other than the blanket statement of what they think we ought to do.

DR. KNUTSON: I have heard it frequently said since we started these meetings that the state and territorial health officers objected to having the heads of their various divisions making all these trips to Washington, spending the state's money and taking up their time, and so forth.

I think they are a bit afraid, too, of exposing you to the Washington environment; perhaps you could not protect yourselves from the influence of the Feds.

QUESTION FROM THE FLOOR: Do we ever travel on Federal money?

QUESTION FROM THE FLOOR: May I ask how often the health officers have their meetings?

DR. KNUTSON: They have their meeting once a year.

QUESTION FROM THE FLOOR: This rule would not apply to them?

DR. KNUTSON: No.

DR. FULTON: Their meeting is required by law; yours is not.

QUESTION FROM THE FLOOR: We will have to get a law passed.

DR. FULTON: Yes.

DR. KNUTSON: Unless you have further questions on this specific subject or some other subject, we will adjourn at this time.

QUESTION FROM THE FLOOR: Before you adjourn, are there any other organizations such as the MCH Directors, or not necessarily an organization, which meet annually in Washington?

DR. FULTON: No.

DR. KNUTSON: I do not think they have been successful in applying the rule yet. At one time they would have liked to rule out all conferences excepting that of the state and territorial health officers. That did not work. This is a new attempt, I would say, in which they are trying to cut down the number of meetings of the other groups.

I want to remind you again to register. Be certain that you register for one of the four groups. The registration lists are out on the table in the hall.

I would suggest that you return for your private meeting at a quarter after three at the latest. I believe your President will convene the meeting at that time.

If there is nothing else, we will adjourn at this time.

(Whereupon, at three o'clock p.m., the taking of stenographic notes was suspended.)

THURSDAY, JUNE 7, 1951

Thursday was devoted to four group discussions on various aspects of fluoridation:

Group 1: Discussed what facts about water fluoridation and topical fluorides should be made available to different groups: Health Department staff; Dental Society; Commissioner of Health; City Council; Engineer, Civic Groups.

Group 2: Discussed what provisions should be made for evaluating the results of water fluoridation: base line data; standards, collection and analysis.

Group 3: Discussed how essential information is communicated to different groups: protocol; permission; resolutions; mass media.

Group 4: Discussed technical, financial and personnel problems of water fluoridation: chemical tests, equipment; materials; health department financial support; increase in water rates; qualifications of personnel.

FRIDAY MORNING, JUNE 8, 1951

The morning meeting was convened at 9 a.m., Dr. Herschel W. Nisonger presiding.

DR. NISONGER: May I have your attention? We are coming into the home stretch on this group discussion part of the program. Our time is going to be somewhat limited. We will have only about 30 minutes for each report. I am hoping that the reporter may present the report in about half that time and we will have some time left for discussion. Now we will have the first report, Group I, given by Dr. Richard C. Leonard, who was the recorder for that group.

DR. LEONARD:¹ Dr. Nisonger, Members of the Conference: The assignment given Group I was: What facts about water fluoridation and topical fluorides should be made available to different groups: Health Department staff; dental society; Commissioner of Health; City Council; engineers; civic groups. Accompanying this specific query were 28 questions, the answers to which were more or less involved in the answer to be developed for the group assignment. It was decided that it would be preferable to formulate a series of statements that would serve as replies to some of the 28 queries. Those not so covered were considered as being: (a) not suited for incorporation into the group's report; (b) requiring specific replies to individual situations; (c) those currently being studied and for which facts are incomplete. Those requiring specific replies have been developed as far as time has permitted.

¹Note: The group reports have been condensed to eliminate repetition in accordance with the desire of the conference members.

Group I wishes to submit certain recommendations to the conference. These recommendations are based on the many surveys and studies which

show the needs for preventive measures in the control of the widespread incidence of dental caries and subsequent tooth mortality. Fluoridation of public water supplies and topical application of sodium fluoride are the best caries control methods available at the present time.

The three most frequently asked questions about fluoridation and topical application of fluorides are:

1. What good will it do?
2. Will it do any harm?
3. How much does it cost?

Under the first question—what good will it do?—the following points have been brought forth:

A. In spite of factors contributing to dental caries susceptibility, there is 65 per cent less dental decay in those children who are born and reared in an area where fluoride occurs naturally in the water supplies in amounts established as being beneficial than in those born in fluoride-free areas. There is also an increase in the number of caries-free children. There is substantial evidence to indicate less dental decay among the older age children who have consumed fluoridated water only during a part of the tooth calcification period.

B. There is an anticipated percentage reduction for all ages of children where they have continuously consumed controlled fluoridated water.

C. The present dentist population ratio can more adequately serve the total population as the result of fluoride therapy programs.

D. The group assumes that the total cost of annual rehabilitation will be lessened due to the reduction of dental caries as the full effects of fluoridation become apparent.

