

# Greater Hazleton Area Poisoned by pollution

"The air, the water, and the ground are free gifts to man and no one has the power to portion them out in parcels. Man must drink and breathe and walk and therefore each man has a right to his share of each."

-James Fenimore Cooper, "The Prairie," 1827. The Highacres Collegian is concerned about control of environmental pollution. In this feature article we are presenting some insight into the pollution problem on the local level.

In preparing this story we spoke with Mr. Gerald Gatti of the biology department in preparing this story we spoke with Mr. Gerald Gatti of the biology department at West Hazleton High School. Gatti is perhaps the region's staunchest advocate of pollution control and reform.

Gatti said that as the economy of an area experiences an upsurge, energy is increased. Wherever there is energy, there is pollution.

But what is pollution? Webster defines it as something physically impure or unclear. Only recently has there been a great concern over the pollution of our natural resources. Actually environmental pollution is as old as the earth itself. Before the coming of man, the earth's water and air contained natural

pollutants, in particular ozone and nitrogen oxides formed at every discharge of lightning.

The wind picked up and carried volcanic and meteoric dusts, loose soil and salt particles from evaporating sea water. Gases such as hydrogen sulfide, hydrogen fluoride, hydrogen chloride and sulfur dioxide escaped through leaks in the earth's outer crust.

As living organisms came upon the scene they, too, became polluters of the environment. Dusts and gases in the air were joined by bacterial spores and pollen. All living things produced some type of waste which drained into the waters or soil.

Pollution today is found in several forms. The most common, and also the most serious, are air, water, land, and thermal pollution. Unfortunately all of the aforementioned are evident in the Greater Hazleton Area to some degree.

Anthraxite coal was discovered in Hazleton in 1826 and soon thereafter numerous mining operations sprang up. In their search for coal and wealth they stripped the land of its natural growth and wildlife habitation.

Today one need only drive up Broad Street, our main thoroughfare, and look south at the West Hazleton - Hazleton boundary. The

dominant sight is the ravaged, raped, and lifeless land.

In addition, water draining through the abandoned mines has poisoned and acidified many area streams and rivers. A local mine owner revealed to a Collegian reporter that the pH of water coming from his mine is four while fish need about a neutral seven to survive.

A recent study (Air Pollution Primer, National Tuberculosis and Respiratory Disease Association, New York, 1969) revealed the top five national sources of major air pollutants. Holding the top notch with an unbelievable lead is transportation which spews 86 million tons of particles into the atmosphere each year. The next four places are held by industry, power plants, space heating and refuse disposal, in that order.

In 1969, according to the same study, 143 million tons of pollutants were released into the air by those five polluters. Transportation accounted for approximately 60% of it. Those are deadly figures, no pun intended.

Take carbon monoxide, for example. The major source of CO is the internal combustion engines in motor vehicles. Unlike other common air pollutants, carbon monoxide does not irritate the respiratory tract. Instead it

passes through the lungs directly into the bloodstream.

There it combines with the hemoglobin in red blood cells. Since hemoglobin binds carbon monoxide over 200 times as strongly as oxygen, a low concentration of CO in the air has a greatly magnified effect on the body. The heart and the brain are the two tissues most sensitive to oxygen deprivation. Therefore, they show the most serious effects from carbon monoxide exposure.

From this it follows that at a high concentration, carbon monoxide DOES kill by paralyzing normal brain function.

People aren't the only living things that can be killed by air pollution. Plants and trees also fall prey. It has been found that carbon monoxide has no adverse effects on vegetation, though. The culprit in this case is ozone, which is also contained in car exhaust.

In 1966, Dr. Leon S. Dochinger, a scientist for the U. S. Forest Service, set out to find out the cause of chlorotic dwarf disease which has killed more than a million white pines since 1940.

