

City of London

Examining the Risks of Artificial Water Fluoridation

Information submission by: Sheldon Thomas  
Principal  
Clear Water Legacy  
[www.clearwaterlegacy.com](http://www.clearwaterlegacy.com)

Good day, Mr. Mayor and Councillors.

My name is Sheldon Thomas.

I am a retired Manager of Water Distribution for the City of Hamilton.  
I am also the principal of 'Clear Water Legacy', a company that trains water system operators across the province.

I am writing to strongly advise against the City of London's continuance of the practice of artificial water fluoridation.

In fact, the word 'artificial' should be your first red flag.

### **Prove it!**

A number of red flags were raised last January in the Region of Peel. Faced with the Medical Officer of Health's recommendation to continue the practice of water fluoridation, the mayors and councillors of Peel Region, led by highly-respected Mississauga Mayor Hazel McCallion, voted to go a different direction.

Peel's response to the MOH and to Health Canada's Chief Dental Officer was along the lines of, 'We've have heard the claims, now provide the *proof*'.

The mayors and councilors drafted a resolution requiring:

- That Health Canada provide absolute proof that HFSA ( fluorosilicic acid ) is safe for use in drinking water
- That randomized, double-blind toxicological tests be conducted on HFSA as a single chemical
- That Health Canada designate HFSA a drug ( it is used for the single purpose of reducing dental caries, a disease by definition ), and regulate it as such.
- That at least one properly conducted, double blinded, randomized, placebo-controlled clinical trial be conducted to prove that water fluoridation works to reduce cavities, as claimed. See appendix A

The Region of Peel will certainly share the results of that resolution with all communities, if, and when, answers emerge.

### **Promoting fluoridation**

On May1, fluoridation will be promoted again in London as something that your community *needs* to reduce caries ( cavities ).

You will hear about the 90 national and international organizations that endorse artificial water fluoridation. But you will *not* be told that 46 of the 90, half of that group, are *dental* organizations.

Those 46 dental organizations will again invite London residents to swallow a small concentration of fluoride (a known protoplasmic poison 1) *for a lifetime*, with absolutely no regard for what the fluoride ion can do after it enters the bloodstream and is shared throughout the entire body.

A strong contingent of dentists and dental hygienists usually attends municipal fluoridation debates, passing along their message that fluoridation is essential for cavity control, and that adding 0.7 ppm of fluoride ion to drinking water is absolutely safe.

*Please do not lose sight of this one fact ... dentists are experts in conditions that exist among the bones, teeth and soft tissue within the oral cavity.*

*We need them to be as good as they are .. in that area.*

But there is no dental school on this continent that teaches any dentist, in any dental discipline, the biological effects of turning the fluoride ion loose against the bones, soft tissue, organs and cells throughout the rest of the body.

Dentists do not have the specific training or knowledge base to assure you that ingested fluoride is either *safe* or *effective*.

Toxicologists, biochemists, teratologists and pharmacologists are included among the professionals who *do know* the fluoride ion.

*They* can present to you a library of animal and clinical studies that link fluoride to a long list of diseases and debilitating conditions. 2

It is just inconceivable to expect the fluoride ion, the most aggressive electro-negative non-metallic element on earth, to find its way from the stomach directly to the teeth without seeking targets to bond with along the way.

With every bonding, fluoride alters or corrupts a bodily mechanism, creating substantial biological change.

Fluoride bonds strongly with every chemical, metal and mineral in its path. The only thing that it does not bond with is itself.

There is no reason to believe that the fluoride ion will spare the human body.

It's also inconceivable that Health Canada can claim, in the face of all of the emerging studies that point to fluoride harm, that there is "no credible evidence" that fluoride causes anything worse than mild dental fluorosis. 3

### **The claimed benefits**

*If* there are any benefits to the use of fluoride to reduce cavities, the Centers for Disease Control (CDC) and the American Dental Association (ADA) state that fluoride's benefit is primarily *topical* .. *applied* to the surface of the tooth, and not systemic ( swallowed in drinking water ).

The CDC has held that position for better than 13 years. The CDC has also issued findings that state that it is not established that higher fluoride content in tooth enamel will prevent cavities. 4

Yet the CDC remains the most cited pro-fluoridation agency on the 'List of 90'.

