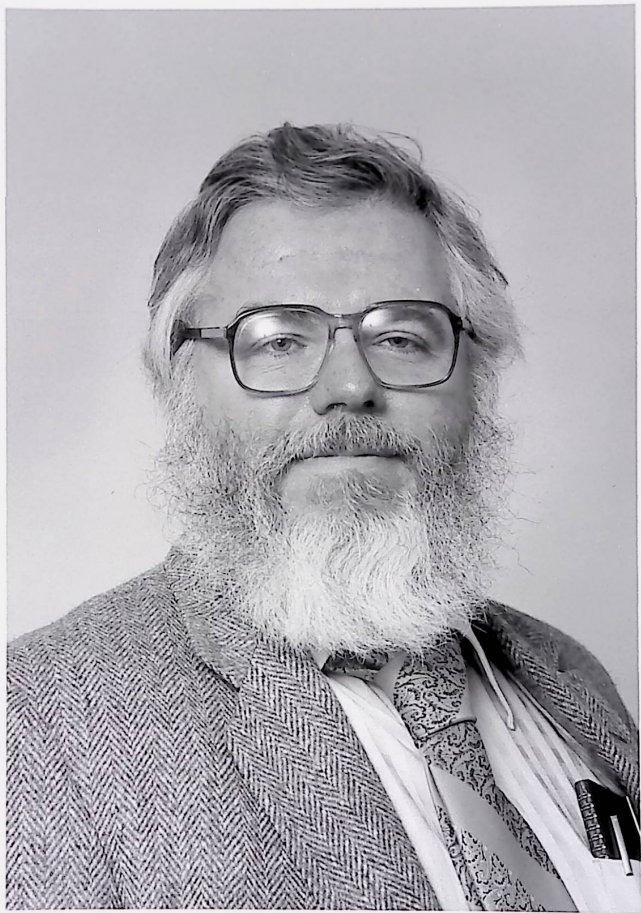


GEOLOGIC MAP
OF
PENNSYLVANIA

UNIVERSITY OF PENNSYLVANIA
DEPARTMENT OF GEOLOGY
AND MINERALOGY
AND MINING

Scale in Miles
Scale in Kilometers
Scale in Feet
Scale in Meters



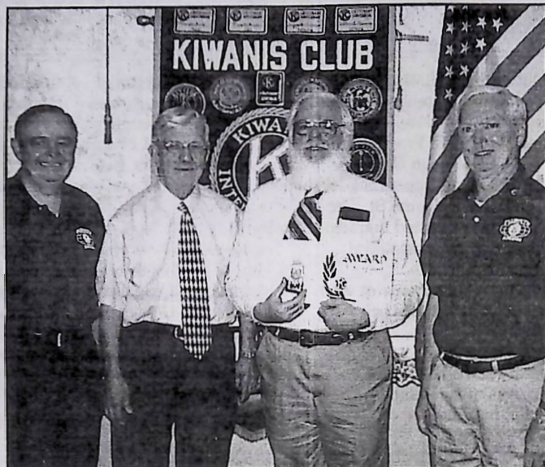












Speaker talks about Radon gas for Plymouth Kiwanis

Radon gas was the subject of a talk given to members of the Plymouth Kiwanis Club at their recent meeting at Happy Pizza, Plymouth. The guest speaker was Brian Redmond, Shavertown, professor of geology and chemistry at Wilkes University.

From left: Michael J. Muroski, secretary; Dr. Frank Gazda, first vice president; Redmond, holding a certificate of appreciation and Shawnee Indian statuette; and John A. Gavenonis, president.

TL 9-21-04

SNOW FUN CLOSE AT HAND



Thomas Ladson and James Straight built a snow fort last weekend during the WinterFest at Nescopeck State Park, near Drums. Their project took five hours and about 90 blocks to complete.

SNOW OUTLOOK

So when will the weather be conducive for building snowmen again anyway?

Earlier this week, the National Weather Service forecast called for snow showers tomorrow, Sunday and Tuesday. Because showers don't promise much accumulation, you might not be able to scrape quite enough together to build much of anything.

But you can always create your own snow art from those ugly piles still hanging around in parking lots and at curbsides seemingly everywhere.

Or just hope for a minor blizzard.

TIMES LEADER STAFF PHOTO'S JOHN WILKIN

Cool creations result when conditions just right

By MARY THERESA RIEBEL
marytr@leader.net

TL
2-13-04

If you were a pile of snow longing to be glamorous, you wouldn't have to visit a cosmetic counter. Just hope somebody like Von Gushka happened along.

With a little help from his parents, last weekend the White Haven 3-year-old built a snow person just about as tall as he

Matthew Kimock, 11, of Hazleton, built this snowman with his mom, Cindy, and credits her with the idea of decorating it with blue food coloring. Earlier this week, Matthew was hoping for more snow so he could build another.

TIMES LEADER STAFF PHOTO/PETE G. WILCOX

is and gave it two clumps of slender pine needles for eyes.

The result? A pair of graceful, battling-in-the-wind lashes a Hollywood starlet would envy.

"Actually, those are just supposed to be eyes," Von's mom, Tammy Gushka, explained as bystanders admired their creation at Nescopeck State Park.

Despite his tender age, young Von is already a veteran builder. In his family, snowmen are almost a necessary part of February fun.

"Absolutely," said Von's dad, Anthony Gushka. "If you're sitting inside it's just not winter."

But not just any snow will do.

The best raw material for cool creativity is "fresh snow, when the temperature is just below freezing," Wilkes University

geologist Brian Redmond said.

"You want it fresh, so it won't be dirty, and just below freezing, so there's a bit of water content that will make it stick nicely together. If you have older snow, it melts and freezes and you get a lot of ice, and it's less likely to pack well."

But don't wish for the temperature to dip as low as possible. "When it talks to you — crunch, crunch, crunch as you walk over it — that's terrible snow for making snowmen," Redmond said.

Try to mold that powder into a glove, and it just falls apart because there isn't enough moisture. And, no, adding water won't help.

"It freezes very quickly, and you'd end up with ice before you could roll it."

See SNOW, Page 4

SNOW

Continued from Page 3

The easiest way to judge ideal snowman-building conditions, Redmond said, is simply to see how well a hand-size snowball holds its shape.

"Lean down, scoop some up and try to make a ball. If you make a good snowball, you can make a good snowman."

Good buddies Thomas Ladson, 12, and James Straight, 11, echoed that advice on Saturday, after they spent much of Saturday working with snow during a Winter Festival at Nescopeck State Park.

"Just get a snowball and roll it around on the ground," said James, who, at a park ranger's request, had made a headless snowman so other kids could pose for photographs with their faces on top of the big round body.

A bigger project for Thomas and James was a snow fort that looked sturdy enough to withstand an onslaught of snowballs — if anybody had an attack in mind.

The fort took five hours to assemble, with a break for hot cocoa and french fries.

"We have 87 blocks here," Thomas said proudly as he worked on the 88th — cramming snow into the rectangular bottom of a plastic wastebasket and sliding it out.

The plastic bin had been supplied by park staff, who also lent bottles of food dye and water to kids who wanted to add a touch of color to their sculptures. "It went over really well," said environmental education specialist Kelly Pollock, who also has some suggestions for making bird-friendly snow sculptures.

Spread some lard or peanut butter onto pine cones and roll them in bird seed; then let the pine cone be your snowman's ears, necktie or other accoutrements. "Or you can put pouches in your snowman and fill them with bird seed." Then watch the birds fly in for a feast.

"You want it fresh, so it won't be dirty, and just below freezing, so there's a bit of water content that will make it stick nicely together. If you have older snow, it melts and freezes and you get a lot of ice, and it's less likely to pack well."

Brian Redmond
Wilkes University geologist

More decorative ideas, courtesy of various creative folks, include:

- Crown a snow person with several rows of sticks to simulate a jagged, punk-rock kind of hairstyle.
- Let a snow kid wear a vest or sash full of badges to resemble a savvy Scout.
- Make a chain from aluminum foil so your snow guy or gal can boast some flashy jewelry.

For traditionalists, of course, nothing beats the time-honored carrot nose, scarf and broom. But if they lack any of those ingredients, they're not afraid to improvise.