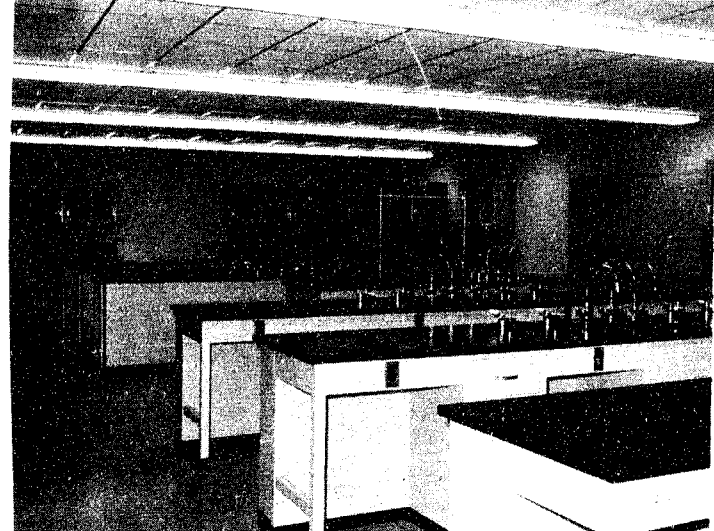
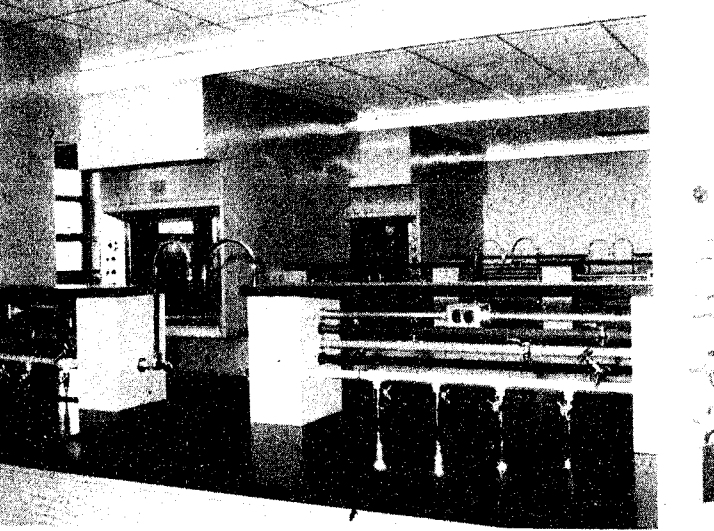
White pines are among the most valuable trees grown in the U. S. and the disease first struck them about 30 years ago. Automobiles also became more widely used at about that time. After careful experimentation, Dr. Dochinger found that the automobile was the answer to his problem. Ozone was killing the trees.

He later found that by replacing non-resistant trees (those susceptible to the disease) with the resistant trees (those which are immune) can eventually eliminate chlorotic dwarf disease in white pines. He also discovered that the resistant trees can use ozone for breathing, thereby removing considerable amounts of this pollutant from the air.

While on the topic of air pollution, we would be amiss to omit mention of the Center for Air Environment Studies (CAES) of the Pennsylvania State University. Accord-



LECTURE HALL, above, in new classroom building has seating capacity for 200 students. The hall is situated at ground level.



SCIENCE LABORATORIES, above, will be in full operation in new classroom building within two years, according to Ralph Crawford, retiring Assistant Professor of Zoology.

ing to one of their recent publications, the CAES was formed in 1963 to coordinate research and instruction concerning the interaction of man and his air environment. The Center maintains a broad, flexible research program, dependent on faculty and student interest.

The CAES is presenting the Teachers Conference on Conservation of Our Air Environment in two parts through the Continuing Education Program of PSU. The first part was held in November, 1970, while the second part will take place in the fall of this year.

Anyone interested in the Center's training programs can address requests for more information to the Director, Center for Air Environment Studies, The Pennsylvania State University, University Park, Pennsylvania 16802.

There are no fast, simple, or cheap solutions in the search for better control of pollution. The problems are huge and complex encompassing the fields of science and health, economics and law, social custom and politics. In fact, they include almost every area of human knowledge.

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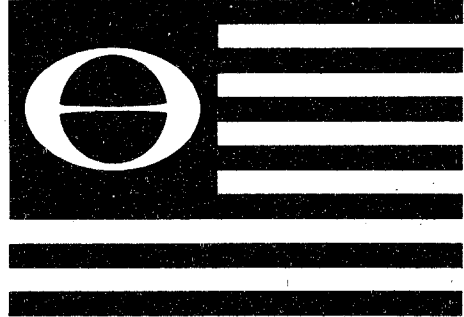
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