It might help you to know that all pro-fluoridation statements credited to the CDC are, in fact, the sole opinion of the Oral Health (Dental) Division of the CDC. No other scientific or medical arm of the CDC is invited to study, or to comment on, the health effects of artificial water fluoridation.

A Statistics Canada Report, compiled between 2007 and 2009, studied dental caries rates between the virtually non-fluoridated province of Quebec and heavily-fluoridated Ontario.

If fluoridation works as promoted, readers of that report would have expected to see the caries reduction among fluoridated Ontario youth in the oft-quoted range of 25% to 40%, compared to those studied in Quebec.

Statistics Canada, instead, reported that fluoridated Ontario children had virtually the same cavity rates as those in non-fluoridated Quebec. The difference in cavity rates between the two provinces amounted to less than ½ a cavity per child .. almost statistically insignificant. 5

There are serious risks associated with artificial water fluoridation, particularly from the chemical that London currently places into its drinking water. To even *consider* living with those risks, one has to be convinced that there is *great* benefit.

A possible savings of less than a half a cavity per child is not a strong enough benefit to warrant exposing your residents to the injury that fluoride can cause.

There are dozens of studies, assembled from all over the world, that show there to be no correlation between artificial water fluoridation and cavity reduction. 6

Even Health Canada's own 2008 review of fluoridated water failed to identify even one double-blinded, randomized clinical trial to prove that fluoridation works, after correcting for diet and delay in tooth eruption. 7

### **You drink natural fluoride anyway ..**

It will be suggested to you that water fluoridation is just a means of 'topping up' the already present levels of natural fluoride that exists in London's source water.

The *natural* mineral in surface and ground water is calcium fluoride. If you decide to continue artificial water fluoridation, you will not be topping up calcium fluoride with *more* calcium fluoride.

The fluoridating chemicals being used across Ontario are primarily synthetic silicofluorides, such as sodium fluoride (used in smaller systems mainly, but expensive), hydrofluorosilicic acid and hexafluorosilicic acid (shortened, HFSA or fluorosilicic acid).

London's chemical of choice is hydrofluorosilicic acid (HFSA).

These chemicals are category 1 toxins, and extremely dangerous to handle.

They are primarily the waste byproducts of the phosphate fertilizer industry in the southern states.

Arriving by specially modified tanker trucks, these chemicals can be polluted by any of a dozen contaminants, including lead, arsenic, and mercury. <sup>8</sup>

The USEPA classifies lead as a 'probable human carcinogen', likely to cause cancer. <sup>9</sup>  
It classifies arsenic as an outright 'human carcinogen'. <sup>10</sup>

Lead and arsenic are nearly always on the chemical 'certificates of analysis' for HFSA shipments sent to water plants. **Appendix B**

They are there in *very* small concentrations ( parts per million ), and will later be highly diluted in drinking water, but dilution will not make them disappear.

Arsenic and lead, as well as fluoride itself, are persistent bio-accumulative toxins which build up in the human body over time.

Artificial water fluoridation would require London residents to absorb those 'insignificant' carcinogens *for a lifetime*, in the fluoridated water that they drink, from the foods that are prepared in fluoridated water, and through the pores of their skin at every fluoridated shower and bath.

Those who drink and absorb more water than most ( children, athletes, diabetics, labourers ) will have an understandably greater exposure to these 'insignificant' contaminants.

A study in 2006 by the National Academy of Science indicated that, at typical drinking water dilution, the arsenic contaminant common to fluorosilicic acid will cause a cancer in 1 out of 10,000 residents in fluoridated communities.

The National Academy of Science has been advising governments on issues of health for 150 years. One would think that they could defend their data, and their conclusion.

Unfortunately, no one *makes*, and no one *sells*, pure HFSA.

According to the AWWA B703 Fluorosilicic Acid Standard, London *could* ask the chemical plants in the states to remove all of the dozen or so trace contaminants in the chemical shipments to this city. <sup>11</sup>

But London, the purchaser, would have to advise the plants as to *how* removal is to be carried out, and the costs of the 'purified' product would certainly sky-rocket.

London would also have to be especially careful that all radioactive contaminants (radionuclides) are removed from the chemical 'batch' that supplies their shipments.

Uranium is often present in the phosphate rock that is ground up, processed and cooked in sulfuric acid to make super phosphate fertilizer. Radioactive uranium is commonly released in the process.