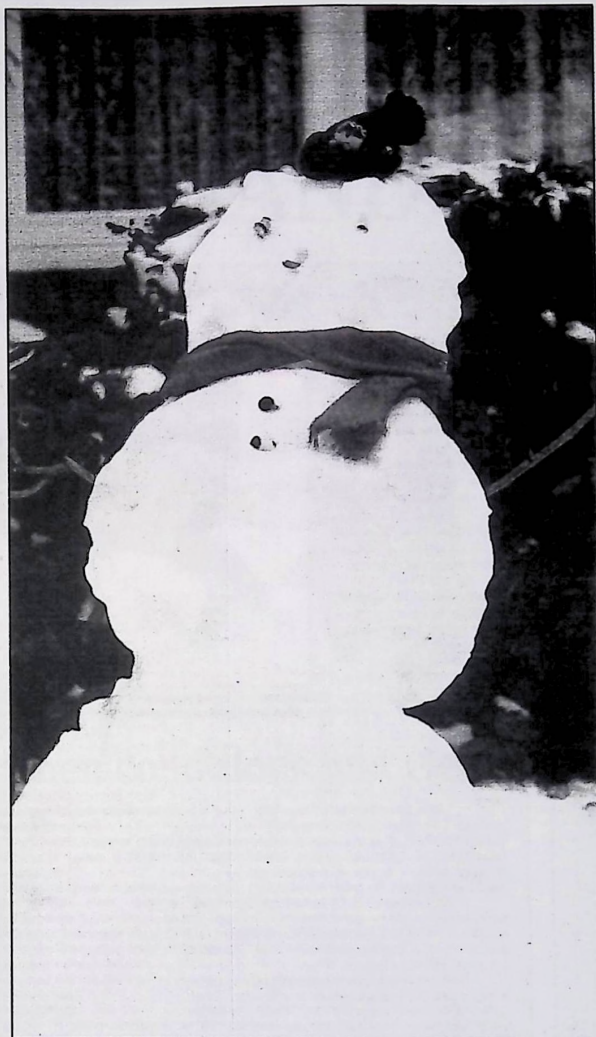
"We didn't have a carrot, so we used an orange crayon," said Mary Theresa Galaski, who spent a recent chilly day building a snowman in front of her Hazleton home with her husband, Charlie, and grandchildren Eli, Connor and Nicky.

They didn't have coal for eyes, so "We used two little tires from toy cars."

Good thing Eli, Connor and Nicky had their grandparents' approval, start to finish, for their project.

When Redmond, the geologist, was building snowmen in his youth, he remembers decorating one of his creations with buttons.

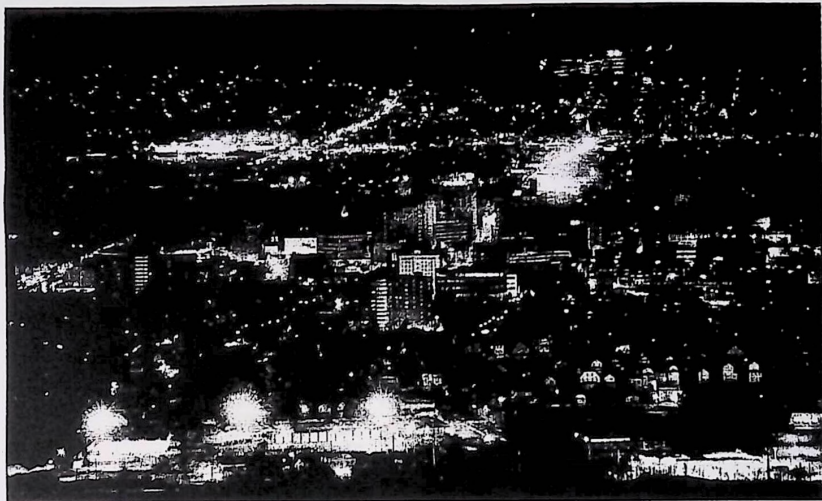
"I think they came from my own coat," he said. "My mother did not appreciate that."



NO CARROT? NO PROBLEM. CHARLES AND MARY THERESA GALASKI OF HAZLETON GAVE THIS SNOWMAN AN ORANGE CRAYON FOR A NOSE WHEN THEY BUILT HIM WITH THEIR GRANDCHILDREN, ELI, CONNOR AND NICKY.

TIMES LEADER STAFF PHOTO/PETE G. WILCOX

Lawmakers prepare action as groups protest light pollution



TIMES LEADER STAFF PHOTO/S. JOHN WILKIN

The lights of Wilkes-Barre as seen from Laurel Run are pretty — unless you happen to want to view the celestial lights. Astronomers say light pollution ruins stargazing in Northeastern Pennsylvania. Legislators are considering a law to limit bright lights.

Going boldly on a star trek

By KENNETH P. VOGEL
Times Leader Harrisburg Bureau

HARRISBURG — A decade ago, Wilkes University professor Brian Redmond could point out the features of the night sky to his astronomy students from atop a building on the school's downtown Wilkes-Barre campus.

Those days are over, Redmond said, thanks to light pollution — the glow of lights from buildings, roadways and signs.

"People get the impression that there aren't many stars out there. There are, you just can't

see them," Redmond said. "I can show pretty pictures, but if you really want to see the night sky, you have to get out of the Wyoming Valley."

The trouble is, it's increasingly difficult to find areas free from light pollution anywhere in the state, said Gary Honis, assistant director of the Greater Hazleton Area Astronomical Society and a member of the Pennsylvania Outdoor Lighting Council, a state-recognized citizens' group.

"To leave the sky glow from (Wilkes-Barre and Scranton), you're going to have to go so far that you get to the sky glow from the next town," said

Honis, of Conyngham.

Rep. Bruce Smith, R-Dillsburg, wants the state to step in. Last month, he re-introduced the Outdoor Lighting Control Act. The bill would limit the types and brightness of all new lighting and also allow the state to designate certain "dark areas," where new light installations would be prohibited.

Critics say the bill, first proposed last session, stands little chance because it primarily address-

See STARS, Page 2A

STARS

Continued from Page 1A

es the concerns of astronomy enthusiasts.

"That's nonsense," said state Rep. Jim Wansacz, D-Old Forge, among the bill's 18 co-sponsors. Wansacz contends that bad lighting affects everyone by increasing energy costs, making driving hazardous, hindering crime prevention and reducing the quality of life in residential neighborhoods.

Wansacz said he planned next week to introduce his own bill calling for a study of the effects of light pollution.

Last session, Smith's bill did not get a hearing from the State Government Committee. This session, however, Smith said he is optimistic about the bill's chances. It has been assigned to the Environmental Resources and Energy Committee chaired by Rep. Arthur Hershey, R-Cochranville, a co-sponsor.

Smith acknowledged it could be expensive to purchase newer lights with shields or reflectors to limit so-called "light trespass."

The International Dark-Sky Association, a Phoenix, Ariz.-based non-profit group, estimated that savings from energy-efficient technologies could surpass \$2 billion per year nationwide. The bill would not be retroactive for private property owners.

Brighter not always safer

Bright lights intended to increase visibility can have the opposite effect if they are not designed properly, Smith said.

Honis singled out a light at the Pennsylvania Department of Transportation rest area off of Route 81 in Nuanogala that he said "glares right into drivers' eyes as they're parking." Honis said PennDOT also installed overly bright lighting at several new interchange projects in the Wilkes-Barre/Scranton area.

"PennDOT tries to be sensitive to glare from lighting," said spokesman Rich Kirkpatrick. The agency takes extra steps to limit light pollution around observatories and residential neighborhoods, he said.

Honis said other sources of light pollution include "high intensity white strobe lighting" on cell phone towers, upturned lighting of flagpoles and billboards, and "glare bomb" lighting at gas stations and convenience stores.

"If they can get away with it, gas stations will use the 'glare bomb' lighting because they say it attracts customers," Honis said. The harsh lights could cause customers who pull out of brightly lit gas stations to have trouble seeing on the dark roads, and be distracted by passing motorists, Honis said.

"The lights are there for a reason," countered Dave Callahan, executive director of the Associated Petroleum Industries of Pennsylvania, a trade group representing ExxonMobil, BP Amoco, Texaco, and Cligo. Gas stations need to be well lit to protect employees and customers from potentially hazardous materials like gasoline and from crime, Callahan said.

"I don't think you'd want to pull into a dark station," Callahan said, adding that companies are careful when installing lights.

Lamar, among the biggest billboard companies in the state, also

Hobbyists suggest star gazing sites

By KENNETH F. VOGEL

Times Leader Harrisburg Bureau

Because of bright lights on the ground, Northeast Pennsylvanians have few places to go for clear views of lights in the heavens, experts say.

State legislators are considering a law to limit excessive or inefficient lighting. Only a handful of Luzerne County municipalities have passed similar ordinances.

The best star gazing in the area is about an hour's drive away for most Luzerne County residents, said Gary Honis, assistant director of the Greater Hazleton Area Astronomical Society.

Honis recommended areas state parks such as Rickerts Glen in Fairmount Township, Hickory Run State Park in White Haven and Promised Land State Park in Greentown.

