WATER SEWAGE & EFFLUENT

In association with the Water Institute of Southern Africa (WISA)

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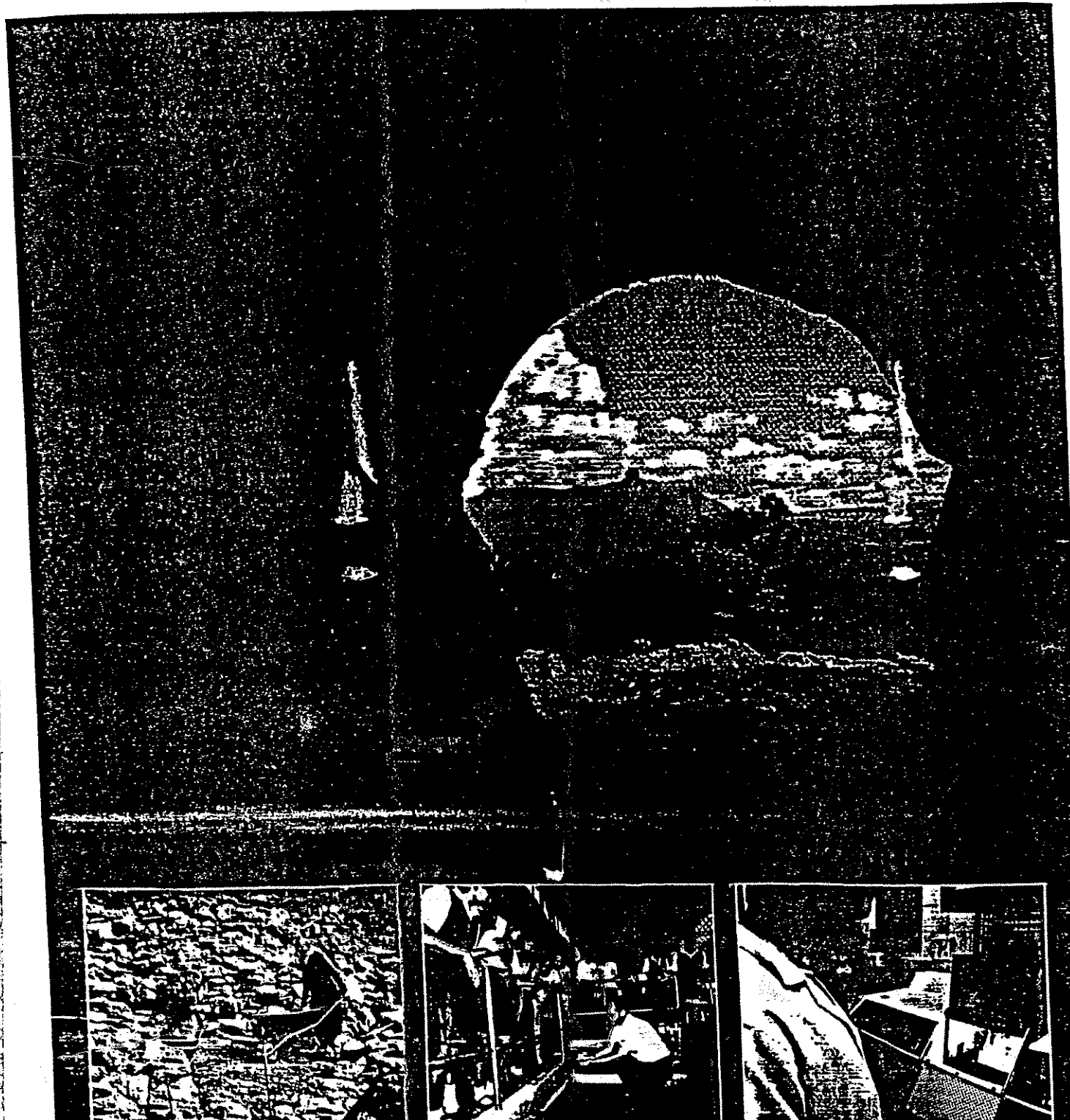

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The fluoridation debate takes centre stage at WISA meeting

The fluoridation of South African water was placed centre stage recently when the Water Institute of Southern Africa (WISA) and Mr Ralph Heath organised a debate on whether or not we need to fluoridate our water. Though no vote was taken to establish support either way, it was evident that the 'house' leaned towards not fluoridating our water.

The debate, held at ERWAT's offices in Kempton Park, was WISA president, Dr Chris Viljoen's brainchild and part of his efforts to attract greater attendance at the WISA monthly meetings.

