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Clean Air Board and Dickinson College Award 2008 CABBIE's

Over the past few years Carlisle area citizens have been concerned about the deterioration of air quality in Central Pennsylvania. In fact, the Clean Air Board of Central Pennsylvania (CAB) was formed in fall 2005 after over 100 Cumberland County physicians signed and published an open letter informing the community of the growing danger of ozone and particulate pollution and the risks it poses to the pulmonary and cardiac health of our citizens. However, this was not the first time concern about air quality was an issue in Cumberland County.

In the early 1970s, Professor Emeritus Dr. Howard C. Long, Chairman of Dickinson College's Department of Physics and Astronomy, noted that many people had become aware of deteriorating air quality due to growing industrialization and motor vehicle use. Dr. Long learned that public health agencies linked increases in emphysema to the intake of particulate matter into the lungs. He decided to study air quality in Carlisle by measuring the solid particulates found in the air.

In 1973 the Department of Physics and Astronomy purchased a nephelometer – a device that uses the scattering of light to measure the density of solid particles that are small enough to inhale. Dr. Long and Department Technician, Mr. John Steigleman, began monitoring the density of particulate matter with diameters of 10 millionths of a meter or less (PM_{10}). They collected data at Dickinson College several times each day and night for seven years. The data collection by Mr. Steigleman and its analysis by Dr. Long provided our community with a valuable record of how PM_{10} varied by time of day and time of year as well as a picture of the level of PM_{10} and how it was changing throughout the mid-1970s.

In recognition of their work, Professor Long and Mr. Steigleman were honored at the recent CABBIE awards, held in Tome Hall on Dickinson College campus March 5, 2008. These awards, co-sponsored by the Dickinson Department of Physics and Astronomy and by the Clean Air Board of Central PA, stand for **Clean Air Board Bold Innovators for the Environment**. They are given annually to reward those who have made significant contributions to air quality in Central Pennsylvania. Professor Long and Mr. Steigleman were recognized for their contributions to initiate air quality research and data collection in the Carlisle area thirty-five years ago. Past CABBIE recipient Jensen Gelfond (Dickinson '08) made the presentations.

As part of the awards ceremony Dr. Priscilla Laws, a former colleague of Dr. Long, discussed the research findings of the 1970's project and how those findings help us understand the dependence of particulate matter on the time of day and time of year. She also compared the earlier PM_{10} levels recorded with the nephelometer to the $PM_{2.5}$ levels recorded more recently by "Airestotle".

"Airestotle" is the nickname of the new EBAM unit (an automated device that measures either PM_{10} or $PM_{2.5}$) which monitors $PM_{2.5}$ in the Carlisle area. This state-of-the-art portable EBAM unit was purchased during the past year by CAB, in conjunction with the Unitarian Universalists of the Cumberland Valley. $PM_{2.5}$ is the density of fine particulate matter having diameters of 2.5 millionths of a meter or less and is believed to be a major cause of the increase in respiratory diseases such as asthma and pneumonia that physicians have observed in this area.

www.CleanAirBoard.org

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