For the more adventurous, Cherry Springs State Park in Galeton, Potter County — about three hours west of the Luzerne County line off Route 6 — is considered to be among the best star gazing spots on the East Coast. Under the legislation pending before the state Legislature, it would be protected as a dark area.

"If you've never seen it, it's awesome," Honis said of a clear view of the night sky. "The sky is just awash with stars from horizon to horizon."

The Greater Hazleton Area Astronomical Society has public "star parties" at its facility in Eckley. The Lackawanna Astronomical Society and Kean College have open viewings at the college's observatory in Fleetville.

For those staying closer to home, an unlit high school parking lot or athletic field will suffice, said

Wilkes University professor Brian Redmond, who teaches astronomy.

Honis said some parts of Luzerne County are better than others because of comprehensive municipal lighting ordinances such as those on the books in Hazleton, Conowingan and Sugarloaf and Butler townships.

"Wilkes-Barre and Scranton have been a little slow to (require) the better lighting," Honis said.

Wilkes-Barre's ordinance prohibits parking lot lights from shining into adjacent residences, but deals with intrusive light mostly on a situational basis, said Bill Harris, city planning director.

"We really see no need for (a specific lighting ordinance) in this city because we're pretty strict from a land development standpoint."

aims to avoid unnecessary light, said regional manager Paul Gartland. Although his company uses both upward and downward directed lighting, Gartland said Lamar's lights are standardized and "designed to hit just that rectangular area (on the sign)."

Gartland said his company likely would not oppose Smith's bill unless "they propose something that goes overboard."

While Honis contended that municipalities should pass their own ordinances, Smith pointed out that seven states have passed light pollution laws.

"If Pennsylvania doesn't take action, then we'll lose our night skies forever," he said.

Former commissioner, conservation district board named in suit

By Fred Ney
Citizens' Voice Staff Writer

C.V.
2/10/01

The former district manager of the Luzerne Conservation District, terminated following allegations of wrongdoing, filed a motion for summary judgment in federal court as part of his lawsuit against the board that alleges they conspired to fire him wrongfully and, in the process, violated his constitutional rights.

Robert J. Yonker, Dallas, is su-

ing Stanley Sowa, William Dawe, James Doran, Joseph "Red" Jones, John Manzoni, Lewis Rinehimer, Clyde Young and the Luzerne Conservation District.

He is represented by Attorney Bruce Phillips.

Yonker is seeking reinstatement as well as compensatory and punitive damages.

Employed for 11 years as district manager for the Conservation District, Yonker was fired in April, 1999, by a newly constituted board of directors headed by

Sowa.

At that time, Sowa confirmed reports that a criminal investigation was underway by the Pennsylvania State Police.

Other sources said the probe centered around allegations that Yonker was using a secret bank account to cover credit card charges and restaurant bills for himself and another district employee.

Yonker was also alleged to be charging secret fees for consulting work and to receive speedier review of construction plans.

Yonker denied wrongdoing and, instead, said his firing was rooted in political reprisals and the fact that he was involved in an effort to unionize district employees.

As recently as last December, State Police acknowledged that a probe is still underway but is incomplete. Trooper Gerald Sachney is in charge but was unavailable for comment Friday.

Based on recent filings in Yonkers' wrongful firing lawsuit, the plaintiff alleges that Brian Redmond, a Wilkes University professor of environmental sciences and former chairman of the board of the

Conservation District for some 20 years, was ousted suddenly from his post by Sowa and others who allegedly conspired to do so without previous notification.

Sowa was named to replace Redmond as head of the district board.

A short time later, Yonker was fired and replaced by Pamela Fedak, described in the suit as a "long time friend of the defendants."

Sowa and other board members said they choose Fedak from 127 applicants who applied for Yonker's job.

However, Yonker alleges that Fedak applied for his job even before he was fired from it and that she did so by submitting an application directly to Sowa at his home, the only person who sent an application to Sowa's home.

Furthermore, Yonker's suit alleges that Fedak was hired despite the fact that her driver's license was under a nine month suspension from a DUI case. It was noted that operating a motor vehicle is essential in the performance of the district manager's job. The depositions

in the case noted that Fedak had relatives and friends drive her around while her license was suspended.

George Andrews, a former member of the Conservation District board, testified at a deposition that he was surprised when fellow board members suddenly acted to fire Yonker.

"...I would have rather tried somebody before I hang him, and I think we were acting a little bit, timewise, a little bit prematurely," he stated.

Former Republican Luzerne County Commissioner Joseph "Red" Jones served on the district board for several years before and during the time Yonker was fired.

Yonker alleges in his suit that Jones never attended a District board meeting and never cast a vote before he showed up to vote to fire him.

The suit alleges repeatedly that Yonker was denied due process in the termination. It is alleged that the board previously terminated individuals after applying a process that included a hearing. Yonker said he was denied all those things, including a hearing.

THE BACK MOUNTAIN LEADER • PEOPLE



Brian T. Redmond confers with residents while drilling a well for a new community.

After 30 years, professor returns to Peace Corps

By ALISON ROSKOS

Back Mountain Leader Correspondent

SHAVERTOWN — Although he's best known as a professor of sciences at Wilkes University, Brian T. Redmond has a past that keeps catching up with him.

Redmond volunteered with the Peace Corps for five years when he was fresh out of graduate school. Now, he offers his services to a division of the Peace Corps known as the Crisis Corps and is assisting it in restoring hurricane-torn Honduras.

The corps needs his "expertise in exploiting groundwater sources," Redmond said.

Redmond gained this expertise through his service in the Peace Corps 30 years ago, when he saw the opportunity to do something a little different with his degree.

"I was finishing up a master's degree at Michigan State and a recruiter came through. I thought I'd put some of that knowledge to use."

The Peace Corps appealed to him, so he decided to join.

The recruiter told Redmond about a program in which he could teach science in Ethiopia, but after beginning the application process, he discovered the program didn't need any more

volunteers. Peru needed physics teachers, so Redmond began learning Spanish and training for this position. This opportunity fell through also, but the Peace Corps did have a spot for Redmond in the Dominican Republic.

He wouldn't teach science, though. He was to help find drinkable water.

Redmond had studied geology, yet he had never done anything like this before. On his first day in the Dominican Republic, he was sent out with a drilling crew but could only guess at where they were to drill. Fortunately, the crew struck water.

Over the years, he learned how to find the best places to drill for water. He directed drilling crews for six years, with some time off to work on his doctorate at Rensselaer Polytechnic Institute. After his six years with the Peace Corps, Redmond remained in the Dominican Republic on his own and continued his work for another year.

If for no other reason, Redmond is glad he joined the Peace Corps because he met his wife, Lois, through his volunteer work. She taught nutrition and family planning with the Peace Corps at a sugar plantation in the Dominican Republic. He just



Wilkes University Professor Brian T. Redmond teaches a class on water resources to Peace Corps volunteers in Siguatepeque, Honduras.

happened to pass through the area looking for water — and found Lois instead. The two eloped and were married on the Peace Corps lawn in the Dominican Republic.

Lois is not the only benefit the Peace Corps has had on Redmond's life. His volunteer experience was so meaningful he decided to serve again this summer.

Most Peace Corps members volunteer before beginning their careers or after retirement. Members who are in mid-career can rarely take a few years off to volunteer.

In order to make the best use

of its resources and to give more people the opportunity to serve, the Peace Corps has developed a program called the Crisis Corps, which uses return volunteers on a short-term basis.

When Hurricane Mitch struck Honduras in November 1998, the Peace Corps placed a call for help through its newsletter and Redmond promptly responded. Most of the drinking water in Honduras had come from surface water, and the hurricane destroyed much of that supply. Six years of locating groundwater had given Redmond the necessary training for the job.

This summer he spent two

months in Choluteca, Honduras, on the Pacific Coast, assisting SANAA, the National Autonomous Service for Aqueducts and Sewage, in rehabilitating the water supply and limiting contamination of the water. His job was to teach engineers how to locate groundwater by using knowledge of the structure of the earth and places where water had previously been found.

During his stay in Honduras, Redmond also visited the town of Siguatepeque to give a short course to Peace Corps volunteers who would stay and further improve the water supply.

"An important aspect of the job was to transfer information and skills."

Although he has returned to his home in Shavertown and again teaches at Wilkes,

Redmond continues to help out by consulting through e-mail.

Redmond advises his students and others to serve in the Peace Corps. He says the experience gives individuals the opportunity to learn a language and a culture. On the first day of work, volunteers are given responsibilities they would have to work 30 years for at a regular job.

"It's certainly a learning experience," he said.

Wilkes professor continues Peace Corps consulting for Honduras from headquarters in Wilkes-Barre

When the Crisis Corps, a subdivision of the Peace Corps, needs the nation's top experts in groundwater supply for a recovery effort from Hurricane Mitch in Honduras, it calls Dr. Brian T. Redmond, of Shavertown, professor of Geology, Chemistry, Geoenvironmental Sciences and Engineering at Wilkes University.