Some 45 people attended the debate and were treated to presentations by Prof Flip van Wyk of the University of Pretoria who supports the concept of legislating the fluoridation of water, and Dr Frank Bertrand, SA Safe Water Association who is opposed to fluoridating our water.

A panel of experts consisting of Dr Philip Kempster (Department of Water Affairs & Forestry), and Mr Ralph Heath (Rand Water) along with the two invited speakers then answered the questions of guests.

The debate was significant in that the Department of Health wishes to fluoridate our water because it believes this is the most cost effective measure to prevent tooth decay in South Africa.

Departmental literature claims that 90 out of every 100 South Africans experience some tooth decay by the time they reach adulthood.

As correct fluoride levels in the water strengthen teeth and reduce tooth decay by up to 60%, the Department of Health says it is necessary to adjust the amount of fluoride to bring it to the right level — about one part fluoride in one million parts of water.

The department's figures say that the cost of adjusting the existing fluoride concentration in the water supply is less than R1 per person per year.

The SA Safe Water Association seriously contradicts many of the Department of Health's facts and figures and in fact claims that we are being lied to and are being misled by those campaigning for the fluoridation of water.

Dr Bertrand has kindly submitted an article on the halogenation of water which appears on page 37 of this issue.

The question was raised at the WISA debate as to the ethical issue of forcing medication on a population through legislating the fluoridation of our water.

Prof Van Wyk felt that topping up the natural levels of fluoride in our water could not be seen as forced medication. The concern from the water boards was that only 10% of the water treated by Rand Water, for example, is drinking water.

The other 90%, which would also be fluoridated, would not be benefiting human health.

Prof van Wyk said that though this may be true, fluoridation of water still remained the most cost effective way of preventing tooth decay.

Dr Kempster said DWAF was opposed to fluoridating water because of the potential consequences to the environment.

He said fluoridating water may bare a minimal cost (R1,07 per kilolitre), but the cost of de fluoridation will be considerably greater.

The fluoridation debate was chaired by Dr Elsie Meintjies of Rand Water who had to bring the house to order a few times as guests became enthusiastic about the issue.

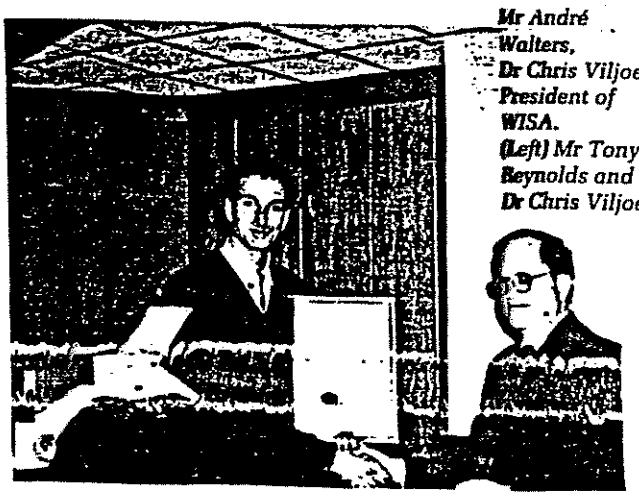
Dr Chris Viljoen was pleased that the evening was successful and told Water, Sewage & Effluent that WISA would organise panel discussions in the future because it was an effective means to inform and educate its members. ◻

WISA talks media relations

The May Water Institute of Southern Africa (WISA) monthly meeting held at the Development Bank of Southern Africa was constructive and informative according to guests who heard Mr Mark Franklin of Sextant Strategy talk about WISA's new strategic plan, and Mr André Walters of 50/50 fame speak on the virtues of good communication with the media.

Ernst & Young in conjunction with Sextant Strategy was employed by WISA to complete a strategic plan which was reported on in the June issue of Water, Sewage & Effluent.

During the meeting of NCP Ultrafloc accepted a certificate of Patron Membership of WISA. ◻



(Far Left) Mr Mark Franklin, Mr André Walters, Dr Chris Viljoen, President of WISA. (Left) Mr Tony Reynolds and Dr Chris Viljoen

The Halogenation of Water

– by Dr Frank Bertrand

Dr Frank Bertrand is a dental surgeon who opposes the fluoridation of water for numerous heath reasons. In the following paper Dr Bertrand states that fluoride is carcinogenic and should be controlled in water rather than added to water. To illustrate the argument Dr Betrand discusses the halogens found in water and their various impacts on human health. This paper is published in the interests of the national debate on the fluoridation of water in South Africa.

