

Sanitation -- A Major Public Health Problem

EARLY DISINFECTANT, CHLORINE, STILL USED AS STERILIZER

One of the earliest generally used disinfectants was chlorine. About the year 1800, de Morveau, in France, and Cruikshank in England, discovered its value. Since that time, chlorine in various forms, as gas, chloride of lime, or hypochlorite, has figured very prominently as a disinfectant.

The first practical use of a chlorine gas for the sterilization of drinking water, was made in 1912 at Niagara Falls. Here it replaced chloride of lime used for chlorination of water from the Niagara River.

With the invention of the visible vacuum chlorinator, chlorination practice has become perfected to a remarkable degree. Early chlorination equipment consisted of a piece of wood, a little glass tubing, diaphragms and pressure gauge. By comparison, today's highly-developed equipment seems quite complicated.

Essentially, however, the underlying principle of the visible chlorinator is a simple one. It is to dissolve chlorine gas in a minor flow of water and feed the resultant chlorine solution to the desired point of application. This method ensures complete absorption and rapid diffusion of chlorine when it is applied to the major flow of water.

Source of the chlorine gas is steel cylinders. As the gas is used, the pressure in the cylinder decreases, as well as the velocity of flow if no control is applied. The visible vacuum chlorinator makes it possible to secure a uniform rate automatically under

varying pressures, thus doing away with waste of over-chlorination, and the public health hazard of under-chlorination.

The present day dosage is usually less than one drop of chlorine to one million drops of water. In other words, enough water can be sterilized by adding the amount of chlorine contained in a single handful of salt to fill 350,000 glasses of water. This minute quantity of chlorine is sufficient to kill harmful disease bacteria without any other effect on the water.

Today, over 85 per cent of domestic drinking water supply of North America is chlorinated. As a result, the 1900 typhoid fever death rate of 36 lives per 100,000 population, has steadily dropped until today it has been reduced to less than two lives per 100,000.

In a lawsuit which arose over the method of treatment, chlorination was immediately sustained in the courts as a measure for safeguarding public health.

After exhaustive expert testimony had been presented and examined, the court's decision was that it (chlorination) is an effective process which destroys in the water the pathogenic germs, so that the water after this treatment, attains a purity much beyond that attained in water supplies of other municipalities and that the process described leaves no deleterious substances in the water.

Routine daily water samples of Prince Rupert were taken by the Health Unit between September 15 and October 8, 1944. Bacterial analysis of water samples showed 66 per cent positive for faecal bacteria, proving that pollution was a definite potential danger to the public health. Since chlorination of the city's water supply, bacterial analysis has been constantly negative. There is no lack of evidence that the water should have been treated.

The teaching and practice of health rules are important.

A Sanitarian at Work



THESE ARE THE HEALTH PROTECTIVE FOODS

For Each Person

Adults—½ pint.
Children—more than 1 pint and some cheese, as available.

Two servings daily of vegetables, preferably leafy green, or yellow and frequently raw, in addition to potatoes of which you need one serving daily.

One serving of tomatoes daily, or of a citrus fruit, or of tomato or citrus fruit juices, and one serving of other fruits, fresh, canned or dried.

One serving a day of meat, fish, or meat substitutes, liver, heart or kidney once a week, and at least 3 or 4 eggs weekly.

One serving of a whole-grain cereal and 4 to 6 slices of Canada Approved Bread, brown or white.

Principal Aids to Health

The only dependable source of calcium needed to protect bones and teeth, the health of the nerves, and the action of muscles.

Vitamin A, which protects the eyes and guards against infection.

Iron for blood.
Roughage for good elimination.

Vitamin C, for strong blood vessels and sound gums and teeth.

Roughage for good elimination.

Protein, for building and repair of body tissue.

Iron.
Thiamin (Vitamin B1), and riboflavin (Vitamin G), for good digestion and protection of the nerves.

Calories for energy.
Thiamin and iron from whole-grain or enriched products.

CONTROLLING OF INSECTS

Some Points in Dealing with Pests

Insect or pest control is a problem that confronts the management of all hospitals and institutions. It is true that "control" is about all we can expect because even though we were able to kill all insects in the buildings today, tomorrow would bring further infestations as roaches come in with foodstuffs and stores; bedbugs are usually personally imported; flies get through open doors and unscreened windows; and moths just seem to recur. And so it goes on.

Insects are indeed the major problem for hospitals and institutions. They damage stores, foods and materials to the value of many millions of dollars each year.

Of the many insects with which we have to contend, the following two are perhaps the most bothersome—roaches and bedbugs.

Roaches

The roach is one of the most objectionable of all insects, and can be accurately described as a scavenger, spoiler of food, and a likely carrier of pathogenic bacteria. Roaches destroy more food by contamination than by actual consumption, as they give off an offensive liquid, from their bodies which, on contact with food, makes it unfit for use.

Roaches are found wherever there is food and warmth. They spend the daylight hours in seclusion or darkened places such as cracks, crevices, and behind water pipes, coming out after dark to feed.

