Fluoridation and Domestic Water Supplies in California

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By Henry A. Dietz
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Fluoridation of public water supplies has created much controversy in the United States, both as to its desirability and its legality. The arguments have ranged from statements that it may cause death to complete refutation of any harmful effect whatsoever, from allegations of violation of state laws and the United States Constitution to refutation of such contentions. This article is written in favor of the legality of fluoridation. The facts as to scientific expression on the subject are of great interest in view of the fact that the reasonableness of the determination of the State Board of Public Health to allow controlled fluoridation of domestic supplies is involved.1

The relationship between fluorine and dental caries is not a recent concept. As far back as the late 1800's there are references in the literature to fluorine as a protective element against dental caries. In 1892 the opinion was expressed that the increased dental caries in England might be due to a deficiency of fluorine in the diet.2

In the United States the concept of the relationship of fluorine to dental caries began in the search for the cause and cure of mottled enamel teeth (usually brown stained). In 1916 the first discriminating study of mottled enamel was made and it was observed that despite the defective structure of teeth with mottled enamel they showed no more and even less decay than did teeth not so affected.3 In 1925 attention was called to the fact that mottled enamel teeth were seemingly less susceptible to dental caries than teeth not so affected.

In 1931 a chemist, who analyzed the water of the communities in which mottled enamel teeth were prevalent and some 30 other communities where mottled enamel teeth did not appear in the native population, established that high fluorine content was present in the water of every one of the communities where the natives had mottled enamel teeth and fluorine was present only as a trace or was absent from the water in the communities where mottled enamel teeth did not appear in the population.4

During this same year, 1931, studies of mottled enamel in St. David, Arizona, were made, where every person native to that area had mottled

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1The author wishes to acknowledge the assistance of Lloyd F. Richards, D.D.S., M.P.H., Chief, Division of Dental Health, California State Department of Public Health, and his staff for the compilation of scientific articles and data.

2Crichton-Brown, J., Tooth Culture, 2 Lancet 6-10 (1892).


4Churchill, H. V., Occurrence of Fluorides in Home Waters of the U. S., 23 J. IND. & ENG. CHEM. 996 (1931).
enamel teeth. The conclusion reached from this study was that the unknown causative factor was probably in the water supply. Laboratory experimentation was then conducted on rats. By concentrating the water to about one-tenth its original volume and feeding this to rats, changes in the teeth of these animals were obtained similar to those appearing in mottled teeth of humans. In 1932, nearly 125 water samples from various areas in Arizona were analyzed and it was found once again that in every area where the native population had mottled enamel teeth the water contained a high concentration of fluorine. It was also noted that people with mottled enamel teeth had less tooth decay than those people whose teeth were apparently normal.

The aforementioned studies are only a very few of those done by researchers all over the country to prove that fluorine in high concentration in water caused mottled enamel teeth in the people who drank such water during the time their teeth were forming. The relationship between fluorine and mottled enamel teeth was established. The relationship between mottled enamel teeth (evidence of fluorine intake) and dental caries had become obvious.

Studies were set up to further investigate this relationship. These studies, begun by H. T. Dean, are considered classics in the epidemiological method of investigation. They were done to determine whether or not there was a quantitative relationship between the fluorine content of water supplies and dental fluorosis (mottled enamel). Observations were made in six cities on 236 9-year-old children continuously exposed to water of different known fluoride concentration. The results indicated that there was a higher percentage of caries-free children in those communities where the domestic water had higher fluoride concentrations (1.7-2.5 ppm) (1 ppm = 1 part fluoride per million parts water) than in communities using water of lower fluoride concentration. One of the most important observations drawn from these studies was that of children free from dental caries, on the higher fluoride concentrations (1.7-2.5 ppm), but 55 per cent showed evidence of mottled enamel teeth. These observations have been verified repeatedly by subsequent surveys and studies.

The basis of investigations then changed from the broad epidemiologic

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aspect to detailed local studies. From the broad approach had evolved the hypothesis that the factor or factors responsible for partially inhibiting the development of dental caries (tooth decay) were present in the domestic water supply and were operative whether or not the teeth showed any visible evidence of mottled enamel teeth.10 Six hundred and twenty-five (12-14-year-old) children living in Galesburg and Quincy all their lives were studied. These children living in Galesburg were continuously exposed to drinking water containing 1.8 ppm of fluoride and experienced only about one-third as much tooth decay as did the children in Quincy where the water was fluoride-free. Of the 243 children (12-14 years of age) living all their lives in Galesburg and drinking water having 1.8 ppm of fluoride, 53 per cent showed no sign of dental fluorosis. The remaining 47 per cent showed signs of a very mild to mild fluorosis (not objectionable). In both groups the dental caries rate was approximately the same. This indicated once again that the factor responsible for low caries rates acted irrespective of whether visible evidence of dental fluorosis was present or not. Now it remained to determine at what level of fluoride concentration dental caries was reduced without dental fluorosis appearing in the teeth.11

A study of 7,257 children (12 to 14 years of age), selected for continuous residence in 21 cities having known stable water supplies, was made to determine the relationship between dental caries and fluoride concentration of public water supplies. The findings of this study clearly indicated an inverse relationship between fluoride content, particularly between .5 to 1 ppm, and the amount of dental caries present in populations native to communities having such fluoride concentration in their water supplies. The native population of such communities disclosed little or no evidence of dental fluorosis.12 The aforementioned studies showed also that as the fluoride concentration increases above 1 ppm in public water supplies, dental fluorosis in the teeth of the population increases without appreciably decreasing dental caries.13