The city will be told that radioactive readings at the plants are below detection. <sup>12</sup> At some point, the City of London may learn that the chemical plants that make HFSA are inspected, and the batch contaminants measured, *only once a year*. <sup>13</sup>

### **London is not *compelled* to fluoridate**

There is no wording in the Fluoridation Act that compels any municipality to artificially fluoridate its drinking water. The Act simply states that it is legal to do so, should it be done. It remains a voluntary decision of the municipality.

London may elect to continue fluoridation, but the City should know that it stands alone to face the consequences of that decision, and the consequences of voluntarily electing to administer into the drinking water of its citizens a chemical that has not been proven safe for such a use.

Going into this decision, London should understand that no government or health agency in Canada regulates, takes ownership of, or is accountable for the use of any fluoridation chemicals in common use today.

Fluorosilicates are being fed to millions of Canadians, even though there has never been a single toxicological study or clinical trial performed on these chemicals to prove that they are safe for short or long-term ingestion.

Health Canada has been forced to admit that it does **no** research on HFSA. <sup>14</sup> It relies primarily on its own internal reviews of research done elsewhere.

Unfortunately for Health Canada, there has been very little research into the health effects of HFSA to support its position that the chemical is safe for use in drinking water.

In 2001, the US EPA admitted, under oath before the US Congress, that it had "**no information on the effects of silicofluorides on health and behavior.**" <sup>15</sup>

The entire Scientific and Technology Arm of the USEPA could not come up with *anything*, even though proponents had claimed for 60 years that hundreds, maybe thousands, of studies existed, all proving that artificial water fluoridation was safe.

Despite a subsequent 2002 EPA Request For Assistance (RFA) for further research into the safety of HFSA and other silicofluorides, no useful information has surfaced to date.

If the fluoridation chemicals cannot be proven safe, then the practice of water fluoridation cannot be proven safe.

### **Legal actions ahead**

London councillors should be forewarned that legal actions have commenced in the United States against municipalities and water authorities that have chosen to impose artificial water fluoridation upon their residents. 16

Lawyers are charging water authorities, *and others*, with :

- non-disclosure of the injurious side-effects of fluoride
- illegal use of an untested chemical in drinking water
- misrepresentation of the benefits of fluoridation
- suppression of data that would have proven fluoridation hazardous

As these lawsuits gain traction south of the border, similar charges may be filed in Canadian jurisdictions.

The City of London may be wading back into the fluoridation waters just as those waters are beginning to heat up.

### **Separate fact from promotion**

Mr. Mayor and councillors, I ask you to put on a doubter's face throughout the entire proceedings of May 1, 2012.

Demand proof of everything spoken, and written.

If water fluoridation is as 'safe and effective' as Health Canada states, then demand proof of both.

If proof exists, then you shouldn't have to wait too long.

But be willing and ready to examine carefully all that is presented as 'proof'.

On the issue of artificial water fluoridation, you would be well-advised to follow Mayor McCallion's lead.

With respect,

Sheldon Thomas  
Principal,  
Clear Water Legacy  
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shelthomas@cogeco.ca

**references follow**

## References

1. *Journal of the American Medical Association*, Sept 18, 1943, Editorial.  
"Fluorides are general protoplasmic poisons, probably because of their capacity to modify the metabolism of cells by changing the permeability of the cell membrane and by inhibiting certain enzyme systems. The exact mechanism of such actions is obscure."

2. **Cancers** Taylor A, Taylor NC. (1965). 'Effect of sodium fluoride on tumor growth'. *Society for Experimental Biology and Medicine* 119:252-255.

**Coronary artery disease** 'Association of vascular fluoride uptake with vascular calcification and coronary artery disease' Yuxin Li, Gholam R Berenji et al., *Nucl Med Commun.* 2012 Jan ;33(1):14-20. PMID: "There was significant correlation between history of cardiovascular events and presence of fluoride uptake in coronary arteries."

**Increased bone fracture in both the young and the elderly** Riggs BL, et al. (1990). Effect of Fluoride treatment on the Fracture Rates in Postmenopausal Women with Osteoporosis. *New England Journal of Medicine* 322:802-809.

