SCIENCE

Problems With Water

by Dr. Arthur Furst

Arthur Furst, Ph.D., Sc.D., D.A.T.S.

Senior Member

Scientific Advisory Board

"...Self-protection is a concept whose time has come."

About eight years ago, the World Health Organization, a United Nations affiliate, launched the International Drinking Water Supply and Sanitation Decade. The objective was to make safe drinking water available to every community in the world; ideally, by the year 2000, health for all people of the world would be achieved.

The major problem confronting countries trying to provide safe drinking water to their people is the potential for bacterial contamination. Clean, disease-free water is a prerequisite to health. Today, eight years later, no real progress has been made toward this goal.

Here in the U.S., we have overcome the potential for bacterial contamination of our drinking water supplies by treating the water with chlorine. This kills the bacteria and thus "purifies" the water. As a result, diseases such as cholera, typhoid and others, whose method of spreading was often through our drinking water supplies, are now nearly nonexistent.

Water chlorination is not without consequence, however. A number of by-products are produced between the reaction of chlorine gas and the natural organic humus matter in the water. We can now identify a few chlorinated compounds in our water including chloroform. These low molecular weight compounds have been termed "Trihalomethanes" or THM's for short.

Fears have been expressed that the THM's in drinking water may contribute to our cancer rates; this may be over-rated, but cannot be ruled out. However, it is not a good idea to ingest THM's everytime we take a drink of water.

There is also an array of other problems that have been identified in our water. In industrial areas, because of the lack of foresight and intelligent regulations, many organic solvents were, after use, simply poured on the ground or in a sewer. These solvents, either benzene or chlorinated organic liquids like tetrachloroethylene or tetrachloroethane, seeped first into surface water, and then into ground water aquifers, which are the major sources for community drinking water.

In farm areas where no solvents were used, fertilizers containing soluble nitrogen compounds were leached from the soil. Many home wells were found to contain such large quantities of nitrates, compounds which can oxidize the blood of humans, that these wells had to be abandoned. Also, many cities wells were similarly affected. Agricultural pesticides have also been detected in water supplies in many places across our country.

The Environmental Protection Agency (U.S. EPA) has been given the responsibility by the United States Congress to be sure that "clean water" is available for all communities. The Congress passes new legislation almost every year, giving more authority to EPA to regulate water contaminants. In 1987, Congress gave greater power to the EPA to monitor water nationwide and to expand research. I was one of five toxicologists appointed to assist the EPA in this task.

The status of our drinking water today is one of successes and failures. The Sixth Biennial Report on Water Quality for the EPA states there has been a significant improvement in U.S. waterways even though there has been population and industrial growth over the last 15 years. On the other hand, the report also states that non-point sources of pollution, such as coliform bacteria from sewage plants, pesticides and fertilizers from agricultural runoff, and runoff from mining and construction sites, still contribute to the degradation of our drinking water.

One serious proposal still being considered by Congress to deal with the problems is to require all cities to filter the drinking water through activated carbon. How efficient this would be in terms of contaminant removal and social economics is as yet unknown.

All things considered, it would seem that self-protection is a concept whose time has come. We will make progress toward cleaner water, but, in the meantime, point-of-use filtration, filters in the home, can reduce the risks of exposure.

Dr. Arthur Furst is internationally recognized as a cancer researcher and the leading scientist in the field of toxicology. He serves as Senior Member of the Scientific Advisory Board and has been responsible for product development, toxicology studies and nutritional evaluations of Neo-Life products. Dr. Furst serves as consultant to the World Health Organization, various industries and government agencies throughout the world. Adding to his imposing list of credits, Dr. Furst has recently edited and contributed two chapters to a new text entitled, "Genotoxic and Carcinogenic Materials: Environmental and Occupational Occurrence and Exposure," published in 1987 by Princeton Scientific Publishing Co., Inc., Princeton, New Jersey.