Exhaustive studies of the fluoride-dental caries relationship have been made on thousands of children in hundreds of communities all over the country. It is estimated that there are at least 3,000,000 people in the United States who have, all their lives, consumed water containing 1 ppm or more

fluorides. This has given researchers a wealth of material for study. No other public health measure has had so wide a field for study as has the fluoridation of water supplies. Nature has, for generations, provided a wide and diversified field for the study of the fluoride-dental caries relationship, as is shown by the following table:

<table>
<thead>
<tr>
<th>Approximate Population Served</th>
<th>Fluorine Ion Content ppm (Parts per million)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,000,000</td>
<td>1.0—1.5</td>
</tr>
<tr>
<td>900,000</td>
<td>1.6—2.0</td>
</tr>
<tr>
<td>600,000</td>
<td>2.1—3.0</td>
</tr>
<tr>
<td>100,000</td>
<td>3.1—5.0</td>
</tr>
<tr>
<td>40,000</td>
<td>5.0 or higher</td>
</tr>
</tbody>
</table>

Many studies have been made of the people included in the populations listed above, for harmful physiological effects of the ingestion of fluoride bearing water. These studies made the logical assumption that if there were harmful results, such results would show up in the morbidity and mortality rates of the populations concerned. No scientific studies of these rates have shown any significant difference in morbidity nor mortality in populations in fluoride areas as compared with those in non-fluoride areas. H. Trendley Dean, Director, National Institute of Dental Research, stated in correspondence to the California State Dental Association that “There are no reports indicating toxic effects on any vital organs from cities such as Colorado Springs, where people have been using water supplies containing 2.5 ppm fluoride for 70 years.”

The attention of the research men and dental scientists now turned to searching for any evidence of chronic fluoride toxicity. They have been many studies made on this subject involving both animals and humans. Such studies show that fluorine in huge doses, 4,000 to 5,000 times greater than 1 ppm of fluorine, is toxic to humans but such doses are not to be confused with the extremely low concentration of 1 ppm of fluoride recommended for the reduction of dental caries. “There is no toxic effect of drinking water..."
containing 1 ppm fluorine other than a possible 'very mild' mottling of the teeth."\(^8\) (Very mild mottling can only be detected by the trained eye and should not be confused with stained mottled enamel teeth.)

Past studies, experiments, and research had proved conclusively that 1 ppm of fluoride in drinking water reduced tooth decay about 65 per cent without causing objectionable dental fluorosis and without causing any toxic effects in humans drinking such water all their lives. It was also known that the fluorine ions picked up by ground water were identical with fluorine ions introduced into water by the addition of suitable fluoride compounds.\(^9\)

Studies were made to determine whether adding specifically controlled amounts of fluoride to community water supplies deficient in fluoride would reduce dental caries in the population drinking the fluoridated water during the time of their tooth formation. These were begun in 1945 in Brantford, Ontario; Grand Rapids, Michigan; Newburgh, New York; in 1946 in Sheboygan, Wisconsin; Marshall, Texas; in 1947 in Evanston, Illinois and Lewiston, Idaho. After three to five years, every one of these studies showed a definite reduction in dental caries rates in children six to eight years of age, the age groups whose teeth were still developing at the time fluorides were added to the water supplies. The results of these studies were so definite and uniform in dental caries reduction that in the light of the results of prior research and study the American Dental Association, House of Delegates, on November 2, 1950, recommended the fluoridation of municipal water supplies.\(^20\)

Many health agencies recommend or approve the fluoridation of public water supplies for the reduction of dental caries.\(^21\)
Children in the studies where the amount of added fluoride is controlled have shown no unsightly mottling of their teeth nor have there been any indications of any physical harm of any kind from these extremely minute traces of fluorine in their drinking water.22

The Newburgh-Kingston (New York) fluoridation study, begun in 1945, has been in continuous progress for more than seven years. In the latest report of this study, Dr. H. E. Hilleboe, New York State Health Commissioner, said that in the over-all elementary school population there was a marked reduction in dental decay. But the greatest reduction in dental decay occurred in those children who had ingested fluoridated water all their lives, whose ages range now up to seven years. These children showed a two-thirds reduction in dental decay. Dr. Hilleboe, in commenting on the thorough periodic physical examinations of all children involved, said, “Careful examinations carried on since the study started reveal absolutely no harmful effects from drinking fluoridated water. The results bear out studies made in other areas of the country, where persons have been drinking naturally fluoridated water all their lives with utmost safety.”23

Other documents dealing with experimentation are as listed.24

On the other hand, the Delaney Committee, after seven days of hearing, in its report on Fluoridation of Public Drinking Water, recommends further experimentation and considerable caution in the adoption of the use of artificially fluoridated domestic water supplies.25

Mr. James B. Thompson, in his comment on Fluoridation of Public Water Supplies, makes some vigorous statements as to the possible results of fluoridation.26

The foregoing factual information pertaining to the controversy over fluoridation must be considered before determining whether or not the State Board of Public Health, in granting permits to fluoridate public water supplies on the part of public water system purveyors, has exceeded its authority.

