

**EDUCATION AND FLUORIDATION
IN NEW ZEALAND:
AN HISTORICAL STUDY**

**BY
JOHN COLQUHOUN**

**THESIS SUBMITTED FOR THE DEGREE OF DOCTOR OF PHILOSOPHY
UNIVERSITY OF AUCKLAND
NEW ZEALAND
1987**

**Education and fluoridation
in New Zealand: an
historical study
by
John Colquhoun**

Despite it being 29 years since this PhD thesis was presented in 1987, fluoridation in New Zealand is still the cause of a degree of controversy with five High Court of New Zealand decisions on fluoridation being made in 2014 and 2015 and Health Minister Jonathan Coleman and Associate Health Minister Peter Dunne announcing in April 2016 proposed legislative changes to allow district health boards (DHBs), rather than local authorities, to decide on which



John Alexander Colquhoun, BDS, PhD
4 January 1924 – 23 March 1999

community water supplies are fluoridated in their areas. Drawing on Thomas Kuhn's *The structure of scientific revolutions*, Colquhoun's conclusions remain relevant in this setting including (i) that it is time for a scientific re-examination of the fluoridation paradigm, (ii) that education about fluoridation based on elitist professional behaviour tends to be rigid and authoritarian and not appropriate for a democratic society and (iii) that more open discussion of the fluoridation controversy, and of the interests and social factors involved, should occur in science and health education, both in schools and more informal settings.



When he retired in 1984, the author was the Principal Dental Officer in the Department of Health in Auckland.

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Sapere aude. Motto of the University of Otago. It can be translated to mean: dare to be wise, have the courage to think for yourself rather than blindly accepting the opinions of authorities.

All great truths begin as blasphemies. George Bernard Shaw

All truth passes through three stages: first it is ridiculed, second it is violently opposed, third it is accepted as being self-evident. Arthur Schopenhauer

Great thinkers have always encountered violent opposition from mediocre minds.
Albert Einstein

Don't worry about people stealing your ideas. If your ideas are that good, you'll have to ram them down people's throats. Howard Aitken

Time's glory is to calm contending kings,

To unmask falsehood, and bring truth to light. Shake-speare

In an age of conformism and "team work," where compromise and harmony are offered as the watchwords of human activity, being critical may be considered antisocial. But science without criticality is unthinkable, for the only route to scientific objectivity is to question, not to "accept." Anon. Statistics, science and sense [editorial]. JAMA 1963;186:508. Cited before the preface in: Waldbott GL. *A struggle with titans*. New York: Carlton Press; 1965.

As every past generation has had to disenthral itself from an inheritance of truisms and stereotypes, so in our time we must move on from reassuring repetition of stale phrases to a new, difficult, but essential confrontation with reality.

For the great enemy of truth is very often not the lie—deliberate, contrived, and dishonest—but the myth, persistent, persuasive, and unrealistic. Too often we hold fast to the cliches of our forebears. We subject all facts to a prefabricated set of interpretations. We enjoy the comfort of opinion without the discomfort of thought. President John F Kennedy, Commencement address, Yale University, 11 June 1962. Cited after the dedications in: Waldbott GL, Burgstahler AW, McKinney HL. *Fluoridation: the great dilemma*. Lawrence, Kansas: Coronado Press; 1978.

FOREWORD

I acknowledge, with grateful thanks, the copyright owner, David Colquhoun, and Te Tumu Herenga, The University Library, The University of Auckland, for their kind granting of permission to publish this edition of *Education and fluoridation in New Zealand: an historical study* by John Colquhoun and Janet Copsey, Librarian, Te Tumu Herenga, The University Library, for supplying the copy of the thesis used for preparing the edition.

