BROOKHAVEN NATIONAL LABORATORY

Laboratory Link

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Highlights of Historical Laboratory Research

Connecting Salt and Hypertension

In 1952, Lab scientist Lewis Dahl began research on the connection between salt and hypertension. During 25 years of tests, Dahl discovered that high salt intake was more dangerous in youth and that no salt should be added to baby foods. He confirmed that genetic inheritance greatly affects susceptibility to hypertension from salt.

Dr. Lewis Dahl studied the effects of salt intake and recommended that no salt be added to baby food.

Synthetic Insulin

Studies begun at the University of Pittsburgh and continued at Brookhaven led to the synthesis of human insulin in 1964. Later, a major pharmaceutical company refined BNL's method. Now synthetic insulin is available for diabetics who are allergic to animal-derived insulin.

A Precursor to Pong

Physicist Willy Higinbotham developed a precursor to Pong, the first commercial video game, at Brookhaven National Laboratory in 1958. He developed this simulated tennis game to entertain visitors at a Laboratory open house using an oscilloscope to generate the picture and a vacuum tube analog computer to calculate the trajectory of the ball.

Radioisotope for Heart Stress Test

Millions of patients worldwide have had heart stress tests. Did you know that these tests use thallium-201, a radioisotope developed at Brookhaven National Laboratory? Thallium-201 allows doctors to make a safe and efficient diagnosis of heart damage after a heart attack, or to detect early signs of heart disease.

Multi-grade Motor Oils

The first peacetime research reactor was the Brookhaven Graphite Research Reactor, which operated from 1950 to1968. There, scientists studied engine piston rings to determine wear and other characteristics. This work led to the development of multi-grade motor oils, such as 10W-30, now commonly used in automobiles.

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Diagnosing Medical Conditions

In the 1950s, scientists at the Lab developed a system for producing technetium–99m, which is still used today. This radioisotope signals its location inside the body to an outside detector and is used to diagnose medical conditions. In the late 1980s, researchers at BNL patented an easy-to-use kit that attaches techetium-99m to red blood cells so that doctors can visualize blood flow in the heart and other organs. This kit is now being used worldwide in millions of medical procedures each year.

Inspiration for Maglev Trains

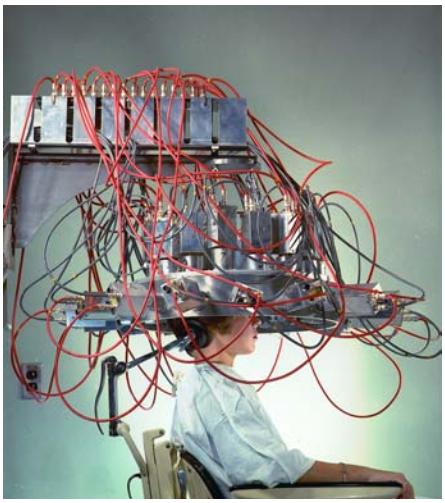
Sitting in rush-hour traffic on the Throgs Neck Bridge in 1961, BNL researcher James Powell thought of using magnetically levitated transportation to solve the traffic problem. Powell and fellow researcher Gordon Danby, in their spare time, worked out a Maglev concept using static magnets mounted on a moving vehicle. In 1968, they patented the technology which has been adapted for use in Germany and Japan.

Retrieving and Purifying Heavy Crude Oil

Lab scientists have developed a technology that uses tiny, naturally occurring bacteria to remove impurities from crude oil. The technique can remove up to half of the impurities including sulfur, nitrogen, and metals either before or after the oil is removed from the ground. Oil resources once deemed out of practical reach are now available for processing, and the resulting fuels burn more cleanly.

Pioneering Positron Emission Tomography

Brookhaven helped pioneer the development of a powerful medical-imaging technique known as positron emission tomography or “PET” scanning. In 1961, Brookhaven chemists studied how to detect small brain tumors by analyzing material injected into the bloodstream and absorbed by the tumor. To help them, the BNL Instrumentation Division built arrays of detectors. In the 1970s, Brookhaven researchers found a way to reconstruct the data into images of a working brain. Today, doctors and researchers can view the human body’s inner workings using the PET scanner. Scientists at the Lab use this technology to study the neurological manifestations of a variety of conditions including drug addition, obesity, and aging.



An early positron detector built by the Instrumentation Division to assist BNL chemists in imaging the human brain.

Upcoming Events Open to the Public

- *The Long Island String Quartet & Alburtt Rhodes, June 27, noon, Berkner Hall*: *Music from England* features works for strings by Dowland and Britten, as well as two romantic English poems for the tenor voice: *On Wenlock Edge* by Housman and *Dover Beach* by Arnold. Free.
- *Summer Sunday Tours, Sundays - July 8 through August 26, 10 a.m. to 3:00 p.m.* Free.