Crisis Corps volunteers are initially Peace Corps members who are called out in emergency situations to complete short-term projects. The PC takes advantage of the training they have already received and channel that experience to the predicament at hand.

Redmond, a Peace Corps volunteer since 1969, spent two months this past summer working and residing in Choluteca, the poorest area in Honduras, with a population of approximately 100,000 people. Although he has resumed his teaching position at Wilkes, Redmond continues to provide long-distance consulting through



Wilkes University Professor of Geology, Chemistry, Geoenvironmental Sciences and Engineering Dr. Brian Redmond, of Shavertown, volunteers with the Crisis Corps, a subdivision of the Peace Corps, in Honduras.

email communication.

According to the CC, Hurricane Mitch hit most of Central America, causing 6,000 deaths and leaving 400,000 homeless. A third of the six million inhabitants were affected by water and food shortages, loss of electrical power and destruction of over 70 percent of the country's infrastructure.

Initially, Redmond planned to help develop groundwater sources for SANAA (Servicio

Autonomo Nacional de Acueductos y Alcantarillados, National Autonomous Water and Sewage Service). As it turns out, he was able to combine this knowledge with his command of the Spanish language to teach other engineers about groundwater and how to exploit it.

"An important aspect of the job was to transfer information and skills, part of which was accomplished in various formal training sessions," explained Redmond.

Redmond traveled to Siguatepeque, Honduras, to instruct a dozen Peace Corps volunteers from the water and sanitation sector on how to use geology to locate drilling sites in Western Honduras. He explained the regional geology and how to locate drilling sites to the staff and invited guests of the French agency Action Contre le Faim. He was also the featured speaker at a week-long course on groundwater, presented by the regional SANAA office in Southern Hon-

duras.

"I was very active in pushing cooperation and collaboration between SANAA and any other agencies that were involved in finding water supplies, especially for displaced persons and communities."

Redmond was involved in finding a water supply for part of the new housing currently being built east of Marcovia for the country people displaced by Hurricane Mitch. He also helped locate drilling sites for Nueva Marcovia and Piedra de Agua, Southern Honduras, for Plan International, visited La Pita, San Marcos and Milla Cinco, Northern Honduras, and pointed out a few drill sites for FUDECUT (Fundacion para el Desarrollo de la Cultura y Turismo), and participated in the inauguration of 11 aqueducts completed by Vision Mundial and SANAA.

Redmond's service with the PC began 30 years ago, with training in Puerto Rico. He

hoped to teach science in Ethiopia, but ended up looking for water in the Dominican Republic. He served consecutively until 1974, took time off to pursue doctoral studies, then served an additional year with the PC in 1975 and outside of the PC in 1976.

Joining Redmond for three weeks in Honduras was his wife, Lois, who volunteered to work in a medical clinic.

Twenty-five years ago the couple, both volunteers, married on the Peace Corps lawn in the Dominican Republic.

C.V. 11-19-99

Schools & Colleges

C.V. 11-18-99

Wilkes professor helps local Girl Scouts earn astronomy badge

The sky was the limit for Girl Scout Troop 272, from McAdoo, when they recently enlisted the help of Wilkes University professor Dr. Brian T. Redmond to help them earn Sky Search badges (merit badges in astronomy) on campus.

Redmond, troop leader Roberta Lee Robbins, from Haddock, and assistant leader Chrissy Bittner, from McAdoo, helped the 20 participants, which included two Boy Scouts as well as family members, fulfill the badge requirements. In the Stark Learning Center outdoor courtyard, Troop 272 used Wilkes telescopes to locate constellations and the planets Saturn and Jupiter.

They also learned how to use a spectroscope, a star map and small refractors, viewed prisms, and made telescopes out of yard sticks equipped with prongs and lenses.

First row from left:- Tiffany O'Donnell, Chandra Robbins, Sarah Eliaz, Megan Shebosky, Adria Vigna, Jilly Kott, Brittney Wagner Second row: Lindsey Harvilla, Roberta Lee Robbins (troop leader), Aleeya Zehner, Gina Parent, Dr. Brian T. Redmond, professor, Geology & Chemistry, GeoEnvironmental Sciences & Engineering at Wilkes, Nicole Malega, Chrissy Bittner (troop assistant leader).



Dr. Redmond helps Girl Scouts search the skies

DALLAS POST
DALLAS, PA
WEEKLY 3,000

MAY 7 1997

BIRRELLES

Candidates

wind down

campaigns

BY KYLIE SHAFFERKOEITZER

0 12567 Post Staff Writer

DALLAS - As the days dwindle closer to election day, eight candidates vying for one of the four open seats on the Dallas School Board are gearing up for the big day.

The only incumbent in the race, Maureen Banks, is seeking her second term. "It's been interesting and a learning experience," said Banks of her first term. "It's not at all what I thought it would be in every way. You go in thinking you can accomplish this and this and then you find out that everything is wrapped in red tape."

Banks is currently the only woman on the board. When asked if there was a specific issue that encouraged her to run for another term on the board, Banks simply answered, "A lot of people asked me to." Initially Banks was not sure if she could meet the obligation because she is finishing up a master's degree.

Dr. Brian Redmond, a geology and chemistry professor at Wilkes University who is running for the board is concerned primarily with the education of the students.

See CAMPAIGN, pg 4

All 8
candidates
answer
The Post's
questions,
pg 4

Campaign

(continue from page 1)

Redmond believes attitudes, motivations and work habits of students need to be improved.

"I have seen a decline in the educational preparedness and motivation of the in-coming college students, some of which is reflected in my own children," he wrote in a prepared statement. Redmond said a great concern of his is the average student. "I wonder how well they have been motivated," he said.

Redmond has four children, two are still in the Dallas School District. His wife, Lois, is a tenured Spanish teacher at the high school.

Redmond has been teaching at Wilkes for more than 20 years and

has served on many boards including the Luzerne County Conservation District, as chairperson and as Associate Dean of the School of Science and Engineering.

"My approach to some of the problems...would include an effort to involve all interested parties in the resolution of the problem," wrote Redmond. "The many interests represented on the board are not necessarily mutually exclusive and it would be far more productive to seek out areas of agreement and maintain the dignity of the district."

"4 For Our Kids," made up of candidates Frank Natittus, Stephen Wengen, Ted Wright and

Tony Barbose say they are not running on any particular issue. Recently Wright voiced concerns about the newly completed teachers' contracts and the overcrowding at the high school. "I want to know where the board's priorities are. The high school is overcrowding and they're worrying about the teachers' contract," he said. Wright predict the overcrowding will get worse and mentioned that he "wasn't so sure we shouldn't be building a new high school and putting the elemen-

tary kids in the old high school."

Karen Z. Kyle and Jamie Kozemko are also running for the school board.

Most of the candidates said they have been talking with the community on many issues as they get ready for a "Meet the Candidates" night May 15 at 7:30 p.m. at the high school. The event is sponsored by the Westmoreland and Dallas Elementary PTO. The Post created its own "Meet the Candidates" by asking each a series of five questions.

Meet the Candidates Night

Thurs., May 15 • 7:30 p.m. • High School Auditorium
Sponsored by the Dallas and Westmoreland PTO organizations



TIMES LEADER/BOB ESPOSITO

Brian Redmond, a geologist at Wilkes University, debates the merits of dredging the Susquehanna River at a forum Tuesday night at Genetti Hotel & Convention Center in Wilkes-Barre.

By MIKE RUBINKAM

Times Leader Staff Writer

WILKES-BARRE — Dredging the Susquehanna River might be a viable option for the Wyoming Valley, but the Army Corps of Engineers has never given it serious study, a dredging proponent said at a public forum Tuesday night. Ed Gill said dredging would eliminate the need to raise levees, thereby preserving the natural beauty of the river.

"Who wants a Berlin Wall in the most beautiful section of the Valley?" asked Gill, referring to a plan to raise the levees three to five feet.

Gill, a former engineer, squared off in a one-hour debate against Wilkes University geologist Brian Redmond before 25 people assembled at the Genetti Hotel & Convention Center.

The debate, sponsored by the Center for Responsible Government, will be broadcast 7 p.m. Friday on Pioneer Community Television Network, a local cable outlet.

Redmond expressed reservations about dredging. He likened the Susquehanna to a conveyor belt and said dredging would not be cost-effective.

"The river is picking up sedi-

ment and carrying it downstream. You take sediment out of the river and (the river is) fine for a little while, but then more sediment is just brought from upriver again," he said.