The subject of water and its purity has been the source of much legis-

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lation. The importance of the control of water supplies and purveyors of water can not be overestimated. It is of primary concern to the health of the people as a whole. The California Legislature has by statute placed upon the State Board of Public Health and the State Department of Public Health, the duty of supervising, controlling, and licensing the purveyors of public water supplies. The statutes are replete with provisions pertaining to public water supplies, each of these sections looking toward control, in order to preserve the public health by guaranteeing the purity, wholeness, and potability of the water. Examples of substantive laws safeguarding the sources of drinking water are those relating to:

- Placing animal refuse in a stream (apparently irrespective of whether or not any person uses it for a water supply);\(^27\) the depositing of carcasses in a public water supply;\(^28\) the placing of a water closet in a position to drain into a water supply;\(^29\) confining animals in a manner permitting pollution of a water supply;\(^30\) the pollution of a water supply by animals;\(^31\) bathing in water supplies except as permitted under control;\(^32\) the washing of clothes in a water supply used for drinking purposes;\(^33\) the mooring of houseboats in water used for drinking or domestic purposes.\(^34\) The State Department of Public Health has been given the right to enjoin any violations\(^35\) of the above statutes and also the right to summarily abate\(^36\) any violations as public nuisances, dangerous to health. Violations of these provisions are misdemeanors.

The poisoning of a water supply is a felony.\(^37\)

Municipal and county authorities have been given the power to establish laboratories for the purpose of protecting the community from infectious disease. Among the powers of these laboratories is the examination of water supplies. These laboratories are established and maintained as a regular expenditure from any city or county funds that are available for disbursement under the direction of the city or county health officer for the protection of public health. The Legislature has made these laboratories subject to approval of the State Department of Public Health in so far as their equipment and their technical personnel are concerned.\(^38\)

The State Department of Public Health consists of the State Board of...
Public Health and the State Director of Public Health and such divisions as are or may be necessary for the prevention of disease, the prolongation of life, and the promotion of the physical health and mental efficiency of the people of the State. Members of the board consist of the Director of Public Health and seven others.

The statutes require that six members be licensed and practicing physicians of this State, and that one be a licensed and practicing dentist.

The duty of the board is to advise the director in the performance of his duties and formulate general policies affecting public health. It has the power to adopt, promulgate, repeal, and amend rules and regulations consistent with law for the protection of the public health, and it is required to issue licenses and permits as prescribed by law and by its rules and regulations. It likewise has the power to subpoena witnesses and documents pursuant to the provisions of Government Code, sections 11180-11191. The board, however, has no further administrative or executive functions other than those set forth in the Health and Safety Code.

The director of the department, who is also the executive officer of the department, is required to administer the laws and regulations of the board pertaining to public health and to vigilantly observe sanitary and public health conditions throughout the State and take all necessary precautions to protect it in its sanitary and public health relations with other states and countries. The director is required to hold the degree of Doctor of Medicine from an approved medical college and be licensed to practice in the State of California. In addition to that he must have at least one year's post-graduate training in a school of public health approved by the State Board of Public Health, and a minimum of five years' practical experience as an administrative officer in a well-organized health department.

It is readily seen that the Legislature has used great care in designating the educational requirements and the experience of those who are to constitute the State Board of Public Health and also the person who is to be the Director of Public Health. This, of course, is essential in view of the fact that the board and the department are given wide discretionary powers in the exercise of their functions and are given the duty of protecting the public health, which is of paramount concern to every citizen of the State. No court would lightly disturb a recommendation, finding, rule, regulation, or order of such a board, and their determinations are entitled to much weight. In this respect the Legislature has spelled out to a large degree the general and specific powers of the department.
The Department is required to examine into the causes of communicable diseases in man which occur or are likely to occur in this State; it is required to cause special investigations of the preparation and sale of drugs and food and their adulteration; and to perform such duties as are required by the laws for the detection and prevention of the adulteration of articles used for food and drink, and to punish those persons guilty of violations of any laws providing against their adulteration. Water is considered to be a food. The department is given authority to commence and maintain all necessary actions and proceedings to enforce its rules and regulations; to enjoin and abate nuisances dangerous to health; to compel the performance of any act specifically enjoined upon any person, officer, or board by any law of this State relating to the public health, and to protect and preserve the public health, and in this respect it may defend all actions and proceedings and it shall sue and be sued under the name of the Department of Public Health. It may abate public nuisances. It has the authority to advise all local health authorities and when, in its judgment, the public health is menaced, to regulate and control their actions.

We must assume that such broad delegation of authority from the Legislature is in its wisdom a matter of necessity in the protection of the public health. In that respect the Legislature has seen fit to provide for the supervision of water supplies on the part of the State Department of Public Health. Specifically, as to water, it is required to examine into and may prevent the pollution of sources of public water and ice supplies.

Under the provisions of section 4010, et seq., of the Health and Safety Code, the Legislature has set forth statutory provisions for the granting of permits by the State Department of Public Health to purveyors of domestic water.

Section 4011 of the Health and Safety Code provides:

“No person shall furnish or supply water to a user for domestic purposes from any source of water supply, unless he first files a petition for permission so to do with the board and receives a permit as provided in this chapter.”

Section 4011.5 of the Health and Safety Code provides:

“No person shall modify, add to or change his source of supply or method of treatment of water for domestic purposes as authorized by a valid existing permit issued to him by said board unless he first files a petition so to do with said board and receives an amended permit as provided in this chapter authorizing such modification, addition or change in his source of supply or method of treatment as may be specified in such amended permit,

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or unless such modifications, additions, or changes in the source of supply or method of treatment comply in all particulars with such of the mandatory requirements of the Water Works Standards as pertain to the quality of water supplied to consumers. Petitions for amended permits shall be made in accordance with the provisions of this chapter for the making of a petition for a permit as herein denied and shall be investigated, considered, determined and issued or denied upon the same terms and conditions as herein provided for the granting, issuing or denial of a permit as provided in this chapter."