New pagination has been used in this edition because of the additional prefatory pages and because, in its original form, no page numbers were allocated to the section title pages for parts I, II, III, and the conclusion, appendices, and bibliography. The original numbering in the outline of contents was: preface: ii; abbreviations: iii; chapters 1: 20, 2: 39, 3: 57, 4: 89, 5:123, 6: 147, 7:171, 8: 195, 9: 210, 10: 234, 11: 265, 12: 285; conclusion: 315, appendices: 322; and bibliography: 325.

Despite it being 29 years since the thesis was presented in 1987, water fluoridation in New Zealand is still the cause of a degree of controversy and High Court of New Zealand decisions on fluoridation were made on 7 March 2014, 14 May 2014, 26 June 2014, 2 October 2014, and 4 September 2015.¹ In April 2016, Health Minister Jonathan Coleman and Associate Health Minister Peter Dunne announced proposed legislative changes to allow district health boards (DHBs), rather than local authorities, to decide on which community water supplies are fluoridated in their areas.² Each DHB will:

(i) Collect and review local data on community oral health.

(ii) Apply national tools developed by the Ministry of Health to generate information about water supplies and affected population groups and communities.

(iii) Consider this information and direct water suppliers to fluoridate or not to fluoridate community water supplies as appropriate.²

Local authorities will still be responsible for supplying drinking water.² A local authority would be required to fluoridate a water supply if it is directed to do so by the DHB.² It would also not be able to stop fluoridation unless the DHB directed it to. Local authorities would continue to be responsible for the costs of fluoridating community water supplies, while the cost of making decisions on fluoridation would be met by DHBs.² Changing the decision-making process for water fluoridation will require an amendment to Part 2A (Drinking-Water) of the Health Act 1956 and amendments to the New Zealand Public Health and Disability Act 2000.² If the amendments are passed before the end of the Parliamentary term in 2017, it is likely that legislation would come into force from mid-2018.²

The main conclusions of the Colquhoun thesis remain relevant in this setting. These were that:

(i) It is time for a scientific re-examination of the fluoridation paradigm. This re-examination will have implications for health and science educators.

(ii) The role of health education and school dental services have contributed more than fluoridation to improved dental health. The importance of continuing and expanding such educational activity should be recognized.

(iii) Elitist professional behaviour has influenced education about fluoridation and that education based on such behaviour tends to be rigid and authoritarian and not appropriate for a democratic society.

(iv) More open discussion of the fluoridation controversy, and of the interests and social factors involved, should occur in science and health education, both in schools and more informal settings.

(v) More research is required, within the broad context of the social, political and economic background to the paradigm and its history.

The currently planned legislative changes are based on a continued acceptance of the current paradigm in which the systemic administration of fluoride in the public water supply is seen to be of value in reducing dental decay. Implementing the model with legislative changes by which district health boards, who are required to follow Government policies, can direct local authorities to fluoridate a water supply could be viewed as a “rigid and authoritarian” approach that is unlikely to be universally accepted without resistance.

The thesis discusses only briefly the non-skeletal risks of fluoridation with mention of gastrointestinal, neuromuscular, respiratory and cardiovascular symptoms, as well as allergic skin lesions. Since 1987, more concerns have arisen about the effect of fluoride on the developing brain of the foetus, infant and child, particularly when iodine deficiency is present, and of thyroid hormone metabolism.³⁻⁵ As more is known on the adverse effects of systemically administered fluoride and its relative ineffectiveness compared to topically applied fluoride in affecting dental caries, the acceptance of the fluoridation model is becoming more difficult for many. By exploring in some depth the work of Thomas Kuhn,^{6,7} the thesis *Education and fluoridation in New Zealand: an historical study* provides a deeper understanding of why water fluoridation remains controversial in New Zealand in 2016.

Some information about Dr Colquhoun’s nature and work is given in the following *In Memoriam*, and tributes which were published, following his death on 23 March 1999, in *Fluoride* in August 1999, together with a list of his publications, letters and comments, and a note on the archiving of his papers.⁸⁻²⁶

Bruce Spittle, Managing Director, Paua Press Limited, and Editor-in-Chief, *Fluoride*

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