Students begin radiologic studies

Twelve students this week began the two-year program leading to a certificate in radiologic technology.

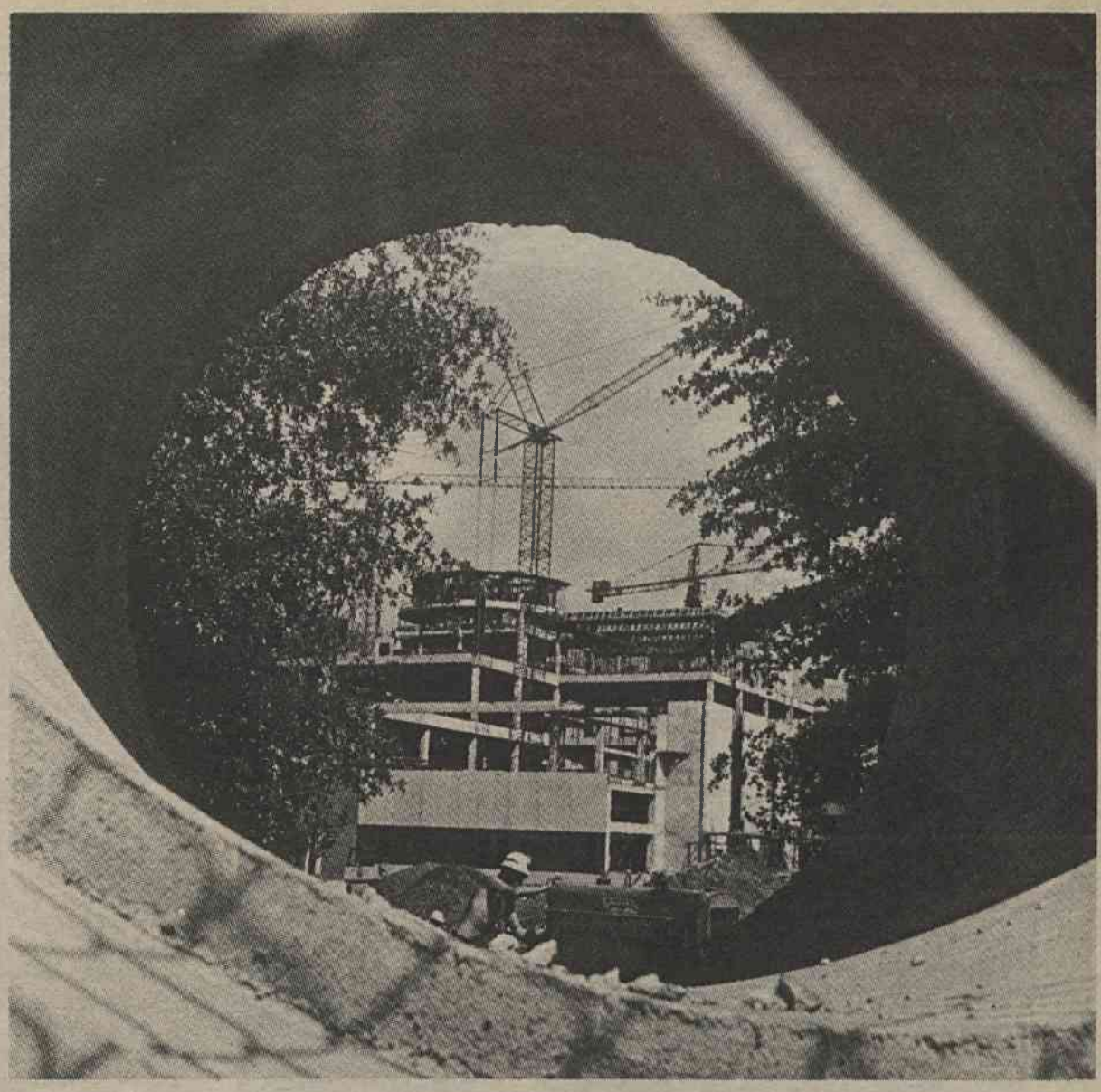
Five are from Durham. They are Betty Carter Baker, Lisa Anne Brach, Deborah Dawn Fletcher, Margaret Rand Hudson and Lee Ann Little.

Others from North Carolina are Susan Mabry Allen, Shelby; Mary Esther Butler, Fuquay-Varina; Betsy Ann Fordham and Paul Stephen Thomas, Chapel Hill; and Susan Darlene Neal, Rocky Mount.

Out-of-state students in this year's entering class are James Douglas Dixon, Brookfield, Mo.; and Terry Andrew Knight, Princeton, W. Va.

Students in the radiologic technology certificate program receive academic and clinical training in all aspects of the field. After successful completion of the program, they are eligible to take the national board examination sponsored by the American Registry of Radiologic Technologists.

An academic affiliation with Greensboro College affords students the opportunity of additional education leading to a Bachelor of Science degree in biology.



A DIFFERENT WAY OF LOOKING NORTH — A large pipe on the construction site forms a circular frame for Duke Hospital North. About a year from now, the portrait will be complete, and the new hospital will open. This particular frame, however, will not be available since it will be underground covering a steam tunnel. *(Photo by Jim Wallace)*

Major lung disease study to examine mineral hazards

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from living individuals provides a unique opportunity to study the effects of these inorganics while the disease processes are still taking place."

