The two discoverers of the Philadelphia chromosome in the early 1960s. Peter Nowell is on the left; David Hungerford, right.

In 1960, at a time when scientists thought cancers came from viruses, Peter Nowell spotted a different cause that would set a course for cancer research that continues to this day. Nowell’s work at the University of Pennsylvania School of Medicine, together with the late David Hungerford from the Fox Chase Cancer Center’s Institute for Cancer Research, established that patients with a form of leukemia had cells containing an abnormally small chromosome, soon named the Philadelphia chromosome. Not only did Nowell’s discovery settle the controversy whether cancers can be caused by genetic mutations, but he showed that cancers arise because one cell with a chromosomal anomaly divide into many, as opposed to numerous cells simultaneously becoming cancerous. Other researchers picked up on his seminal experiments that led to the discovery of the gene that causes chronic myelogeneous leukemia (CML), and eventually, in 2001, led to the drug Gleevec, which can block the effects of the gene and stop progression of CML in 95% of patients.