Chlorination

Chlorination of water virtually started in 1899, the object being to sterilise and thus safeguard drinking water, although it was advocated for this purpose 100 years earlier. The concentration of chlorine used was and is subject to considerable variation.

One source stated that on average the concentration should be 0,3ppm, rising to 0,6ppm where there is a danger of an epidemic.

On the other hand chlorine is often used in far greater concentrations, and these vary from 1ppm or more. Both taste and colour are more pronounced if the water is heated before it is drawn from the faucet.

Chlorine cannot be seen until the concentration reaches 500ppm or more.

The outbreak of war in 1939 was preceded and followed by an acceleration of the chlorination of water, partly because it was feared that the enemy might deliberately infect the drinking water.

Fluoridation

The object of flouridation is said to be to reduce the incidence of dental caries (decay), and the intention is for the individual to consume 1,15mg of flouride ion daily, this is based on fluoridationists stating that the average person consumes 1 quart(1,15ℓ) of water daily which is an utterly absurd statement, as for instance a baby on 4 hourly bottle feeds will consume 48 fluid ounces daily, and a quart is 40 fluid ounces.

The body is 70% water, and there is a water balance which the body maintains so water lost by the body is replaced.

The average person urinates 1,2 - 1,4ℓ of water daily. the body loses water in various ways, but the greatest loss of water is by insensible perspiration, which is the actual seepage of water through the skin, and from the lungs. A man doing hard work in a hot climate can lose 1,6ℓ of water every hour by insensible perspiration. In Rhodesia in 1977, the breweries announced that the daily amount of beer drunk for every man, woman and child in Rhodesia was 1,5ℓ, which exceeds 2,5 pints daily.

It is generally held that in most countries, more soft drinks are consumed than beer, and this does not include cups of tea etc. Food consists largely of water eg. meat 60%, rice maize, and wheat 70% whilst most vegetables are from 80-95% water.

The average person consumes 1-1,5 gallons of water daily, which is 4-6 times more than the fluoridationists will have us believe.

When the fluoridationist talk of 1ppm of fluoride, they mean 1ppm of fluoride ion, and this is important, because if for instance sodium flouride is used, then to get 1ppm of fluoride ion, approximately 2,2ppm of sodium fluoride will be required.

Where fluoride is present in water, then it will become more concentrated if the water is heated, as in cooking or boiling in a kettle, and it cannot be seen, smelled or tasted, and it is definitely a poison.

Naturally occurring calcium fluoride is relatively stable and can often be balanced by other ingredients of the water, for instance most naturally occurring fluoride is found in hard water, as the calcium (for which the fluoride has an affinity), will help to balance the fluoride, but even so, the level of fluoride must be carefully controlled.

A great deal of water goes on gardens, parks, crop growing lands etc. and if fluoride is present, all this water will contain fluoride, including sewage water which is reclaimed and used for crops etc.

An acre of ground used for growing can receive 100 000 to 1 000 000 gallons of water a month and at 1ppm it would get 450-4500gm, or 1-10 pounds of fluoride ion a month.

Dr C D Scott of the Botany Department of the then University College of Rhodesia stated that sodium fluoride is highly toxic to plants, and that no soil with plants growing in it has an available fluoride content of more than 5-190ppm available meaning that the fluoride is not bound to other ingredients of the soil.

The iodine balance of the body

This is the presentation of iodine in acceptable form and amounts to the cells of the body that require it. It can be affected by many factors, both external and internal.

The thyroid gland produces thyroxine, an enzyme which contains iodine, and the free thyroxine in the blood plasma is held to be physiologically active thryroxine, although its concentration is only 0,0004 micro-grams/ℓ; 1ppm is over a million times stronger.

The iodine balance will depend principally on the amount of iodine in water and food. To put a stronger halogen (chlorine) in water used for drinking and cooking is to risk upsetting the iodine balance; and then to add the strongest halogen (fluoride) is to invite disaster. If chlorine and fluoride are upsetting the iodine balance, then one would expect changes in growth development and mental stability. This is occurring today. There have been substantial changes in the timing and pattern of teething in white children since a teething survey was done at the turn of the century and older dental practitioners told me that they first noticed the teething changes during the 1939-45 war, which would coincide with the increase in chlorination.

In a teething survey done of 1 200 white urban children in Bulawayo, aged from 5-16 years, I found marked changes in teething, and in another survey of 600 black children in peri-urban Bulawayo I found their teething to be very similar to the old survey.