Particularly concerned about silicon compounds

He said the researchers are particularly concerned about compounds of silicon such as magnesium and aluminum silicate (kaolin) that sticks to tobacco and other crops in the field. (See related article.)

They believe the silicates either may carry organic plant toxins to the lungs and hold them there long enough to cause damage or act as catalysts by increasing the chemical reactivity of these poisons.

"It's been demonstrated that silicon dioxide (silica, a major component of sand) sometimes causes a disease called silicosis in people who work in quartz mines and marble manufacturing," he said.

"It has also been shown that asbestos workers who smoke have a far greater chance of getting lung cancer than smokers who don't handle asbestos or asbestos workers who don't smoke. Asbestos is a compound of silicon."

May also aid prevention

While the study will emphasize causes and potentially improved treatment of lung diseases, Gutknecht said the work may also help in prevention as well.

Preliminary work has already shown that because kaolin is not an innate part of tobacco plants, it is possible to remove most of the mineral by rinsing the plants. Gutknecht said the industry may be able to develop a practical method of doing these if the study shows a clear hazard.

"The scientific literature abounds with reports of the effects of inorganic material on the pulmonary system, but most of these studies have been performed using autopsy materials and cell cultures. The availability of lavage samples from living individuals provides a unique opportunity to study the effects of these inorganics while the disease processes are still taking place."

The researcher said $396,015 of the NIEHS funds have been allocated for training pre-doctoral and post-doctoral students over the next five years.

"It will provide young people with specific training in their own fields, but also enable us to give them an overview of all the various aspects of environmental health as it relates to lung disease," he said.

Other researchers

Dr. William S. Lynn Jr., professor of medicine and associate professor of biochemistry, is project director and principle investigator. Dr. Johannes A. Kylstra, professor of medicine and associate professor of physiology, is serving with Gutknecht as co-director.

Other Duke scientists involved are Drs. S.N. Bhattacharyya, Mary C. Rose and Saura Sahu, research associates in biochemistry and medicine, Hal K. Hawkins and Phillip C. Pratt, assistant professor and professor of pathology, respectively; John Shelburne, director of the V.A. Hospital's electron microscopy laboratory and assistant professor of pathology; Hernan Giraldo, research associate in medicine; and Dr. Alexander Spock, professor of pediatrics.

Gutknecht said the North Carolina Lung Association is also supporting the research with a grant of $2,500.

Tomatoes anti-tobacco

Tomato plants grown by nonsmokers are likely to be healthier and more productive than those grown by smokers. Reason: tobacco carries a plant disease called mosaic virus that also makes tomatoes very sick.

To minimize transferring the virus from tobacco pack to tomato, smokers and chewers should thoroughly wash their hands before handling plants.

Lynn: Sanitation alone might make leaf safer

By David Williamson

Americans could get a lot more benefit from their health care tax dollars if the government would stop attacking the tobacco industry and concentrate instead on making tobacco products safer, a Duke lung disease specialist says.

DR. LYNN

Dr. William S. Lynn Jr., professor of medicine, said in an interview that setting standards for tobacco cleanliness similar to the standards applied to foods might have an enormous impact on lung cancer and emphysema levels in this country.

"No one knows whether tobacco is harmful to health because no one has ever smoked any clean tobacco," Lynn said. "I own a tobacco farm, and I know that the crop gets badly contaminated with soil."

Minerals stick to leaves

The scientist said that tobacco plants, like pine trees, secrete a very sticky tar substance. As a result, naturally occuring minerals found in soil such as aluminum silicate adhere to tobacco leaves in the field.

Other than some relatively ineffective mechanical procedures at the factory designed to protect equipment, no effort is made to remove the accumulated dirt from tobacco before it is processed into cigarettes, he said.

Yet a growing number of scientists now believe that inorganic substances like aluminum silicate play a major role in causing lung cancer and other respiratory diseases, Lynn added. And although the lungs of smokers contain at death an average of five times as much dust, tar and inorganic particles as non-smokers, there are currently no federal or state guidelines on how clean tobacco should be, he said.

Cleanliness should be required

"It is totally irresponsible not to insist on the same cleanliness in the tobacco industry that is applied to all other aspects of the agricultural industry," the physician said.

He pointed out that the largest proportion of contaminants on tobacco are found on the lowest and broadest leaves of the plants. By not harvesting the bottom leaves, farmers could easily eliminate most of the soil contaminants, he said.

While researchers have found that smoking one pack of cigarettes a day increases the risk of dying from lung cancer or emphysema about five times and heavier smoking increases the risk to 10 or 15 times, Lynn said the issue of "risk-versus-benefit" for tobacco is not usually considered.

"Since 51 million persons purchase and use cigarettes in the United States, it is clear that tobacco is in some way beneficial to many of them," he said. "Science has not yet even attempted to measure what these benefits might be in terms of freedom from anxiety, pleasure and motivation, etc."

Many risks may be related to sanitation

According to National Center for Health Statistics figures, 95 per cent of the people who smoke will die from causes other than lung cancer or emphysema, the scientist said. Other health risks from smoking such as heart disease and developmental defects in fetuses from smoking mothers are suspected but not proven.

Before launching ineffective anti-smoking campaigns or considering legislation that would create hardships for the 600,000 farmers who grow tobacco and the many millions of others who enjoy it, the government should insist that manufacturers produce clean products, Lynn maintains.

"Many of the health risks now associated with smoking may turn out to be a simple matter of sanitation," he said.