Briefings

edited by CONSTANCE HOLDEN

New Cancer Data From Oak Ridge

Workers exposed over many years to amounts of radiation well below U.S. guidelines may nevertheless be more likely to die from leukemia than the rest of the American population. This surprising new finding comes out of a study of workers at Oak Ridge National Laboratories by epidemiologist Steve Wing, of the University of North Carolina at Chapel Hill, and colleagues. It has challenged findings from previous surveys indicating that workers at radiation labs suffer no increase in cancer mortality.

The unexpected result, published in the 20 March *Journal of the American Medical Association*, is the first to associate increased leukemia death rates with lifetime exposures of less than 50 milliSieverts (mSv)—well below permissible levels. Furthermore, it suggests that the cancer takes longer to develop than had been thought. All the earlier studies of nuclear installations had followed workers for up to 21 years after their first radiation exposure; the new study followed 8318 white male workers an average of 26 years.

As for deaths from cancers other than leukemia, overall rates for the workers were, if anything, lower than for the general population. But when looking at differences within the worker group, the authors found a strong correlation between exposure levels and cancer rates two decades after exposure began: For every 10 mSv radiation received, a worker was about 5% more likely to die of cancer. This is another effect not seen in a previous study of Oak Ridge workers.

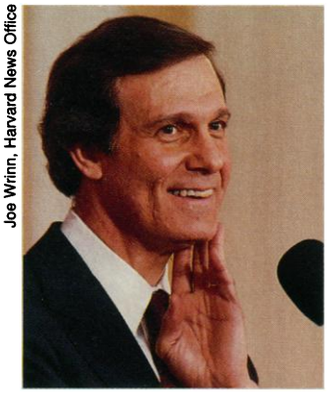
The new study leaves a number of unresolved questions, including whether toxic chemicals or other nonradioactive carcinogens could have caused the higher leukemia death rates. More important, says Wing, the findings make it clear that even longer term studies must be done to clarify how cancer mortality rates change over time.

Bok Successor Named

Phil Leder won't be the next president of Harvard. The world-renowned Harvard Medical School geneticist and sole candidate from the world of science was beaten out—as were other prominent candidates Harvard economist Martin Feldstein and University of Chicago provost Gerhard Casper—by Neil L. Rudenstine, former Princeton provost and executive vice president of the Andrew W. Mellon Foundation. Rudenstine will succeed Derek Bok, who steps down in June after 20 years in the post.

Rudenstine, 56, is a Princeton graduate and former Rhodes scholar with a doctorate in English from Harvard, where he did his dissertation on the poetry of Sir Philip Sidney.

The new president, whose appointment has been enthusiastically hailed by his old friend



Joe Wrinn, Harvard News Office

Neil Rudenstine

Bok, seems to combine a Renaissance orientation with thoroughly modern concerns: At Princeton he was the affirmative action officer and was directly involved in turning the university coeducational. Best of all, he's a proven fund-raiser—a crucial consideration for Harvard, which is starting a $2-billion campaign.

Cleaning up Thoroughbred Stock

Thoroughbred racehorses are fast and beautiful, but they are also a degenerate lot. As breeders over the past 2 centuries have focused on traits like speed, stamina, and conformation, they have overlooked the genetic costs of intensive inbreeding. As a result, thoroughbreds are afflicted with a host of disorders, says W. Robert Cook of the Tufts University School of Veterinary Medicine. More than 95%, for example, have some degree of "recurrent laryngeal neuropathy," partial paralysis of the larynx that affects breathing. And more than 80% of yearlings show signs of cartilage degeneration at the joints.

But surprisingly, considering the financial incentives at stake, horse breeders have remained largely ignorant about the genetics of their animals. Unlike livestock breeders, says Cook, "our knowledge of hereditary diseases of horses is at a very primitive level...the industry is at about the same position as dog breeding was 40 years ago."

Which is why Tufts is embarking on an unprecedented project to analyze the genetic structure of the thoroughbred breed, using a new computer program and a data bank of 12-generation pedigrees from 30,000 horses. The primary object is to come up with a coefficient showing how inbred the population actually is. Researchers already know it's high: In 1960, Irish researchers calculated from a sample of 60 mares that the coefficient of inbreeding was 12.9%. That means that thoroughbreds, on average, are more closely genetically related than are half-siblings—for which the coefficient is 12.5%.

Through the Tufts project,

Tim Hannan

Thoroughbred mare and foal. *What defects has she passed on?*

says Cook, breeders will for the first time be able to " 'read' the stud book," the classic manual started in 1793 and based on a few dozen horses from which all subsequent thoroughbreds have sprung. That in turn will help identify inherited diseases—Cook believes there may be 100 that affect the horses' heads alone—as well as show relationships between inbreeding and performance on the track.

The first phase of the project is being funded by the Dorothy Russell Havemeyer Foundation, an equine research outfit. In the future, Cook hopes to expand the database to 200,000 thoroughbreds from North America and Europe, and to establish it as a permanent resource for improving genetic management of thoroughbreds.

Hubble Bashing on Prime Time

Many months of scientific and political damage control by NASA—and some pretty darn