Section 4011.6 of the Health and Safety Code provides:

"No person shall modify, add to or change his distribution system for water for domestic purposes as authorized by a valid existing permit issued to him by said board unless he first files a petition so to do with said board and receives an amended permit as provided in this chapter authorizing such modification, addition or change in his distribution system as may be specified in such amended permit, or unless such modifications, additions or changes in said distribution system comply in all particulars with such of the mandatory requirements of the Water Works Standards as pertain to the quality of water supplied to consumers. Petitions for amended permits shall be made in accordance with the provisions of this chapter for the making of a petition for a permit as herein defined and shall be investigated, considered, determined and issued or denied upon the same terms and conditions as herein provided for the granting, issuing or denial of a permit as provided in this chapter."

Section 4012 provides that with any petition, as provided for in sections 4011.5 and 4011.6, the petitioner must file a complete set of plans and specifications, together with a statement containing a general description and history of the existing or proposed plant, works, or system or proposed changes therein, showing geographical location with relation to the source of the water supply and all the sanitary and health conditions surrounding and affecting such supply and the plant, works, or system. The plans, specifications and statements of such petitioner are required to be in a form and cover such matters as the board prescribes.\(^6\)

Section 4014 provides for a complete investigation by the board and authorizes the board, for good cause, to grant a temporary permit to any person who has filed a petition upon such terms as it shall determine are in the public interest pending the completion of the investigation of the proposed or existing plant, works, system, or water supply. This temporary permit terminates upon the date specified and it may be revoked or suspended in the same manner as a permanent permit.

With respect to the investigation, the board may hold a hearing and if, after investigation, it determines that the water supplied under all the circumstances and conditions will be impure, unwholesome, or unpotable or may

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constitute a danger to the health or life of human beings or the existing plant, works, system, or water supply, or proposed modifications, are unhealthful or unsanitary, or not suited to the production and delivery of healthful, pure, and wholesome water at all times, the board must deny the petition and order the petitioner to make such changes as it deems necessary to secure a continuous supply of pure, wholesome, and potable water, and in this respect the board is given the absolute power to order such changes, alterations, or additions to plants or changes in the sources of water supplies, or in the installation of purification and refining works, and to designate a time within which such changes may be made.51

Section 4021 of the Health and Safety Code provides:

“If the board determines that the water being furnished or supplied is such that under all circumstances and conditions it is pure, wholesome, and potable and does not endanger the lives or health of human beings, it shall grant a permit authorizing the petitioner to furnish or continue to furnish or supply the water.”

It is to be noted that section 16 of the Health and Safety Code provides that “shall” is mandatory, and therefore we must construe the word shall as being mandatory unless other factors enter into the situation.

With respect to revocation or suspension of a permit, the board is likewise given extremely broad powers and it would appear that it may, in its discretion, at any time revoke or suspend a permit if it determines that the water being supplied or furnished by the permittee is or may become impure, unwholesome, or unpotable, or endangers, or will endanger, the lives and health of human beings.52

The board is further given the power to require that the holder of a permit shall at any time, by order of the board or upon demand, be required to present a complete report to the board of the conditions and operations of its water supply system, at the expense of the holder of the permit.53

Minor exceptions are made as to the permit requirement with respect to a person supplying water for drinking purposes on his own private property upon which there is no industrial camp, hotel, or temporary or permanent resort using the water.54

The board and its inspectors may at any and all reasonable times enter into any and all places for the purpose of making examinations and investigations to determine whether any of the provisions of the water and water systems sections are being violated.55 Likewise, where any person furnishes, for domestic purposes, impure, unwholesome, unpotable, polluted water or

water dangerous to the health of human beings, he is guilty of a misdemeanor, and the continued existence of a violation of this chapter, or of any order of the board issued pursuant thereto, beyond the time stipulated for compliance with these provisions, constitute a separate and distinct offense. Where such a condition is maintained, it must be summarily abated. The furnishing of such water may be enjoined by any court of competent jurisdiction, upon the petition of the board.

Most of the sections involved spring from the Statutes of California of 1913, page 793, and it has been held that the primary object of that act was to prevent the supplying of water for human use which was unhealthful and unsanitary, and thereby to preserve and protect the general health of the people of the State.

The writer is informed that the State Department of Public Health has, pursuant to these sections, established a permit system for the purpose of carrying out these provisions and granting permits to the purveyors of domestic water, and has authorized fluoridation of public water supplies under exacting and closely controlled conditions.

**The Police Power Issue**

From this discussion it is quite apparent that the State Board of Public Health has been delegated the duty and all the powers necessary with which to control the purity, potability, and wholesomeness of the water supplies of the State. Clearly the board has the power to make every order, rule, or regulation with respect to the subject to provide the public with water which is at all times pure, wholesome, and potable and which does not endanger the health and lives of human beings, so long as these are reasonable exercises of the power given to it.