Gill, of Wilkes-Barre, countered that a small island just north of the Veterans Memorial Bridge was not there 40 years ago, and Richards Island near the Carey Avenue Bridge has grown considerably in the same time span. That proves that sediment deposited by the river is staying here, he said.

The forum was the first spon-

sored by the newly formed Center for Responsible Government, a nonprofit group founded by political activist John Gibbons. Gibbons previously headed Taxes No, the group that vehemently opposed public funding for the proposed arena/convention center in Wilkes-Barre Township.

Gibbons said the Center for Responsible Government plans to host public debates each month. Topics could include the inflatable dam proposed for the Susquehanna River, riverboat gambling and Gov. Ridge's proposed gas tax.

Group opens public forum tonight at Genetti Hotel

■ *Initial debate will focus on merits of dredging the Susquehanna River.*

By MITCH MORRISON

Times Leader Staff Writer

WILKES-BARRE — Don't expect the oratory of the Abraham Lincoln-Stephen Douglas debates.

Rather, prepare for wide-ranging viewpoints on such hot topics as dredging the Susquehanna River, installation of an inflatable dam, the possible legalization of riverboat gambling, and more.

The host is the non-profit, non-parti-

For more information

For more information about the forum or the Center for Responsible Government, Gibbons can be reached at 826-0899.

san Center for Responsible Government, founded last October by conservative activist John Gibbons of Wilkes-Barre.

The group, says Gibbons, is not a springboard to promote his own values. Rather, it is a venue to promote public discourse and debate.

"You really don't have a place here where people can have a forum and talk

about ideas. That's what we're trying to create," said Gibbons, who perhaps is best known for his outspoken opposition to a publicly funded convention center/arena in Wilkes-Barre Township.

The Center for Responsible Government makes its debut 7 p.m. tonight inside the Imperial Room at the Genetti Hotel & Convention Center on East Market Street. The 60-member center is renting the room for \$150.

The subject: whether dredging the Susquehanna River makes more sense than the U.S. Army Corps' \$150 million plan to raise the levees by three to five feet. The forum is open to the public.

The presenters are Ed Gill, a member

of the Coalition of Associations for River Protection which endorses dredging, and Wilkes University geologist Professor Brian Redmond.

Redmond said he is skeptical about digging along the river bottom. The Army Corps and county engineers estimate dredging could cost upwards of \$1 billion — more than six times the cost of raising the levees.

Redmond cites another concern.

"It's an endless thing. You don't just dredge the river once and that's it. It has to be done somewhat regularly." Redmond also wondered where the dredge material, which could include hazardous toxins, would be disposed.

OCT 12, 1994

SUBURBAN NEWS
HUNLOCK CREEK, PA

WKLY - 10,549

Water Topic Of Public Forum *msff*

Everyone takes water for granted. You turn on the tap and out it comes. Everyone expects that water is safe to drink. Maybe it is and sometimes it is not. But do you know for sure what it is that your family is drinking? Do you feel that you should buy a filter system for your house? Do you buy bottled water to try to insure safe drinking water? Do you even think about the water you drink?

Back Mountain residents should ask themselves these questions and lots of others and then they should come out to the Public Forum, sponsored by the Back Mountain Citizens Council, the League of Women Voters, and Penn State Wilkes-Barre on Thursday, October 20 at 7:00 p.m. A panel of experts will gather at the Center for Technology at Penn State Wilkes-Barre

to discuss The Changing Face of Water Distribution in the Back Mountain. Hopefully they will answer some of the questions that Back Mountain residents should be asking.

The panel will include Richard Stepanski of the Water Supply and Community Health Program for DER; Jeff Box, Kingston Township Manager; Mike Coyle, Manager of General Water Works; David Kaufman, Pennsylvania Gas and Water Company; Ken Nicely, Bureau of Safety and Compliance, Public Utility Commission; Dr. Brian Redmond, Wilkes University, and Jim Ward, Chairman of the Back Mountain Regional Water Commission will be the moderator.

Everyone is invited! Don't take water for granted.

PEOPLE

Section D

Sunday, July 17, 1994



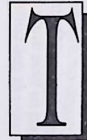
TIMES LEADER/MARY THERESA BIESEL

Members of the Back Mountain Reelers are shown above. Seated: Margaret Bakker with cello, Mary Lou Mehl with hammered dulcimer. Standing: Rob Lewis on guitar, Andy Fedley, Brian Redmond and Ian Warrington, all on fiddle, and Paul Mehl on banjo. Not shown is accordion player David Gonzales.

BAND to the RESCUE

Rather than see an end to live music at local contra dances, a folksy group has come to the rescue.

By MARY THERESA BIESEL
Times Leader Assistant Features Editor



ake two architects, two medical technologists, a geology professor, a seventh grader, a social worker and a self-described "bum who used to sell real estate."

Yes, you'd have a motley crew. But don't confuse the Back Mountain Reelers with a rock band.

This group plays folk music so their

"I just really love the music. It's really dancey and peppy. It's happy. It's folksy. It's not offensive in any way — all the instruments are acoustic."

Mary Lou Mehl
band organizer

friends can dance. Faced with the knowledge last year that the Folklore Society of Northeastern Pennsylvania could no longer afford to import out-of-town bands for each of its monthly contra dances, a core group of four local musicians came to the rescue.

All fans of folksy, foot-stomping tunes, they'd been enjoying the traditional New England-style dances that were introduced to the Wyoming Valley in December 1990.

They were willing to trade their dancing shoes for guitar picks, if that's what it took, to keep the local dances alive.

"I just really love the music," says band organizer Mary Lou Mehl. "It's really dancey and peppy. It's happy. It's folksy. It's not offensive in any way — all the instruments are acoustic."

"The fiddle tunes never grow old," adds her husband, band member Paul Mehl.

Rather be dancing

Thus, a contra band was born, though it came as a sacrifice for the band's two other original members.

Rob Lewis and Margaret Bakker would rather be dancing — this sounds like a bumper sticker, doesn't it? —

than providing the music. Still, they're happy to share their talents.

"The most gratifying thing for me is when I see families that come with young children who've started dancing. I'm glad they've had this experience," Lewis says.

Local contra dance regulars are grateful.

"If it wasn't for the Reelers, we wouldn't have a live band at these things," says Mike Gallagher of Wilkes-Barre. "There's no substitute. You could do it with records but, come on, that's

■ See BAND, Page D

If You Go

The Back Mountain Reelers will perform at monthly contra dances on the second Saturday of each month, returning to September at the First Presbyterian Church, South Franklin Street, Wilkes-Barre. Dances start at 7 p.m. and are taught by a caller. Cost is \$6 for individuals with a group rate for families.

Band

(Continued from Page 1D)
no fun."

Dance organizer Dave Martin of Centermoreland says, "There's a direct connection between the dancers and musicians. It adds a lot to the dynamics and mystique of the dance."

"They're one of the best contra dance bands I've ever heard," says Elizabeth Ginner-Johnson, who not only dances locally but has tapped her feet in Vermont and Massachusetts.

Saved by the band

When the contra dancers began to run low on funds last summer, Folklore Society member Mary Lou Mehl took the lead. She decided to contribute her talents on an old-time stringed instrument called a hammered dulcimer as well as play back up piano and recorder.

Her husband, Paul Mehl, who builds and repairs vintage stringed instruments in his spare time, added the music of his clawhammer-style banjo.

Classically-trained Bakker rounded out the band's sound with her cello.

And Bakker's husband, Lewis, brought his guitar plus two percussion instruments. His maple-wood "bones" are modeled after cattle ribs and played like spoons or castanets. The drum-like bodhran got its start as a threshing implement, Irish farmers once used it to separate wheat from chaff.

"Imagine people beating on this thing," Lewis says. "It's a great way to inspire people to move."

When the new season of contra dances resumes this September after a summer hiatus, the Back Mountain Reelers will play eight of the next 10 monthly dances.

2 If not for their efforts, the local program might be bankrupt.

Matter of survival

According to contra-dance organizer Martin, hiring an out-of-town band and caller costs \$250 to \$300. Add \$35 to rent the hall, and the bill often didn't cover expenses.

"We couldn't have survived under the old system," he says.

The Reelers have agreed to accept half of the net ticket revenue from each dance, after expenses for the caller and hall are paid.

That just about covers gas money for the band, which has recently grown to include three fiddlers and an accordion player.

"Some nights we don't get any money, sometimes it's \$5 a piece," Mary Lou Mehl laughs good-naturedly. "Everybody just enjoys playing so much they started showing up for every dance."

That's true, says 13-year-old fiddler Ian Warrington.

"It's a lot of fun in play with the band because there are eight of us and we all sound good together," he says.

"The rest of the country became interested in jazz and different kinds of music, but New England would stay the same. Contra dances lasted there for 200 years until the rest of the United States said, 'Hey, this is kind of fun.'"