For instance at 12 years of age 66% of black boys, and 78% of black girls had 28 permanent teeth; whilst before the white children had 66% of permanent teeth present, the boys were of 16 years of age and the girls were 15 years of age.

The urban children were drinking chlorinated water and using fluoride toothpaste, whilst the peri-urban children used free-lying water and did not use tooth paste.

A stronger halogen can replace a weaker one and the weakest halogen is iodine. Because of this many experts have warned that adding fluoride to water could result in hypothyroidism eg. the late Professor Douw G Steyn of Pretoria. One of the first signs of hyperthyroidism is interference with teething, especially delayed teething, and there is today a delay of two or more years in teething and because of this children living in a fluoridated area will have less permanent teeth and therefore less decay than children living in a non-fluoridated area. On the medical side many US doctors have observed that hypothyroidism is common.

Dental tartar

Tartar is dental calculus, and consists of 70-90% calcium phosphate is precipitated from alive onto the natural or artificial teeth, and is generally hard and adherent. Tartar is the principal cause of gum disease, and more teeth are lost from gum disease than from decay. Fluoride protects the precipitation of calcium phosphate from saliva. Tartar is the first sign of lack of vitamin E in the body and vitamin E is a strong anti-coagulant, and anti-oxidant, and it is now realised that it helps to control the free radicals of the body, which can produce CVD (cardio vascular diseases) and cancer. The presence of tartar is therefore a warning that CVD or cancer may arise. Fluoride will destroy Vitamin E and other anti-oxidants which protect the body. Fluoride is carcinogenic.

The Japanese Association of Cancer Research meeting in Osaka in 1982 reported that a malignant transformation of cells is induced by sodium fluoride. The Oregon National Laboratories in 1988 stated flouride was carcinogenic. The Journal of Carcinogensis, vol 9 pp 2279-2284 stated that flouride can transform normal cells into cancer cells and can also enhance the cancer forming properties of other chemicals which the Oregon laboratories also stated.

There is an epidemic of mouth cancer in England and Wales which affects people under 45 years of age and women more than men.

This is most unusual as it was usually found in elderly men. The cancer was also found in lungs and adjacent areas. As usual smoking is blamed although nobody can explain why lung cancer was relatively rare prior to 1950, despite the fact that many billions of cigarettes were smoked by millions of people from 1900-1950, and these cigarettes were stronger and had no filters. The vast increase of cancer and CVD coincides with the vast increase in fluoride. Fluoride toothpaste generally contains 1 000-1 500ppm of fluoride and recently laws have been passed stating that children's toothpaste should not exceed 450ppm of fluoride and parents are warned to keep the stronger toothpaste out of reach of the children, as they might eat it and it could kill them. South Africa does not have such laws.

The strongest fluoride used is the topical fluoride put on children's teeth in the dental surgery, which goes up to 19 400 ppm and has to be put into a plastic container as it contains hydrofluoric acid, which will eat its way through glass. Hydrogen fluoride (hydrofluoric acid) often forms in fluoride and can be formed in the stomach when fluoride is swallowed. It is put on the teeth for generally four minutes, four times a year and it spread through the mouth and can be inhaled and swallowed.

This is extremely dangerous and should be banned. Topical fluoride has been criticised as being ineffective and indeed fluoridation of water has been severely criticised and the figures and statistics of fluoradationists have been regarded as being very suspect, and the new research has shown that the presence of flouride can increase decay. ☐

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WRC's research reports now on the Internet

Water Researchers all over the world will soon have easy access to information about the many research projects being undertaken in South Africa.

This follows the launch of the Water Research Commission's (WRC) homepage on the Internet.

"The homepage forms part of the WRC's policy to ensure that information and technology resulting from research projects to be made available as widely and effectively as possible," said Mr Tony Reynders, WRC research manager who heads the project. The homepage will provide access to a wide range of WRC information resources, including:

- information about the WRC itself: its research aims, operations and the people involved;
- all the WRC's publications will be available on the Internet. This includes the WRC's annual report, as well as its two journals – The SA Waterbulletin and Water SA;
- full text versions of WRC research reports will be available on the Internet from where they may be downloaded by users. Articles and papers resulting from WRC research project will also be accessible through the homepage;
- a facility for the electronic submission of research proposals to the WRC;
- the homepage will include a diary of local and international water-related events, such as congresses, seminars and workshops; and the register of water-related projects providing full details of all projects (including those financed by organisations other than the WRC.

The Water Research Commissions's homepage address is: http://www-wrc.ccwr.ac.za ☐