The roach is credited with having an exceptionally keen sense of smell and, we are told, can even smell a cream pie a hundred yards away. So you will see that your foodstuffs and stores are never safe if roaches are in the neighborhood.

Roach control is all too often a lingering process, not on account of the inefficiency of the insecticide, that is used, but invariably because of incorrect application.

Liquid insecticides are perhaps the most suitable and popular means of roach control, as most of them are non-poisonous and invariably give spectacular results.

However, it is necessary that the application be made properly. The best medium, is, of course, an electric sprayer. This allows the insecticides to be forcibly driven in various degrees of atomization into the known or suspected hide-outs. However, good hand-sprayers will also provide satisfactory results. But remember that the premises to be sprayed should first of all be surveyed in order to plan the most efficient method of attack.

Most insecticide sprays contain ingredients which activate the roaches and drive them out of their hiding places—so make sure that the sprayer is full before each room is sprayed.

Most insecticide powders contain sodium fluoride, which, as you know, is deadly poisonous. No doubt you have heard of the many deaths that have been caused accidentally through the incorrect use of sodium fluoride roach powder.

In one case, the sodium fluoride was mixed by mistake with a pancake flour and many deaths resulted. As a precaution, the Government authorities insist that this type of powder be colored blue for identification and labelled "poison."

Before the war pyrethrum powders always held a high place in roach control, as they were non-poisonous and very effective. However, all pyrethrum stocks have been taken over by the government for specified purposes and are not currently available for industrial or institutional purposes.

Fumigation is an effective but very hazardous way to control insects, and should only be administered by a licensed fumigator. All premises would have to be vacated for a definite period (usually 48 hours). In these days this would be difficult. However, fumigation definitely has its proper place in insect control.

Bedbugs

Bedbugs require different treatment and again it is recommended that a liquid spray be used containing one of the thiocyanates, with a suitable deodorizing agent, because good bedbug sprays should not only kill the bedbugs but also should neutralize and cover the very distinct and disagreeable odor which is characteristic of bedbugs.

Treatment of a bed or single bedroom will seldom give satisfactory results, unless all the surrounding rooms are likewise treated. This application must be thorough to the point of spraying all cracks and crevices in the walls, floors and ceilings, including all furnishings. Mattresses and blankets should of course be removed and thoroughly fumigated, but if this is impossible, then we would recommend that they be thoroughly sprayed, or in the winter-time, left exposed to sub-zero temperatures which will, of course, kill the bugs and the eggs.

The following is stressed:
1. Buy a good insecticide from a reputable company, making sure that it is registered under the P.C.P. Act.

2. Be sure that the application in each case is thorough, complete and repeated frequently.

3. If possible, have the rooms heated to 80° F. This will give faster and better results.

4. Always have a supply of insecticide on hand.

Today your good health is both a personal and a national asset. Help protect it by eating the right kind of food.

SOME FACTS ENCOURAGING

Owing to the wide application of the results of scientific research:

1. The following diseases have been, or may be, practically eliminated by scientific treatment:—

- Small pox
 - Typhoid fever
 - Diphtheria
 - Milk-borne diseases from raw milk
 - Syphilis and gonorrhoea
2. Since 1850 the average duration of life in Ontario has increased from 40 years to over 60 years. In New Zealand it is over 70 years.
3. Note this startling fact, the

YOUR CHILD NEEDS

Smallpox vaccine is smallpox. Diphtheria toxin is diphtheria. Whooping Cough is help prevent against cough. Scarlet Fever is protect against Fever.

increase in number of Canada at following ages:
75-79 80-84
1921 71,350 37,601
1931 98,289 49,171
1941 135,695 71,514
(Canada Year Book, p. 95)
4. The reduction in the mortality rate and in the birth mortality rate is

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STUDENTS GET BENEFIT OF HEALTH UNIT

Entrance classes and those pupils not previously examined within a period of two years are given a cursory examination by the Director. All pupils are regularly inspected by the public health nursing staff for evidence of communicable disease, head lice, skin disorders, tonsil and dental defects, etc. Having been thus "screened," cases are then referred to the Director who makes a more complete examination. A note is then sent home to the parent drawing attention to the defect noted. Due to the apparently very high incidence of dental caries in children of school age, establishment of a preventive dental service is being borne in mind for the near future.

In addition to inspection and examination of pupils, the Health Unit staff acts in an advisory capacity to teachers on health matters. A number of interviews and discussions have been held with the teaching staff on numerous occasions by the director and the nurses.

In February, a tuberculosis "patch test" survey of the high school was made. A total of 386 school children were tested and of these, 43 showed positive reactions indicative of exposure to tuberculosis. Of this number, 10 showed evidence of either apparently arrested or of active disease.

Immunization in school children against diphtheria, smallpox, and scarlet fever was continued during the year. Sanitation in and around school buildings received the supervision of the sanitary inspector.

"FOR YOUR INFORMATION"

The Health Unit has an extensive library of books, posters and pamphlets on the various communicable diseases, their prevention and treatment. These are free for the asking.

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