Paul Mehl

Banjo player

Warrington says his classmates at Wyoming Valley West Middle School like rap and rock 'n' roll, but he marches to the vibrato of his own violin.

The youthful fiddler has played the violin since he was Suzuki-sized. He was invited into the band by Bakker and Lewis, professional architects who met him while they were designing renovations for his home.

The band grows

Accordian player Dave Gonzalo was recruited by original band member Paul Mehl. The two both work at medical technologists at the Veterans Administration Medical Center.

"I told him I'd love to," said Gonzalo, who lives in Sugar Loaf. "I'm always looking to play new kinds of music. And I fell in love with it."

Gonzalo started his adventures in music back in the 1950s, playing Italian tunes and Elvis Presley songs at family picnics. Currently, he and his accordion also play

polkas with the Danville-based Pennsylvania Alpiners and songs of praise at his Assembly of God Church.

Fiddler Andy Fedley had been playing bluegrass music at an open jam session in Tunkhannock when he met Martin, who invited him to a Folklore Society meeting. There he met the Mehls, Bakker and Lewis, who invited him to join the Reelers.

At first, Fedley says, "I didn't know any [contra dance] songs and I felt like a fifth wheel, but it planted a seed. I like it because I can play it on the violin. There's not many places to play the violin."

The once-hesitant Fedley grew to enjoy the contra music so much, he in turn recruited the group's third fiddler, Brian Redmond. He knew Redmond, a geology professor at Wilkes University, because they also perform together in a string quartet.

"My training is all classic. He enticed me into this," laughs Redmond, of Shavertown, who's more

at home playing "a lot of Handel, Vivaldi, a little Mozart, stuff like that."

In contrast, Bakker and Lewis spent their formative college years in "a hotbed of folk clubs and coffeehouses" in upstate New York, when they were studying architecture at Rensselaer Polytechnic Institute.

They became fans of folk musicians like Roy Bookbinder, U. Ulah Phillips, and Rosalie Sorrels, all of whom they have invited to perform locally at the Chicory House in Wilkes-Barre.

Contra dance music has roots in Colonial New England and, even earlier, in the old English

and French courts and countryside. The word "contra" comes from the French term "contre dances."

"Colonial America took a strong liking to these dances and many a cold Colonial hall was warmed to a cozy temperature with an evening of spirited contra dancing," Mary Lou Mehl has written in a press release about the band.

Contra dancing, also called "longways dancing" because dancers face each other in two long lines, really caught on in the Green Hills of Vermont, according to Paul Mehl.

"The rest of the country be-

came interested in jazz and different kinds of music, but New England would stay the same," he says. "Contra dances lasted there for 200 years until the rest of the United States said, 'Hey, this is kind of fun.'"

Mary Lou Mehl, a Help Line caseworker in the workaday world, envisions a day when the New England-style music and dances — with names like "Nightingale's Fancy," "Hunt the Squirrel" and "Bonnie Lass of Aberdeen" will enhance local weddings, balls, church bazaars or firehouse picnics.

For more information about that, call the Mehls at 675-2685.

Tuesday's annular solar eclipse

In an annular eclipse of the sun, the moon's disk is not quite large enough to cover the sun's disk. A bright ring remains visible at the height of the eclipse.

The tip of the darkest part of the moon's shadow does not reach Earth's surface, so viewers see the edge of the sun around the moon.

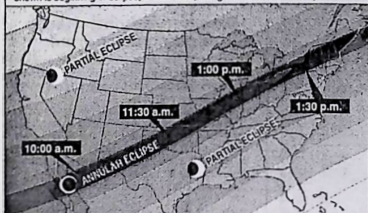


ANNULAR PARTIAL
Eclipses seen from Earth



Path of eclipse across United States

Darkest band gets an annular eclipse; other areas see a partial eclipse. Time shown is beginning of eclipse, in local time, along the band of annularity.



Source: NASA, Astronomy magazine

AP/Karl Taro

Eclipse is definitely coming, but visibility is a tough call

By P. DOUGLAS FILAROSKI

Times Leader Staff Writer

WILKES-BARRE — Forecasting events outside the Earth's atmosphere is much easier than predicting tomorrow's cloud cover, National Weather Service meteorologist Hugh Johnson says.

Johnson knows exactly when Tuesday's solar eclipse will occur. He's just not so sure you'll be able to see it.

The weather service is calling for variable cloudiness Tuesday, which could obscure Northeastern Pennsylvanians' view of a rare annular eclipse set to occur about 11:45 a.m.

Johnson said it's hard to say how thick the cloud cover will be.

"It's a tough call," he said, describing a cold front expected to bring puffy clouds through the area today and Tuesday.

The eclipse will last about four hours in all, but the best viewing will span six minutes just before 2 p.m., when the moon blocks out about 87 percent of the sun's light.

Johnson, a self-described astronomical buff, plans to go north to either Binghamton, N.Y., or Ithaca, N.Y., where the eclipse will be optimum — covering 95 percent of the sun — and the weather could be clearer.

As most people know, eclipses should not be viewed directly with the naked eye. The ultraviolet rays can burn the retina. Rather, Johnson suggests using a mirror, telescope or binoculars to reflect the image onto a white surface.

Brian Redmond, a professor who teaches astronomy at Wilkes University, recommends a similar approach — punching a pin hole in cardboard and viewing the sun's rays focused on white paper in the back.

Even in the optimum location, the moon will not totally block out the sun.

"It's going to look a lot like it does in winter. The sunlight gets kind of red. It gets real eerie," Johnson said.

R E G I O N

Section B

Sunday, September 5, 1993

Hazards of open burning worry residents

■ Plains Twp. residents are concerned about the toxic gases and chemicals that are released from burn barrels

By JIM VAN NOSTRAND

Times Leader Staff Writer

PLAINS TWP. — Cadmium-coated batteries. Lead-based paint. Plastic. Electric insulation. Ink-laden paper. Leaves and grass from the yard.

They're all found in household garbage.

And they all find their way into backyard burn barrels, where they release toxic gases and chemicals into the air and water and endanger human health, experts say.

Open burning has been a divisive issue in Plains Township since 1989, when the township commissioners voted to allow it. Now several burning opponents will approach the board at its Sept. 9 meeting to

ask that something be done with ash and barrels contaminated by years of household incineration.

Linda Stets, of Powell Street, said there's growing evidence that people are putting more than just paper, cardboard and wood into the flames, as allowed by the township's burning ordinance. And discarded burn barrels are turning up in the woods near her house.

A recent inspection of one neighbor's barrel contained metal, plastics, piping and a hammer, she said.

"What are they going to do with these barrels once they're done with them?" Stets asked. "God knows what's in there. That's my concern."

Unwitting danger

The township commissioners originally introduced burning to reduce the amount of garbage hauled to area landfills, saving both tipping fees and manpower costs. Commissioner Joseph Niemiec said the move reduced municipal garbage

pickup costs by 20 percent.

However, how to get rid of the used ash and containers is an individual property owners' responsibility, not the township's, Niemiec said.

He recommends ash be deposited in garbage bags for removal but had no suggestions for the barrels.

Many common consumer goods release highly toxic dioxins when burned, as well as toxic metals such as lead, cadmium, mercury and arsenic, experts say.

When breathed over time in sufficient concentrations, they can damage the brain and central nervous system.

The American Lung Association says even a burning leaf pile can produce smoke in a neighbor's yard as bad or worse than the most highly polluted industrial sites.

Communitywide leaf burning can radiate smoke more than five miles and cause air pollution exceeding government air quality standards.

■ See BURN, Page 9B



TIMES LEADER/DON CAREY

Stets of Powell Street, Plains Township, next to a wooded area near her home that has at least four discarded burn barrels

Burn

(Continued from Page 1B)

the association says.

The released carbon monoxide can adversely affect heart and lung disease patients, said Robert Staub, the lung association's Wyoming Valley program director.

"If the average citizen who burns would realize what they do, they probably would stop it," Staub said.

One example of a hidden hazard is the ordinary metal rails used for refrigerator shelves, said Owen Faut, chair of Wilkes University's chemistry department. Years ago, they were treated with cadmium to combat corrosion. As long as the rails remained in the refrigerator, they were safe.

But when hauled outside and used to barbecue meat over a barrel — a common practice — the cadmium was vaporized by the flames and absorbed by the food.

"It becomes a problem when people don't know what they're doing," Faut said.

Not even those innocent-looking cereal boxes are safe. The liners are generally plastic, cellophane or wax paper, all chemically treated.

Associate Professor Brian Redmond, the director of Wilkes Environmental Quality Center, said inhaling smoke from burn barrels probably is as much a health hazard as smoking cigarettes.