However, with respect to fluoridation, we are dealing with a problem which is somewhat different from that of adding a chemical or other material which will purify, make wholesome, make potable, or which may not be dangerous to public health. Clearly with the background of scientific evidence now available, no successful attack on constitutional or other grounds could be made upon the department or the board in ordering the use of chlorine, which addition is for the purpose of purification and the prevention of disease. Oddly enough, research has failed to reveal any case in which the chlorination of water has been legally attacked.

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59 Laurel Hill Cemetery v. San Francisco, supra, note 43.
The avowed purpose of the use of fluorine in water is the prevention of
dental caries in children. The effect which artificially or naturally fluori-
dated water has upon the teeth of adults is unknown. The distinction is
obvious—chlorination prevents the populace from becoming diseased due
to impure water supplies; fluoridation, so far as we know, does not neces-
sarily purify water but does prevent tooth decay.

In discussing this subject and the police power of the State Department
of Public Health, we must make a distinction between the exercise of the
police power on the part of the department in controlling the purity, whole-
someness, and potability of public water supplies and its power to order
water supplies to be fluoridated. In the writer's mind there is considerable
doubt as to the authority of the Board of Public Health, under present
circumstances and with the factual situation which was expressed in the
earlier part of this article, to make an order requiring fluoridation. In
making such a statement we are not unmindful of the fact that should the
board order fluoridation of water supplies on the grounds that it was neces-
sary in the interest of the present and future health of the public, and that
fluoridation did not make the water impure, unwholesome, unpotable, or
dangerous to public health, there is a reasonable possibility that such order
would be held valid. Suffice it to say that the board has never made such
an order. However, assuming that it could not order fluoridation, its denial
of a petition to fluoridate through the use of its delegated police power to
control permits given to purveyors of domestic water supplies would effect-
tively prevent fluoridation. In other words, by its authority to control the
purity of water, it likewise can control fluoridation by merely denying the
right to fluoridate.

We must, however, consider the question of section 4021 of the Health
and Safety Code. It provides that when the Board determines that the water
being furnished or supplied is such that under all the circumstances and
conditions it is pure, wholesome, and potable and does not endanger the
lives and health of human beings, it shall grant a permit to furnish or
continue to furnish the water. This would appear to be a mandatory require-
ment that, upon a petition having been filed, and the board having made a
finding that the petitioner will furnish its consumers water which is within
those provisions, it must grant the petition. It would, therefore, appear that
should the board apparently, and without good cause, deny a petitioner a
permit to furnish water, it certainly would be subject to a mandate proceed-
ing requiring it to grant such a permit to furnish water. The board has
granted permits in this State authorizing the fluoridation of domestic water
supplies. Obviously, therefore, the board has, through the powers delegated

to it and the duty imposed upon it, made a determination that controlled fluoridation of domestic water supplies will not make water impure, un wholesome, impotable or endanger the lives or health of human beings.

This authorization by the board is a finding that the statutory standard has been met and that the petitioner is entitled to furnish such water.

It has been suggested that the board has exceeded its authority in making such finding because it may not then be furnishing water equal to the mandatory requirements of the Water Works Standards, as required by sections 4011.5 and 4011.6 of the Health and Safety Code. The clear import to those sections does not bind the board in any way to the mandatory requirements of the Water Works Standards. The board is bound only by the statutory standard that the water furnished or supplied is such that under all the circumstances and conditions it is pure, wholesome, and potable, and does not endanger the lives or health of human beings. The reference to Water Works Standards is solely to authorize a modification, addition, or change in the source of supply or method of treatment without permit from the board if they comply in all respects with the mandatory requirements of the Water Works Standards.

The control of water supplies which is exercised by the Legislature and the authority which it has delegated to the board and the State Department of Public Health is exercised under the police power of the State. The Legislature is possessed of the entire police power of the State, except as its power is limited by the provisions of the Constitution. It is an indispensable prerogative of sovereignty and may not be legally limited even though at times its operation may seem harsh, so long as it is not unreasonably and arbitrarily invoked and applied. The power is not static, but is flexible to keep pace with changing conditions and scientific disclosures which obviously call for revised laws, rules, or regulations for interpretation of laws under present conditions. The criteria is what is reasonably necessary to promote the public health at the time a health measure or act is invoked.

There would appear to be little doubt that the fluoridation of domestic water supplies as exercised and controlled in this State meets the requirements for a valid exercise of the police power. It is a reasonable means of accomplishing the public purpose of improving the dental health of a substantial portion of the population without injury to the rest of the population. It is also a means of improving the general dental health of the generations which would be affected by the use of fluoridated water.

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65 Dobbins v. Los Angeles, 195 U.S. 223 (1904); Hadacheck v. Sebastian, 239 U.S. 394 (1915); Abie State Bank v. Bryan, 282 U.S. 765, 776 (1931); Miller v. Board of Public Health, 193 Cal. 477, 484, 485, 234 Pac. 381, 38 A.L.R. 1479 (1925); Justesen's Food Stores, Inc. v. City of Tulare, 12 Cal.2d 324, 328, 84 Pac.2d 140 (1938); Frost v. City of Los Angeles, supra, note 59; de Aryan v. Butler, as Mayor of the City of San Diego, No. 169974, Superior Court, County of San Diego, Memorandum Opinion (1952).
The Delegation of Authority Issue

Pursuant to its consideration of the question of fluoridation, the State Board of Public Health, on August 29, 1950, issued a statement to the effect that it approved the addition of fluoride to public water supplies, as follows:

"The California State Board of Public Health approves the fluoridation of public water supplies for the partial control of dental caries providing that the local dental and medical societies also approve.