**Calcification ( stiffening ) of tendons and joints, arthritic symptoms** Bang S, et al. (1985). Distribution of fluoride in calcified cartilage of a fluoride-treated osteoporotic patient. *Bone* 6: 207-210.

**Brain injury producing Alzheimer's-like symptoms** 'Chronic administration of aluminum-fluoride or sodium-fluoride to rats in drinking water: alterations in neuronal and cerebrovascular integrity', Julie A. Varner et al., *Psychology Department, Binghamton University, Binghamton, NY, USA* 1997

**Reduced IQ** Li Y, et al. (2003). The effects of endemic fluoride poisoning on the intellectual development of children in Baotou. *Chinese Journal of Public Health Management* 19(4):337-338.

**Attention deficit disorders** Dr. Phyllis J. Mullenix, Toxicology Department Forsyth Research Institute, Boston, MA., 'Neurotoxicity of Sodium Fluoride in Rats', 1995

**Enzyme poisoning** "There is plenty of evidence to indicate that fluorine in the amount of 1 ppm or slightly more interferes with enzyme systems and these enzyme systems are involved in the growth of bones, in the functioning of nerve tissue and so forth. It is clear that fluoridation is a calculated risk." Dr. Robert S. Harris, Ph.D, Director of Nutritional Biochemistry Laboratories, Massachusetts Institute of Technology.

**Hypothyroidism** "In humans, effects on thyroid function were associated with fluoride exposures of 0.05-0.13 mg/kg/day when iodine intake was adequate and 0.01-0.03 mg/kg/day when iodine intake was inadequate." National Research Council (2006) *Fluoride in Drinking Water: A Scientific Review of EPA's Standards*, p 218.

**Elevated lead uptake into the bloodstream** 'Fluoride increases lead concentrations in whole blood and in calcified tissues from lead exposed rats', Sawan RM et al., 2010, *Journal Toxicology*, pg 21-26

**Depleted immune systems** Gibson, 1992, *Effects of Fluoride on Immune System Function*, *Complementary Medical Research*, Issue 6, pg 11-113; Sutton P, 1991, 'Is the Ingestion of Fluoride an Immunosuppressive Practice?', *Medical Hypotheses* 35, 1-3,

**Alarming prevalence of dental fluorosis ( mottled, discoloured and porous tooth enamel )** "An increase in fluoride content and decrease in calcium content in fluorosed human teeth were observed when compared to the control." Susheela AK, Bhatnagar M. 1999. Structural aberrations in fluorosed human teeth: Biochemical and scanning electron microscopic studies. *Current Science* 77: 1677-1680.



"Fluorosed enamel has a reduced amount of mineral when compared with control enamel." Denbesten PK, et al. 1985. Changes in the fluoride-induced modulation of maturation stage ameloblasts of rats. *Journal of Dental Research* 64: 1365-70.

3. Health Canada Statement on Fluoride in Drinking Water June 23, 2011 "Currently available peer-reviewed scientific studies continue to indicate that there are no adverse health effects from exposure to fluoride in drinking water at or below the maximum acceptable concentration."

4. "The prevalence of dental caries in a population is not inversely related to the concentration of fluoride in enamel, and a higher concentration of enamel fluoride is not necessarily more efficacious in preventing dental caries."

Centers for Disease Control and Prevention (2001) 'Recommendations for Using Fluoride to Prevent and Control Dental Caries in the United States' *Morbidity and Mortality Weekly Report* 50(RR14): 1-42.

5. Globe and Mail, Martin Mittelstaedt, Thursday, Apr. 15, 2010, "After a request from The Globe and Mail for a breakdown of the cavity rates by province, Statistics Canada tabulated the figures for Ontario and Quebec. Results showed that if fluoridation is the only major difference between the two provinces, the chemical is preventing fewer than half a cavity per child in Ontario. Health Canada down played the significance of the findings."

6. Foulkes RG, Review of Report: Investigation of Inorganic Fluoride and its Effect on the Occurrence of Dental Caries and Dental Fluorosis in Canada -- Final Report

Centers for Disease Control and Prevention (2001) Recommendations for Using Fluoride to Prevent and Control Dental Caries in the United States. *Morbidity and Mortality Weekly Report* 50(RR14): 1-42.