"That's some pretty ferocious stuff, not to mention it stinks," Redmond said.

Simply economics

Many of those chemicals also stay in the ash, coat the barrels and seep into the surrounding soil when it rains.

But because Plains Township charges \$1.25 per bag for garbage pickup, officials agree the temptation is there for residents to dump ashes in the garden or somewhere other than curbside.

Those who do dump in the garden run the risk of leafy vegetables absorbing heavy metals and passing them onto the kitchen table.

The majority of the commissioners still support burning, despite vocal opposition from many residents. The commissioners contend most residents back burning, with more than 1,650 permits issued in a community of about 13,000 people.

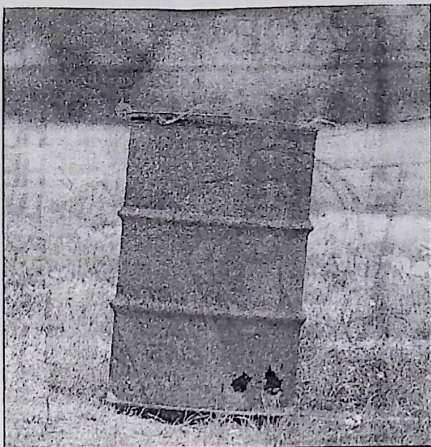
A recent motion for a binding referendum on the burning question was tabled after a 2-2 vote, with one commissioner absent.

Most people who see illegal material being burned don't confront their neighbors or call the town hall, Commissioner Joseph Canterini said. Fire Inspector Jack Baranski has issued only 25 citations since January, mostly for burning after hours or leaving fires unattended.

Many times the evidence has burned up by the time Baranski arrives to investigate a complaint, he said. Violators face fines ranging from \$25 to \$300.

Frank Pizzella, who will become a new township commissioner in January, advocates tasking township police to help the fire chief and fire inspector check barrels on burning days.

"It's out of control ... It's not being enforced," Pizzella said. "If (the ordinance) was enforced as written, I think everyone would be happy."



TIMES LEADER/JOHN GAREY

A burn barrel on East Ann Street in Plains Township smolders Wednesday afternoon

Little regulation

The state departments of Health and Environmental Resources both say open burning may be a hazard. But the federal Clean Air Act of 1990 specifically leaves regulation up to local municipalities.

It's legal to burn unless somebody passes a law against it. And the township commissioners don't appear willing to do that.

Since at least 11 other local communities allow open burning and the smoke affects the entire Wyoming Valley, both Niemiec and Canterini say DER should police it.

DER spokesman Mark Carmon said open burning is a municipal problem, and the department doesn't have nearly enough manpower to investigate every backyard dispute.

"We don't believe it's a good practice, but we can't regulate it," Carmon said. "This is a serious air pollution control problem created by a municipal ordinance."

"We realize that landfill fees and municipal garbage fees are expensive, but backyard burning is not a viable alternative," Carmon said.

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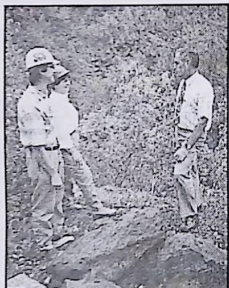
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Restoration work begins on Seven Tubs Nature Area ^{7/7/93} _{TL}



TIMES LEADER/RICHARD SABATURA

Donald Murry, project engineer from the U.S. Department of Agriculture; Anne Bohlin of the Tubs Advisory Council; and Terry Mitchell of the Department of Agriculture, look over an abandoned strip mine that will be filled in

■ *Finished product will offer sightseeing through coal mines, panoramic views and recreation areas*

By **CHRISTINE LIBERASKI**

Times Leader Staff Writer

PLAINS TWP. — Below the roar of a bulldozer and the heat of the midday sun, work started Tuesday to restore strip-mined land to its natural state at the Seven Tubs Nature Area in Plains Township.

"We are only passive beings on this planet. I think it's time we start giving back to the planet," project designer Andrew Clott of the Sordani Art Gallery at Wilkes University said.

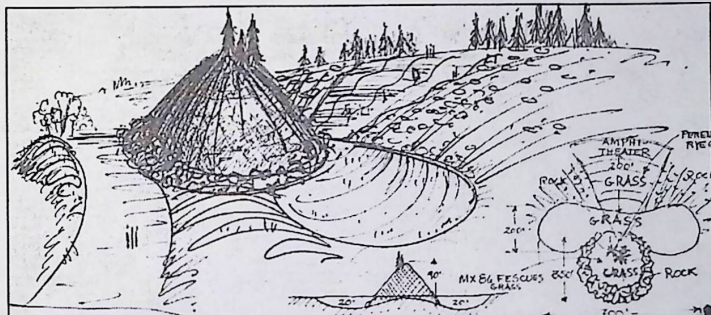
The Tubs Nature Area Ramp Site project will reclaim 23 acres off Route 115. The finished project will take sightseers through coal banks and offer panoramic views of the Wyoming Valley, Clott said.

The county-owned area comprises six pits ranging from 40 to 90 feet deep and 100 to 400 feet wide that will be removed. A large vertical mine opening will be filled in for safety reasons.

Money for the \$352,624 project was obtained through the federal Surface Mine Control and Reclamation Act of 1977. Through this act, money for reclamation work is collected from assessments on every ton of coal mined in the country.

"We don't know if Northeastern Pennsylvania has gotten its share of the project money," said Terry Mitchell of the U.S. Department of Agriculture. "We now have a push to get reclamation there."

Once the reclamation work is complete, the Tubs Advisory Committee wants to add attractions to the area, including baseball and soccer fields, hiking trails and an amphitheater.



TIMES LEADER/RICHARD SABATURA

An artist's map of the Tubs Nature Area Ramp Site in Plains Township shows what's planned.

Popple Construction of Laflin is doing the work on the reclamation portion of the project, which is expected to be complete by December. The cost, time schedule and construction company for the

recreation portion have not been decided.

"You're looking at 10 to 15 years, and a lot depends on how the government is," said May

Livesey, director of the Luzerne County Park System. "They're getting more and more environmentally aware, and more grants could be available. But it could go the other way too."

—Outdoor amphitheater part of complex—

Mine reclamation project to clear land near Tubs

By RENITA FENNICK

Greens' Voice Staff Writer

Government officials, conservationists and environmentalists Tuesday took the first step toward removing the scars left behind by King Coal.

About 50 persons, including media representatives, trekked across a winding dirt road off Route 115, Plains Township, to an area about one mile from the Tubs nature area for the ceremonial start of a \$352,634 mine reclamation project.

The ground-breaking program, which featured Congressman Paul Kanjorski as the main speaker, kicked off the federally funded project which will involve earthmoving and revegetation on a 23-acre tract.

The project, expected to be completed by December, is part of the Tubs Rural Abandoned Mine Program, or RAMP, which, according to Kanjorski, "is the beginning of a long-term effort to reclaim lands from the scourges of coal mining."

The project, which has been contracted to Popple Construction, Wilkes Barre, involves the closing of a deep mine opening, just one of the tasks necessary to make the area safe for visitors.

The reclamation process is just the first phase of an endeavor that planners say could involve hundreds of acres of land and take a decade or more to complete.

Angelle Cloutti, a natural/environmental artist with the Wilkes University Sordani Art Gallery, envisions an expansive project that would include an amphitheater with terraced seating and sports complexes — all designed to remain in tune with nature.

The amphitheater would be a simple bowl of earth, no steps, no metal or any type of construction," Cloutti said. "The terraced seating would be designed to look natural. It would provide a place for outdoor performances, like

concerts, theater and the symphony.

"I also envision baseball diamonds and soccer fields in the nature area," he said. "I would like to see a great deal of history at the site. The Tubs should represent the industrialization, with small mounds of coal here and there. It should be educational and reflect our heritage."

Since definite plans for the area have not been formulated, these involved said they have no idea how much the project would cost — or where the money would come from.

"Even if it ends here, with the reclamation and clearing, it will be beneficial," May Livezey, director of the Luzerne County Park System, said. "There may be grants available but right now, it is not known. These are all projected plans," she added, pointing to the artist's sketch of the area.

In addition to closing the deep mining pit, the first phase includes these tasks:

- 15,000 cubic yards of material to be moved;
- 1,100 feet of stone channel for erosion control;
- 1,750 feet of diversion channels;
- two sediment/stormwater basins;
- 620 feet of grassed waterway;
- 23 acres seeded with grass and legumes for erosion control.

The site, about a mile from the recently cleaned Tubs water area which was dedicated last year, is part of the 600-acre Luzerne County Tubs Nature Area. The land, which consists of six pits and highwalls ranging between 40 and 90 feet in depth and 100 and 400 feet in length, is labeled a highly hazardous strip-mined land.