"Details for accomplishing fluoridation must be reviewed in each instance by the State Department of Public Health under the provision of the California Pure Water Law (see Chapter 7, Part 1, Division 5, Health and Safety Code)."

On September 14, 1951, the Board adopted a resolution which is as follows:

"WHEREAS, on August 29, 1950, the State Board of Public Health issued a statement approving the addition of fluoride to public water supplies in this State subject to prior approval of the local dental and medical associations; and

"WHEREAS, the Legislature considered at the 1951 Session a bill, a portion of which specifically authorized purveyors of public water supplies, including utility and irrigation districts to add fluoride to their water supplies under permit from the State Department of Public Health; and

"WHEREAS, the Attorney General's office has advised the State Department of Public Health that under existing statute there is no doubt that the department has authority to grant permit for addition of a beneficial mineral nonexistent or insufficient in those public water supplies not naturally endowed, if it finds that such treated water supplies will under all circumstances and conditions be pure, wholesome, and beneficial to health; now, therefore, be it

"RESOLVED, that the State Board of Public Health finds that fluoridation of public water supplies by the placing of a normal and beneficial mineral in proper concentration in those water supplies in which it does not occur in optimum amounts naturally, will tend to produce a water that under all circumstances and conditions is pure, wholesome, potable and beneficial to health; and be it further

"RESOLVED, that the State Board of Public Health herein re-affirms its policy statement of August 29, 1950, approving the fluoridation of public water supplies."

Criticism of this resolution has been made on the grounds that it approved fluoridation "subject to the prior approval of the local medical and dental associations" and therefore has delegated to local dental and medical associations the power which it does not hold and a power which, even though

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68Minutes of the meeting of the State Board of Public Health, held at Los Angeles, August 29, 1950, Minute Book, page 4266.
68Minutes of the meeting of the State Board of Public Health held September 14, 1951, Minute Book, page 4402.
the Legislature could delegate it to the board, could not be redelegated to the local medical and dental associations. This, on the ground that such local dental and medical associations are not the possessors of police power.  

It would appear that the writer of this comment falls into a basic error in that he assumes that a resolution of the State Board of Public Health has the force and effect of law. A mere resolution is not a competent method of expressing legislative or board rule where that expression is to have the force of law and bind others than the members of the body adopting it.  

It is quite apparent that what the board intended by its resolution was to merely announce that it agreed with fluoridation in principle, in view of its study of the concept, and that it was leaving it to the local authorities to determine whether, in fact, they desired it on that basis, and that it desired, as a part of its consideration of a petition, that the local health and dental associations express their opinion in so far as their community was concerned. 

In order to make this abundantly clear, the board passed a subsequent resolution on April 29, 1952, which is as follows:  

"WHEREAS, on August 29, 1950, the State Board of Public Health issued a statement of policy approving the addition of fluoride to public water supplies in this State subject to prior approval of the local dental and medical associations, and on September 14, 1951, re-affirmed that policy, which statement of policy indicated its feeling that properly controlled fluoridation of public water supplies was appropriate; and  

"WHEREAS, there has been some legal discussions misinterpreting the force and effect of these resolutions accusing the Board of illegally delegating its powers; and  

"WHEREAS, the Board is fully aware of its powers under the Health and Safety Code and under no circumstances has delegated any of its powers with respect to fluoridation of public water supplies, but has desired to have the local area involved express by its medical and dental societies their local feeling concerning fluoridation; and  

"WHEREAS, no authorization for permit to fluoridate is granted without proper application pursuant to the provisions of the Health and Safety Code; therefore be it  

"RESOLVED, That the Board desires it distinctly understood that under no circumstances has it delegated any of its power and authority with respect to permits to fluoridate public water supplies to anyone and will grant permits to fluoridate upon proper application made pursuant to the Health and Safety Code."

We must assume, of course, that the Board of Public Health has considered, in its deliberations, the question of the harmfulness of the effect

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68 Min. of the meeting of the State Board of Public Health held April 29, 1952.
of fluoridation and the benefits to be obtained therefrom, and in this respect the mere fact of the resolutions above quoted does not give purveyors of domestic water the right to fluoridate without first obtaining a permit from the board. The board, of course, as such, retains its full rights and discretion in the matter. The resolution of August 29, 1952, would appear to have been unnecessary in view of the statement of August 29, 1950, which definitely stated that all petitions must be reviewed under the provisions of the California Pure Water Law.69

The Poison Issue

Contention is made that the addition of fluorides to a domestic water supply is poisoning the water. As a matter of terminology this would appear to be true because fluorides are poison and so designated. However, the statement that the addition of fluoride compounds to water is poisoning the water is misleading. It is not a question of nomenclature, but rather one of the concentration of the chemical in the water and the results which naturally flow from that concentration. Unquestionably, this material is poisonous in high concentrations. In low concentrations, scientific sources advise that it is not. An example of the safe addition of a known poison into domestic water supplies is the addition of chlorine. Chlorine is known as a deadly poison, the gas of chlorine having been used as a poison gas during World War I. In high concentrations undoubtedly chlorine added to water is lethal. In the concentrations required for the purpose of purifying water it is clearly not; controlled it is beneficial—uncontrolled it is poisonous. So it is with fluorides. It is argued, on the other hand, that irrespective of that fact fluorides can not be legally added to drinking water supplies in this State, even with board permission, because such permission is forbidden by statute.