E. Some investigators have commented on the improvement in the aesthetic appearance of the teeth formed in areas in which water is fluoridated, and also better formed dental arches.

F. A standard, comparable type of examination for evaluation is essential.

G. Group I would like to stress specifically that fluoridation is a partial caries control procedure and does not eliminate the need for other dental health measures.

The next subject on the group's agenda was: Will it do any harm?

A. It is the group's finding that no harmful effects have resulted from fluoridation when the recommended fluoride concentration is maintained. There have been no observed ill effects on human beings. Neither have bad effects been reported by bottlers, brewers, bakers, laundries, gardeners or industrial plants.

B. There is no evidence available that fluorides are incompatible with other elements when added to potable water. —

C. Since water fluoridation is most effective during the years of enamel calcification, it is advisable for those children whose teeth have already been calcified when fluoridation is started to have topical fluoride applications.

As the benefits of fluoridated water become effective, topical fluoride application should be discontinued gradually, beginning with the younger age groups.

The third topic of the group's agenda was: What does it cost? Basically there are two essential costs: (1) initial expense of equipment and installation, and (2) the recurring cost of chemicals and supplies. These figures will vary from community to community and will require the gathering of information from the Division of Sanitary Engineering together with equipment and supply manufacturers. It is estimated that these total cost figures

amortized over 30 years on a per capita basis will average five to fourteen cents per person per year.

It is recommended that public water supplies of a fluoride content believed to be sufficient to reduce caries should be periodically examined to assure that the fluoride content is uniform and constant. Supplementation by controlled fluoridation should be preceded by a water analysis for fluoride, with such analyses repeated periodically.

The group in this morning's session discussed the topic of topical application, which was only touched upon at one or two points in the report that has just been read to you, and we came out with this one last recommendation:

It is recommended that continuing courses be initiated for the dental profession and dental hygienists with emphasis on techniques employed in topical application of sodium fluoride, and that emphasis be placed on pre and post treatment charting and recording. It is also desirable to emphasize the proper interpretation of topical program potentialities and limitations.²

DR. NISONGER: Dr. Sebelius will make the report of Group II. That has to do with evaluation.

DR. SEBELIUS: Dr. Nisonger, Members of the Conference: Our group has taken up the questions, somewhat modified, pretty much in the order that they appeared on our sheet. The main assignment of the group was: What provisions should be made for evaluating the results of water fluoridation: base line data, standards, collection, and analysis.

I will read the question and then the answer that the group agreed to.

The first question: How can we set up suitable local plans for the periodic evaluation of the results?

And the answer: Suitable local plans for periodic evaluation and the original survey should be set up by the dental public health program director. The director should interpret the methods to be followed by those who are to conduct the survey. The survey should be conducted by the local dental personnel. The actual evaluation of data should be made in cooperation with the dental public health director.

Question 2: Why should it be planned for, anyhow?

The periodic evaluation of the results should be planned, first, so that progress can be measured; second, so that there can be a standardization of the collection of data and of the techniques involved; and third, so that the data may serve as a basis for motivation of the community toward the establishment of a well-rounded dental public health program.

Question 3: What data do we want to gather?

Data should be collected to establish age-specific DMF and def rates per 100 children.

Question 4: What sampling techniques are useful?

Age-specific data should be collected for children of ages 5 through 15. In small communities all children should be examined, and in the larger communities a sample of from 200 to 300 children at each age should be examined. In larger cities, it may be desirable, although not necessary, to consider other factors, such as areas of the city, race, or economic level. In that case, the sample size should be 200 to 300 children in each age group for each of the factors to be considered.

Question 5: How frequently should minimum data be collected?

²Discussion of the reports is omitted in the interest of brevity. All recommendations coming out of the discussions are included, however.

In order to be able to measure changes in the caries attack rate after water fluoridation, it is suggested that examinations be made at 3- to 5-year intervals following the introduction of fluorides into the water supply.

Question 6: How can the state and local dental societies be brought into the preliminary planning for evaluation?

It is assumed that before a local dental society undertakes a fluoridation program, the state dental society has approved water fluoridation. The state dental society, through its council on dental health, should be consulted and should participate in the establishment of broad general principles for planning programs within the state. As local dental societies begin to evaluate their local programs, the state council on dental health should receive the information in order to correlate it on a state-wide basis.

In order that the local dental society can be effective in the evaluation of the water fluoridation program, the members of the society need to engage actively in planning the program and in collecting the data.

Question 7: How can the local health department officials, the health officer, sanitary engineer, laboratory director, public health nurses, health educator and others, be made aware of the problems and be convinced of the importance of this procedure?