The largest study of tooth decay in America, by the U.S. National Institute of Dental Research in 1986-1987, showed that there was no significant difference in the decay rates of 39,207 fluoridated, partially fluoridated, and non-fluoridated children, ages 5 to 17, surveyed in the 84-city study. ("*New Studies cast doubt on fluoridation benefits,*" by Bette Hileman, *Chemical & Engineering News*. Vol 67, No. 19, May 8, 1989).

The observed world-wide decline in tooth decay over the past four decades has occurred at the same rate in areas that are not fluoridated as in areas that are. ("*The Mystery of Declining Tooth Decay*", Mark Diesendorf. *Nature*, July 10, 1986, pp. 125-129).

"Agreement is universal that excessive fluoride intake leads to loss of calcium from the tooth matrix, aggravating cavity formation throughout life rather than remedying it, and so causing dental fluorosis."

*UNICEF's Position on Water Fluoridation*; Water, Environment & Sanitation.  
([www.unicef.org/programme/wes/info/fluor.htm](http://www.unicef.org/programme/wes/info/fluor.htm))

Dr. Richard Foulkes, special consultant to the B.C. Minister of Health, wrote in 1992: "There is evidence that fluoridation does not prevent tooth decay and may cause serious illness, birth defects and premature death."

Dr. John Colquhoun, former Principal Dental Officer, Auckland, New Zealand : "I looked at the new dental statistics that had been collected while I was away for my own Health District, Auckland. These were for all children attending school dental clinics — virtually the entire child population of Auckland. **To my surprise, they showed that fewer fillings had been required in the non-fluoridated part of my district than in the fluoridated part.** When I obtained the same statistics from the districts to the north and south of mine — that is, from "Greater Auckland," which contains a quarter of New Zealand's population — the picture was the same: tooth decay had declined, but **there was virtually no difference in tooth decay rates between the fluoridated and non-fluoridated places. In fact, teeth were slightly better in the non-fluoridated areas.** I wondered why I had not been sent the statistics for the rest of New Zealand. When I requested them, they were sent to me with a warning that they were not to be made public. Those for 1981 showed that in most Health Districts the percentage of 12- and 13-year-old children who were free of tooth decay - that is, had perfect teeth - was greater in the non-fluoridated part of the district."

BENEFITS AND RISKS OF WATER FLUORIDATION.. An update of the 1996 Federal-Provincial Subcommittee Report Prepared under contract for:

Public Health Branch, Ontario Ministry of Health, Dr David Locker, Community Dental Health Services Research Unit, Faculty of Dentistry, University of Toronto, November 15, 1999 ..

" Although current studies of the effectiveness of water fluoridation have design weaknesses and methodological flaws, the balance of evidence suggests that rates of dental decay are lower in fluoridated than non-fluoridated communities. **The magnitude of the effect is not large in absolute terms, is often not statistically significant and may not be of clinical significance.**"

7. Statement of Dr. Hardy Limeback BSc, PhD, DDS, Professor and Head, Preventive Dentistry, Faculty of Dentistry University of Toronto, Nov. 15, 2011  
<http://www.hc-sc.gc.ca/ewh-semt/pubs/watereau/2008-fluoride-fluorure/index-eng.php>

8. NSF Fact Sheet on Fluoridating Chemicals, Table 1, pg 7

9. USEPA Integrated Risk Information System (IRIS), Lead and Compounds (inorganic) (CASRN 7439-92-1), 11.A.: Evidence for Human Carcinogenicity .. Classification B: 'probable human carcinogen'

10. USEPA Integrated Risk Information System (IRIS), Arsenic (inorganic)(CASRN 7440-38-2) 11.A.: Evidence of Human Carcinogenicity .. Classification A: human carcinogen

11. AWWA Standard B703 Fluorosilicic Acid, Sec. 4.3 *Impurities*, 4.3.4 Additional Impurity Limits

12. NSF International July 2007 letter by Stan Hazan, General Manager, NSF Drinking Water Additives Certification Program, to Congressman Ken Calvert, Chairman of the Subcommittee on Energy and the Environment Committee on Science, U. S. House of Representatives

13. NSF/ANSI 60-2009 Drinking Water Treatment Chemicals – Health Effects

14. Petition: No. 221B, Office of the Auditor General of Canada, Petitioner: Carole Clinch  
Health Canada response to Q7, Q8, Q9, Q10, Q13, Q19:

**"Health Canada does not conduct research on the chemistry of fluoride species."**

15. "Masters and Coplan, besides showing that silicofluorides are probably increasing lead in children, have discovered a 1975 Ph.D. thesis in German showing that silicofluorides are far from completely dissociate in water, and these partially dissociated residues are potent acetyl cholinesterase inhibitors. **As a result of their work, EPA was forced to admit to Congressman Calvert that they have absolutely "no information on the effects of silicofluorides on health and behavior."** \

Further, EPA officials now admit that they are not sure that hydrofluosilicic acid completely dissociates when added to water supplies and are planning on studies to determine what does happen. Silicofluorides have been added to drinking water supplies for 50 years without any idea of the possible consequences."

Robert J. Carton, Ph.D. Chief, Environmental Protection Office of Regulatory Compliance & Quality U.S. Army Medical Research & Material Command

16. SAN DIEGO, Aug. 10, 2011 /PRNewswire/ -- Alleging willful misrepresentation and deceptive business practices by Metropolitan Water District of Southern California, attorneys for citizen/consumers from San Diego, Los Angeles and Ventura Counties filed a lawsuit in the public interest of millions of consumers in Southern California, citing that MWD of SoCal has made claims of safely and effectively treating and preventing dental disease in recipient consumers, while selecting and delivering a hydrofluosilicic acid drug through their water system that has never been approved for safety and effectiveness, nor in the expected dosages delivered by MWD through retail water districts, either topically, systemically through ingestion, or trans-dermal exposures through baths and showers.

## Appendix A



### Resolution

Date: January 12, 2012

Moved By: Councillor Mullin

Seconded By: Councillor Sprovieri

That the Region of Peel request that Health Canada regulate the fluorosilicates hexafluorosilicic acid ( $H_2SiF_6$ ) and sodium silicofluoride ( $Na_2SiF_6$ ), used as a treatment for dental cavities in drinking water, as drugs under the Food and Drugs Act;

And further, that all chemicals, especially fluorosilicates, added to drinking water for the purpose of treating dental decay undergo new drug applications and be assigned drug numbers by Health Canada;

And further, that classification of fluorosilicates as drugs shall be based on at least one long-term toxicology study to determine health effects in humans;

And further, that at least one properly conducted, double blinded, randomized placebo controlled clinical trial be used to provide effectiveness as the basis for a new drug classification;

And further, that the Region of Peel make the above recommendations to Health Canada to reassure the citizens of Peel that the use of fluorosilicates added to drinking water for the purpose of treating dental decay is safe and what the health effects are;

And further, that a copy of this resolution be sent to the Federal and Provincial Minister of Health, and Peel area MPs and MPPs;

And further, that Peel MPs and MPPs be requested to follow up on this issue with the Ministers of Health and report back to Regional Council with a response.

**CARRIED**

## Appendix B

04/11/2007 WED 16:43 FAX 519 743 5654 RNOW MANNHEIM WTP

002/004

09:53 904 241 1220

JACKSONVILLE FL +--+ CARGO FLO TORON 002/002

06:50am From:MSAIC

813-671-8146 T-186 P.036/036 F-392



8813 Highway 41 South - Riverview, Florida 33569  
Telephone (813) 677-9111 - Telex 32665  
FAX - Accounting (813) 671-6283

### CERTIFICATE OF ANALYSIS FLUOROSILIC ACID

Results of Analysis of a Weighted Average Sample

CAR NO: SHPX204535

Date: August 31, 2006

ANALYSIS	RESULT
NET H <sub>2</sub> SiF <sub>6</sub>	23.67 %
P <sub>2</sub> O <sub>5</sub>	0.13 %
FREE ACID*	0.34 %
DENSITY	1.216 g/ml
COLOR (APHA Std Method)	40
LEAD	< 1 ppm
ARSENIC	34.75 ppm
CHLORIDE	

WE CERTIFY THAT PRODUCT SHIPPED WITH THIS CERTIFICATE OF ANALYSIS MEETS AWWA  
STANDARD B708-97 AND ANS/NF STANDARD 69 REQUIREMENTS

\* AWWA B-701-06



Kwasi Sakyi-Amfo / QC lab manager

NOTICE: A PORTION OF THE ABOVE MATERIAL IS RETAINED FOR FORTY-FIVE DAYS.