"Flourides soluble in water . . ."70 are defined as poisonous. Therefore, the contention is made that their addition makes the water impure, unwholesome, unpotable, or dangerous to health, and thus the State Board of Public Health must deny applications for authority to fluoridate.71 At first blush this would appear to be a reasonable argument, but upon analysis the contention is invalid. Section 20703 of the Health and Safety Code comes under Division 15 of the code and pertains solely to the dispensing of poisons under that particular division. This division is administered by the California State Board of Pharmacy,72 and was enacted for the purpose of regulating the sale of poisons and their administration to human beings. Its primary purpose is the control of the sale of these poisons and to require that none

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70 Calif. Health and Safety Code, § 20703(c).
shall be sold by pharmacists without the prescription of a practicing physician, dentist, chiropodist, or veterinary surgeon, without proper labeling, and without proper entry in a poison book.

It likewise was passed for the purpose of further supervision of possible homicides or suicides; it requires an immediate report to be made to the California State Board of Pharmacy where poison has been found in any tissue or body fluid of man or animal, or any food or drug, within this State. It must further be noted that these sections deal with the substances themselves as distinguished from compounds of these substances, and it would appear to be the clear legislative intent that these sections are applicable only to the sale and furnishing of poisons and not to the furnishing of water containing one of the named poisons in minute quantities. If it be true that the addition of fluorides in any concentration is the addition of a poison to water, then it may logically be said that the Legislature, by enacting section 26470.5 of the Health and Safety Code, has authorized the poisoning of water.

This section was added to the Pure Foods Act in 1951 and authorized the addition of fluorine or fluorine compounds to bottled water, providing that the labeling requirements of the Pure Foods Act must be met. At the same legislative meeting, a bill was considered which, among other things, would have granted, by specific statutory authority, power to the State Board of Public Health to grant permits for fluoridation. This bill provided for a study by the board of the results of fluoridation and an exemption from liability for damages resulting from fluoridation. This bill did not pass. The writer does not believe that we are unwarranted in assuming that one of the basic reasons this bill did not pass was probably because of the exemption from liability for damages, particularly in view of the passage of the statute authorizing the fluoridation of bottled water. Obviously, its passage was not stopped because the Legislature felt it was authorizing the poisoning of domestic water supplies.

It is patent that under present statutory authority the State board, and department, already had and still has the right to study the results on dental health of the fluoridation of water.

The failure of Assembly Bill No. 3183 to pass may in no way be considered as an expression of the policy of the Legislature with respect to fluoridation. The fact that section 26470.5 is now the law, on the other hand, may at least logically be considered as a feeling on the part of the Legislature that controlled fluoridated water is not dangerous to public health when under the jurisdiction of the State Department of Public Health.

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80 Assembly Bill No. 3183, California Legislature (1951).
However, and in any event, should the State Board of Pharmacy determine that concentrates of fluorides soluble in water, of a certain percentage, are not poisonous, all that is necessary to change the designation of fluorides as poison is that the board follow the provisions in the code authorizing it to change the designation to "fluorides soluble below a certain concentration in public water supplies."

**The Advertisement Issue**

The Pure Drugs Act of California provides that the advertisement of a drug or device represented to have any affect on certain diseases is unlawful and prohibited. Among those listed is "dental caries." On the ground that this act prohibits any advertisement claiming to have an affect on dental caries, it is contended that none other than the purveyors of fluoridated bottled water have the right to advertise fluoridated water. The avowed purpose for the addition of fluorides to public water supplies is to assist in the prevention of dental caries, therefore this constitutes prohibited advertising under this act. Fluoridated bottled water would appear to be exempt from the provisions of said act. Again this would appear to be a valid argument, but the false advertisement prohibited by section 26271 is one that is likely to induce a purchase of a drug which is prohibited by section 26286, with the exception set up in section 26273. This is to protect the public from quack cures, patent medicines, and other such pharmaceuticals advertised for self-medication. The only case which research has revealed where the addition of fluorides has been attacked and the decision of the court is available is that of *de Aryan v. Butler, as Mayor of the City of San Diego, supra.* In that case the plaintiff sought an injunction against officials of the City of San Diego to restrain them from carrying out a public water supply fluoridation program. Evidence was taken and a motion was made for a nonsuit, which motion was granted. The issue of unlawful advertising was there made and the court stated that the prohibitory section must be read in connection with the preceding section. It was noted that certain diseases are not mentioned in that chapter of the code and that that fact should not be construed as indicating self-medication for such other diseases is safe. The Legislature, by adopting the prohibitory section, was simply attempting to discourage self-treatment for the diseases enumerated in that section. The court went on to state that self-medication for dental caries was not prohibited by the code, and nothing in the record indicates that the fluoridation program

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82 HAST. L. J. 123, 127 (1952).
85 *de Aryan v. Butler, supra,* note 65.
involved would not be administered under the direction of the City Public Health Officer, who is a licensed physician and surgeon in California. While the avowed purpose of fluoridation is a partial prevention of dental caries, the fact remains that once accomplished it would not be particularly advertised as such. The advertisement of the addition of this chemical to public water supplies would clearly not be the self-medication false advertising aimed at by the Legislature. Not only is the above true, but sight seems to have been lost of section 26272, which specifically exempts from the provisions of section 26270, as being false or misleading, any matters which appear only in the scientific periodicals of the professions concerned or which are disseminated only for the purpose of public health education by persons not commercially interested in the sale of such drugs or devices. Further, the Board of Public Health may, wherever it determines that an advance in medical science has made any type of self-medication safe as to any disease named in section 26286.5, authorize advertisement.