It is important to point up to this group, that is, the health officer and civic authorities and local community groups, the magnitude of the dental caries problem. Other points to be stressed should be the economic loss to the community if water fluoridation is not done, as well as the results obtainable through fluoridation. The job of interpreting the data to the local health officials and civic leaders is the responsibility of the dental public health program director and representatives of the local dental society.

Question 8: How can understanding and conviction about adequate techniques be developed in the people who will be relied upon to carry them out?

Understanding and conviction about adequate techniques may be developed, first, by distributing instructions for the recording of dental findings and, second, by conducting pre-survey training and demonstrations before the pre-fluoride evaluation survey is made.

The ninth question on this questionnaire was left out by the group.

Question 10: How accurate do you consider DMF rates during the period of the mixed dentition?

The DMF rates and their segments refer specifically to the permanent dentition, and the def rates to the deciduous dentition. These rates may be determined accurately when permanent and/or deciduous teeth are present.

Question 11: Is it more accurate to define "M", "missing" as "extracted teeth"?

The symbol "M" indicates permanent teeth missing through extraction or permanent teeth indicated for extraction as a result of caries.

Question 12: Are annual dental examinations a waste of time and effort?

To be able to show progress in water fluoridation, an annual dental examination is a waste of time and effort since annual changes are not of sufficient magnitude to be impressive.

(Question 13: Will they (examinations) prove of better value in acquainting dentists with the problem in their own communities if the dentists conduct the survey?

The answer: After proper orientation, dentists will be better acquainted and in a better position to interpret data to the dental society and others if they participate in the survey in their own community.

Question 14: Compare and evaluate the observed and the estimated DMF.

The observed DMF rate is considered the best method to use because in a majority of communities the sample size would be too small to make an estimate rate reliable.

The fifteenth question is divided into two parts: Should *lactobacillus acidophilus* determinations be made on a community-wide basis to determine dental-caries susceptibility? No.

If so, should the expense be shared by the community or from the Department's budget? And again the group said no.

Question 16: How may the specific dental needs of children in a community be determined?

The specific dental caries needs for children in a community may be determined by the use of the DMF rates and/or def rates. By breaking down the DMF rate into its specific components, D, M or F, it is possible to determine the tooth mortality rates and the unmet needs that require attention.

Question 17: What basic things should be shown by a dental survey?

The change in the DMF rates and def rates are the basic things to be shown by a dental survey when measuring the effectiveness of water fluoridation. However, this same survey may be used to determine the unmet dental caries needs with a view to motivate the community to develop a well-rounded dental health program.

Question 18: How should follow-up investigations be conducted after the survey?

Definite provision should be made at the time of the original survey to conduct a follow-up investigation at a later date. This follow-up survey should be made in the same area, age group, and in the same manner as the original survey.

DR. NISONGER: Now we will move to Group III. Dr. Dwyer will make the report.

DR. DWYER: Group III had to deal with: How is essential information communicated to different groups: protocol, permission, resolutions, mass media.

At the initial meeting it was decided by the members of the group to combine the questions into four categories: stimulation, utilization, resistance and the ever-present miscellaneous. So we will give a summary of each of these groupings.

Summary of the first subject, stimulation: Questions 1, 8, 12, 14, 17. Lay groups are stimulated mostly through press, radio, and magazine articles. Detailed information should be assembled by the state health department and supplied to the dental and medical professions, sanitary engineers, local health departments and administrators, and any other interested group. This information is to be used to guide the local committee or group in keeping the project alive and in supplying the answers to the problems of organization and motivation necessary to complete the details of purchase and installation of equipment and put the program into operation.

Fluoridation should be the spark to kindle a desire for a full dental and general health program in the community.

Summarization of the second group, utilization. Questions 2, 4, 7, 9, 10, 11, 13 and 19. We have already received our stimulant; now we are going to utilize it. The state health department should collect and have for reference all materials from federal, ADA, state, and local sources. From these materials, kits could be assembled to be sent to professional or lay groups. The kits should contain scientific and technical data, equipment types, installations and controls, approximate costs, and so forth. Sample news releases, resolu-

tions, and ordinances should be included, as well as suggestions for organization and motivation of the program. Find the best method to use in the community and the key person to organize and develop a community program.

The state dental association, through its council on dental health, can urge local or component societies to encourage the organization of new or cooperate with existing local advisory groups or health councils or other agencies. The local dentist can talk with his patients, newspaper editors, and interested groups to stimulate the public to demand fluoridation of the water supply.

Committee observation of a fluoridation process in operation will be of much assistance in crystallizing plans for the project.

A pre-fluoridation baseline dental caries survey is recommended, preferably to be done by local dentists. Maps showing fluoride areas, fluoridated water supplies, contemplated installations, and those already approved by state health departments can provide additional information.

As a result of public interest of fluoridation, dental directors and staff personnel would be negligent if they did not take advantage of this opportunity to further a continuing dental health as well as a general health program. Fluoridation is not the final answer to any health program.

