tion; and burying garbage, or land fill techniques, raises questions about future soil and water pollution.

Water pollution, the most visible of all types of pollution, was the first to attract public concern. The green slime, foam along riverbanks, and dead fish called attention to the growing problem of water pollution.

Water is considered polluted when it constitutes a health hazard or when its usefulness for a particular purpose is impaired. Although no water exists in an absolutely pure state, the danger level varies from case to case according to the purpose for which the water is intended. For example, water that is unfit for human consumption may be suitable for industrial purposes, or vice versa. In the case of electric utilities, most of the minerals required in water for human consumption must be removed to prevent corroding the inside of the large boilers they use.

The major sources of water pollution are classified as follows: municipal, manufacturing, mining, steam electric power cooling, and agriculture.

Last summer, in August, the Federal Department of Health and Welfare conducted a survey on municipal sewage treatment in 19 major Canadian cities. It found that only 9 out of the 19 cities had 100 percent treatment of their sewage and other waste water. In Ontario, the only major centers treating 100 percent of their waste water were Toronto, Ottawa, Hamilton, Sudbury and London.

A study on pollution in the Great Lakes released in September, 1969, was completed by the International Joint Commission after four years of study. It pinpointed the sources and quantities of pollutants, evaluated their contribution to deteriorating water quality and suggested remedial measures. One of the key problems is the quantity of phosphorus pumped into the lakes through municipal systems. The report stated that, "50 to 70 percent of the total input of phosphorus from all municipal and industrial wastes in the lower Great Lakes came from detergents." This is an area where homemakers can make a significant contribution to pollution control.

Nutrients such as the phosphates found in detergents, and the nitrogen from such products as fertilizer, accelerate the aging of lakes by stimulating growth of algae. These algae gradually use up all the oxygen in the water and, as the oxygen disappears, the desirable species of aquatic life die. Finally, when the entire supply of oxygen is taken out of the water it becomes a dead body of water.

Several major laundry detergents were recently analyzed at laboratories at the University of Toronto. The results were released by Pollution Probe, an organization associated with the University of Toronto, to fight pollution. There is an amazing variation in the phosphate content among popular brands of heavy duty laundry detergents. The widely advertised enzyme-active pre-soak products are very high in phosphate content, as are automatic dishwasher compounds. However, all liquid dish detergents tested contained less than 1 percent of phosphate.

The most common pollutants in domestic sewage are easily handled by well-known and tested techniques — sedimentation, oxidation and chlorination. However, industrial wastes are a more complicated problem, since many industrial chemicals are unaffected by ordinary sewage treatment. One of the most difficult to treat is whey, a by-product of the cheese industry.

Generally speaking, the nature of air pollution, is similar to that of water pollution. The impurities introduced into either air or water are not absorbed adequately or rapidly enough. Polluted air contains substances, gases or radiations which make the air injurious to humans, animals, crops or property.

Air pollution's major effect on health appears to be respiratory problems. In the opinion of many medical experts, air pollution can contribute to the frequency of lung cancer, emphysema, chronic bronchitis and asthma. All chronic respiratory diseases involve stress on the heart since the heart must work harder to compensate for the lack of oxygen absorption. However, an eminent United Kingdom medical specialist, at a recent Toronto conference, pointed out that air pollution's ready victims are generally those who already have lung, or other physical weaknesses.

Air pollution is concentrated in highly industrialized, or highly populated centers. Since you are visiting Toronto, I thought you might be interested in knowing about the air pollution situation here. The importance of the figures I am going to mention increases when we realize that each day we breathe about 18,000 lungfuls of air — that is between 25 and 50 pounds of air per day, or during a year, from 9,000 to over 18,000 pounds of air.

The annual air pollution figures for Toronto were estimated as follows in Probe and GASP (Group Action to Stop Pollution). The figures are as follows:

- carbon monoxide, 950,000 tons per year. About 97% of this originates from automobile exhaust fumes.
- hydrocarbons, about 500,000 tons per year. Of this amount, the transportation industry contributes about 85%.
- sulfur dioxide, about 150,000 tons per year. Power plants contribute 70 to 75% of this.