It appears to the writer that the advertising contention is purely academic.

The Freedom of Religion Issue

It is most strongly urged, not only by certain religious groups but likewise by persons who look at the problem from a purely academic viewpoint, that fluoridation of public water supplies is compulsory mass medication.

It is contended that in this respect is is in violation of the First and Fourteenth amendments of the Federal Constitution guaranteeing freedom of religion. No court nor person should lightly dismiss this contention. The practical aspects are certainly most persuasive to the compulsory mass medication theory. If the domestic water supply of a community is artificially fluoridated, then where can those who object to such artificial fluoridation obtain water free of fluorides? Various suggestions have been made: (1) purchase bottled water; (2) dig their own wells; (3) do not fluoridate public water supplies but place the chemical in other things such as food or milk, or place water in special fountains in the schools. As a counterpart to the argument of forced mass medication it might be said that there are undoubtedly several hundred thousand people drinking water which is naturally endowed with fluorides who are of the same religious belief as those who object to the artificial addition of fluorides to domestic water supplies. The undoubted answer to that is that it is the forced medication, not the natural, which is objected to. However, the fact remains that insofar as the law is concerned there is no legal compulsion on protestants to drink fluoridated water even though it is in a domestic water supply.

The writer has already stated that it is his belief that fluoridation in

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California as administered is a valid exercise of the police power. Now, does the police power in this instance overbalance the constitutional objection that it violates freedom of religion?

The first amendment to the Federal Constitution provided that Congress shall make no law respecting the establishment of religion. This was early held to mean that neither the original Constitution nor the amendment made any provision for protecting the citizens of the respective states and their religious liberties, but that this was entirely left to the individual states.⁸⁸

The California Constitution from its beginning has guaranteed religious freedom.⁹⁹

Irrespective of the early decisions that the First Amendment did not apply to the states, recent cases hold that the fundamental concept of liberty embodied in the Fourteenth Amendment embraces the liberties of the First Amendment. Thus the practical effect is that the First Amendment applies to the states.⁹⁰

Speaking of the First Amendment, the United States Supreme Court clearly and concisely stated the applicable rule as follows: "thus the amendment embraces two concepts,—freedom to believe and freedom to act. The first is absolute but, in the nature of things, the second can not be."⁹¹

There would appear to be no question that a person is free to hold whatever belief his conscience dictates, but when he translates his belief into action or, as in the matter of the present discussion, he seeks to prohibit the exercise of police power in a health measure, then he is bound by reasonable determinations which are applicable to all persons and are designed to accomplish a permissible objective, and the courts would so hold.⁹²

In any decision as to whether an exercise of the police power is constitutional, we must consider certain broad principles: (1) the police power of a State has its limits and must stop when it encounters the prohibitions of the Federal Constitution,⁹³ (2) however, the police power is the least limitable of the exercises of government,⁹⁴ and (3) its limitations are hard to define,⁹⁵ (4) are not susceptible of circumstantial precision,⁹⁶ (5) can not be deter-

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⁹¹Cantwell v. Connecticut, supra, note 90.
⁹³Eubank v. Richmond, 226 U.S. 137, 33 S.Ct. 76, 57 L.Ed. 156 (1912).
mined by any formula,97 (6) must always be determined with appropriate regard to the particular subject involved.98 (7) While it is the duty of the Federal courts to see to it that the constitutional rights of the citizen are not infringed by the state, they should not strike down an enactment or regulation adopted by the State under its police power unless it be clear that the declaration of public policy contained in the statute is plainly in violation of the Federal Constitution, and the legislation must be upheld unless shown to be clearly unreasonable, arbitrary, or discriminatory.99 (8) It is presumed that the exercise of the police power is in the interest of the public and that there are facts justifying its specific exercise; and this presumption attaches alike to statutes, municipal ordinances, and orders of administrative bodies.100

In the light of these principles, let us examine fluoridation of public water supplies in California.

We have heretofore described the freedom of religious guarantee as being the freedom of belief and the freedom to act, the former being absolute, the latter not. Wherein is the absolute freedom being denied? Any person may think and believe as he wishes; no one forces him to believe in fluoridation; he may think and express himself against it. If that be true, then we must find the violation in restraining the right to act as he sees fit. Although this is a right subject to limitations, fluoridation does not limit such right in any way. There is no legal compulsion. The protestant may drink fluoridated water or he may not, as he wishes.

What has the California State Board of Public Health done? (1) It has issued permits for the controlled fluoridation of public water supplies under its delegated authority, this being a valid exercise of the police power. (2) In making the determination to permit fluoridation it has much scientific factual data before it that would dispel any contention of a lack of reasonable determination as to the benefits or harmfulness of fluoridation. (3) Its determination is neither arbitrary, unreasonable, discriminatory, nor does it unduly infringe the protected freedom. (4) Its permit does not create a legal compulsion upon any person to drink fluoridated water.

The writer sees no valid constitutional objection to the action of the board as to fluoridation on the grounds that the action of the board violates religious freedom, and he is of the firm opinion that the courts would so hold.101

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100 Erie R. Co. v. Williams, 233 U.S. 685, 699 (1914); Pacific States Box and Basket Co. v. White, 296 U.S. 176, 185, 186 (1935).