Summarization of the third group, resistance. Questions 5, 6, and 15. Use terms that will avoid controversy. For example, speak of controlled rather than artificial fluoridation; eggshell white rather than chalky appearance in describing tooth color. Resistance can be met by the dental profession by keeping medical, nursing, engineering, dairy, pharmacy, and educational groups properly informed. These in turn can spread the gospel to public officials, water plant managers, lay groups, and other persons in the community.

When the installation is approved by the state health department, there is little or no danger of breakdowns that could cause toxicity, as each plant must be surveyed on an individual basis. That was the answer to this question of toxicity and the one that has frequently come up concerning what happens if a barrel of sodium fluoride falls through the floor into the reservoir. We just feel that if the state health department surveyed the plant, the barrel wouldn't fall through.

The amount of fluoride compound on hand at any given time would not seriously affect the population if proper controls and reasonable maintenance are used, even if there should be a major disaster. The engineer should be able to answer all technical questions. The dental director should enlist the cooperation of the state engineer. Policies should be adopted by the engineering and dental divisions and approved by the state health department.

A consultant or liaison water engineer to the dental division would be of value if the engineering division is not fully cooperative.

Group IV, miscellaneous. Industrial plant problems will have to be solved on an individual basis.

My recorder did the entire job on this. I'm merely the mouthpiece. He, I am sure, will be able to answer any questions that you folks want to ask.

DR. NISONGER: Now, may we have a report on Group IV? Dr. DeCamp will make the report.

DR. DeCAMP: The leader of Group IV was Jim Owen. He did all the work. We did come to some rather positive decisions. We had a fine group—about 18 to 22 people—and they all talked.

We did not consider the questions as they came on your sheet. We grouped them, as others have done. Our first statement was that we rec-

commend the adoption of a positive fluoridation policy by the state department of health.

The initiation and promotion of the program in a community is the responsibility of the state and local dental societies and the bureau or division of dental health.

The establishment of technical standards and procedures shall be the responsibility of the state department of health.

The engineering phase of the fluoridation of community water supply should be considered by competent engineers qualified to determine type of feeder and the chemicals to be used and familiar with equipment, installation, and operating problems. The bureau of sanitary engineering of the various state boards of health must review and approve the plans.

Local community dentists desiring to know more of the details of fluoridation should be referred to the article in the January 1951 issue of the *Journal of the American Dental Association* on fluoridation.

The next comment considers types of feeders and their relative merits. The dry feeder and the wet feeder are not in competition. Dry feeders are usually used when more than two million gallons per day from a single source are delivered. Cheaper chemicals cannot be used in solution feeders. The final decision should be left to the local consulting engineer.

The next topic is cost of fluoridation and financing. There are various ways of financing fluoridation. It is the responsibility of the local communities to determine what method of financing is used.

The next is personnel problems. Experience has shown that persons capable of operating a water plant are potentially capable of adding fluorides to the water supply of a community.

Orientation and training of water plant operators in testing and safety procedures should be conducted on a continuing basis by the state department of health.

At what concentration of fluoride between 0.0 and 1.5 should fluoridation of water be recommended? It is recommended that climate, humidity and geographic conditions be considered by the various state health departments in determining the amount of fluorides to be added to the community water supplies.

Next is the question: Clarify and adopt standards of fluorine analysis using our present knowledge. Colorimetric standards are acceptable at the local level with periodic verifying tests at the state level.

Is there a shortage of the necessary fluoride compounds used in the process, and, if so, why? Chemicals are available to meet present demands, although deliveries are somewhat slow.

Engineering aspects of fluoridation, such as safety of the public, safety of the operator, and qualifications and training of the operator, should be covered by state regulations. The recommendations of the American Water Works Association are acceptable to most state departments of health.

The next question deals with equipment. The equipment involved in water fluoridation is the same standard type that has been used in water plants for many years and which has proved to be reliable through long years of experience. The equipment to be used is an engineering decision subject to approval of state health authorities for any specific installations.

How can opposition of waterworks officials and personnel be overcome? We must be well informed ourselves. We must find out why there is opposition. Adequate information on resources and sources of material should be available to answer all opposition. Laying a good groundwork of adequate

information in a community before final consideration is asked is also necessary.

The next question: Should a community which does not have a successful record of operation of chlorination equipment be refused permission to fluoridate the municipal water supply? As a policy, fluoridation should not be used as a lever to force chlorination. In certain instances, if it is convenient and logical, it should be useful to aid in improving the standards of operations.

What precautions should be taken to prevent damage suits following fluoridation? Where the procedure is generally recognized as acceptable and desirable and in the public interest, and where the state board of health has approved the use of this procedure, the only way in which liability for damage could arise would be where the operation was conducted in a negligent manner or without complying with the state board of health regulations.