

The allegory of a mountain: An environmental introduction to neurotoxicology

Leon D. Prockop*

Department of Neurology, USF Health, University of South Florida, Tampa, FL, USA

Available online 31 August 2007

Abstract

Overall, the area of human neurotoxicity offers significant difficulties as well as challenges in our attempts to maintain or enhance human well being. Many of the substances to which humans are being exposed are relatively new to the environment, i.e., the products of a sophisticated industrial development. As a result humans are exposed to volatile organic compounds not previously present in our environment in significant amounts. It is important to maintain our industrial complex and the economic growth of our society. The use of volatile organic compounds is often important to the success of the industry. However, it is also important for us to determine what concentration of a given substance may produce short-term effects or chronic long-term effects. Human exposure to these potentially toxic levels could then be prevented. This is especially true because once irreversible damage occurs there is no medical treatment that can lead to improvement. Therefore, prevention of neurotoxic injury is essential.

© 2007 Published by Elsevier B.V.

Keywords: Neurotoxicology; Neurotoxins; Volatile organic compounds (VOC); Nervous system toxins

1. Introduction: The allegory of a mountain

It is appropriate that the proceedings of the meeting “Neurology of Environment and Neuro-Ophthalmology” held in Paris, France December 1st and 2nd 2005 and sponsored by the French Society of Neurology include a symbolic representation or allegory to help analyze the effects of environmental toxins upon humans. What happened to a mountain can happen to humans.

For centuries the Lena Lenapi American Indians, a tribe of the Delaware Nation, inhabited the valley of the Aquashicola Creek in what is now the eastern part of Pennsylvania, USA. Aquashicola translates to “Where we fish with bush nets.” These Native Americans hunted bears, deer, and rabbits on the Minisink Mountain south of the valley, harvesting only the animals which they needed to sustain their lives. They gathered the creek’s abundant fish and grew maize (corn) in the valley’s meadows. Their lives were in harmony with the environment until the “white man” purged the area of these

Native Americans by bringing infectious diseases and gunpowder against which they had no resistance. Fig. 1 is a recent picture of the Minisink Mountain taken 10 miles east of the factory described below. As far as can be determined, the mountain looked like this 300 years ago, i.e. before the “white man” arrived and while the Lena Lenapi Indians inhabited its valley and slopes. Here the Mountain remains pristinely covered by trees and meadows and is still home to a variety of plant and animal life.

The Industrial Revolution in the USA saw the establishment of a factory along the side of the Aquashicola Creek in the town of Palmerton in 1890, 10 miles east of the mountain as seen in Fig. 1. The factory brought employment to many and a sophisticated standard of living not known to the Lena Lenapi inhabitants of the valley. However, the price was high. Toxic wastes from the factory were flushed into the creek, killing all the fish. Gaseous by-products were released into the air. The winds carried those gases (smoke) onto the slopes of the mountain. The smoke contained a variety of substances: zinc sulfate, zinc oxide, lead sulfate, cyanide, ammonia gas, and others. Fig. 2 is a picture of the Minisink Mountain taken in 1944, at the height of the factories

* Tel.: +1 813 974 9915; fax: +1 813 974 7473.

E-mail address: lprockop@health.usf.edu.

Download English Version:

<https://daneshyari.com/en/article/1915865>

Download Persian Version:

<https://daneshyari.com/article/1915865>

[Daneshyari.com](https://daneshyari.com)