The area is within the Delaware & Lehigh National Heritage Corridor and is adjacent to the ruins of Mountain Park (an amusement park that existed between 1870 and 1914), aboriginal rock shelters and the Lehigh to Susquehanna Trail, which is under feasibility study by



Cloutti/Volck Jack Kelley

Ground breaking held for Plains project

Dignitaries at Tuesday's ground-breaking ceremony for the Tubs IAMP project, from left: Dr. Brian Redmond, chairman, Luzerne County Conservation District; May Livezey, director, Luzerne County Parks Department; Armand Filipini of state

Sen. Raphael Musto's office; Congressman Paul Kanjorski; Laurel Run Mayor Donald Belles; Tim McGrath, representing Sen. Harris Wofford's office, and Mary Jo Bierman of Sen. Arlen Specter's office.

the National Park Service.

The project is funded through the Surface Mine Control and Reclamation Act of 1977, which allocates funds to aid individuals and communities with cost-sharing and technical assistance in the reclamation of land disturbed by coal mining operations. The money, raised through an assess-

ment on every ton of coal mined throughout the country, is available only to operations abandoned before 1977.

Kanjorski said he would like to see the project "start at the Tubs and move down the valley."

"Let's make it look the way the Indians saw it 200 years ago," the congressman told the crowd.

Also attending the ground breaking were: Dr. Brian Redmond, chairman, county Conservation District; representatives from the offices of senators Harris Wofford and Arlen Specter, state Sen. Raphael Musto; Allen Sachse, Department of Community Affairs and Terry Mitchell and Donald Murray of the U.S.D.A. Soil Conservation Service.

\$117
IN COUPONS

Enter our \$300 savings Bond giveaway! Page 3E

The SUNDAY Times Leader

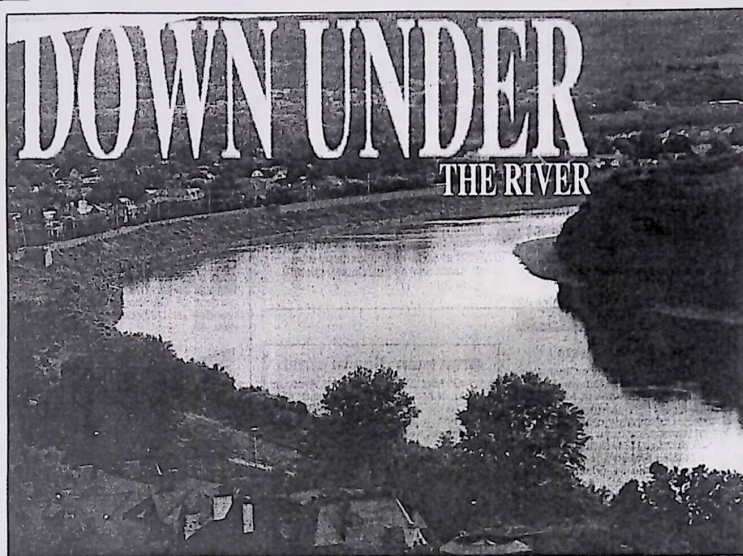
Pest control is on the line

If you've been annoyed by unwanted phone calls, there's help.

1E

SUNDAY, JUNE 13, 1993

WILKES-BARRE, PA



TIMES LEADER/PREF ADAMS

□ A world of mines and utility lines lies beneath the Susquehanna River

By **DAWN SHURMATTIS**
Times Leader Staff Writer

Forget the bridges. Bypass the boats. Hold your nose and dive.

Then, dig. Dig deep, and enter the underground, the sub-surface of the Susquehanna River.

Here, well below the riverbed, lies an other-worldly microcosm, a subterranean hodgepodge of abandoned mines, tunnels, utility lines, even an underground creek and aquifer saturated with clear, cool water.

Enter the Valley of the Deep. "It's impressive," says Boh Betzler, Wyoming Valley Sanitary Authority director. "You never think of anything under the river. You always think of everything over the river."

"There's tunnels and everything."

To understand what's under the river today, and why, travel back in time about 15,000.

Zeiss, James Dr. Brian Redmond, associate professor of geology at Wilkes University.

"Think big. Think cold. Think glaciers."

Back then, the entire Wyoming Valley was filled with ice — slow-moving colossal shelves of ice. As the glaciers passed, they scraped the valley down to bedrock, gouging out a long cylinder that resembled a giant canoe.

Then, during thousands more years, the canoe filled with

glacial till — rock, sand, silt and clay. As the area filled in, the Susquehanna gradually rose to an area nearly 100 feet higher, its riverbed coming to rest on top of the glacial till.

Geologists refer to that till, a kind of geologic junk yard, as "The Buried Valley of the Susquehanna."

Down under: The mines

Back when coal was king, that buried valley — which stretches from Nanticoke to Pittston — posed a danger to miners.

Coal company officials often pushed workers to disregard safety rules and dig dangerously close to the till and nearby river bottom. Dozens of accidents resulted during the years when quicksand and water broke through the roof into the mines.

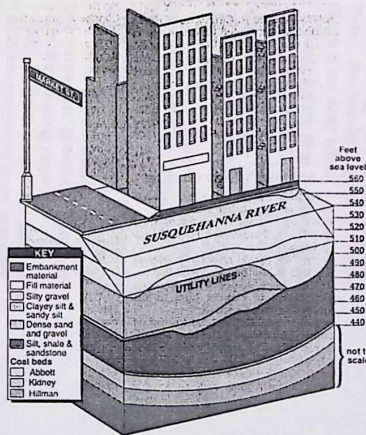
The most publicized disaster occurred in 1959, when the Susquehanna punched into the Knox Mine near Pittston, killing 12.

To this day, the mines remain, hundreds of feet below the surface. Tunnels once used by miners extracting black diamonds from the bedrock still snake across the river between Pittston and West Pittston, legacies of a by-gone era.

But many of the mines have since filled with water, forming mine pools. If you could burrow below, you could conceivably fill a cup with water cooled to 50-degrees, water naturally filtered through layers of sand

Below the surface

Here is a look at what lies beneath the river bed of the Susquehanna at Market Street in Wilkes-Barre.



and gravel. While some mine acid spoils the water, much of it is usable. Geologist Redmond thinks of the aquifers below the riverbed and throughout the watershed as a largely untapped resource.

In some cases, wells as deep as 90 feet have been dug into these pools. The water brought

to the surface is used to heat and cool several area buildings before it's returned to the mines.

Down under: Owners?

There's a little life below ground — no creepy-crawlies,

■ See RIVER, Page 18A

River

(Continued from Page 1A)

no Loch Ness monster, no giant sand worms. Nothing lives there except microscopic organisms.

But at one time, even that subterranean terra was claimed by owners.

Below-river mineral rights were granted to early settlers of the valley around 1800. The settlers received river warrants — areas of land under the river surveyed, patented and warranted by the Commonwealth of Pennsylvania.

Mining companies eventually acquired those rights, which then passed to their heirs. It's uncertain whether anyone has deed to them today.

"It's clear and not so clear," says Pat Acker, chief of the bureau of anthracite, Office of Surface Mining in Wilkes-Barre. "It's very difficult to say."

Down under: Utilities

Links, iron and steel links, exist 3 feet underground, bridging one side of the river to the other at

13 different points throughout the Wyoming Valley.

Gas, water — even sewage — cross beneath the Susquehanna daily. You can't see it, or smell it, but it's there.

When utilities want to dig beneath the river to lay lines — referred to as river-crossings — they need permission from local, state and federal officials. Contractors consult many maps and documents to make sure they dig in the right spot — away from other lines and well above the mines.

The state requires pipes laid at least 3 feet below surface to keep the river flowing freely. All lines are monitored by above-ground meters.

The Wyoming Valley Sanitary Authority maintains five river crossings, pipes that range in diameter from 10-36 inches, laid between 5 and 10 feet below the riverbed.

The Pennsylvania Gas and Water (PG&W) Co. maintains eight river crossings, from Shickshinny north to Ransom. The company lays its iron water mains and steel

gas mains 3 to 4 feet below the riverbed.

According to PG&W engineer Pete Sarmonis, getting down there is no easy trick.

Contractors first build a coffer dam — a temporary roadway over the river. They dig from the coffer down, shoring up the sides of a trench and eventually emptying it of water.

Then, they either dig or blast, depending on the depth and the type of rock.

Generally, soft shale and sandstone lay just beneath the riverbed. But occasionally, contractors encounter granite. Then, out come the blasting caps.

The oldest river crossings PG&W encountered were two cast iron pipes in Wilkes-Barre and Pittston laid on the riverbed in the 1890s, before the law dictated digging underground.

"You can run into unmarked utilities, abandoned mines or rock where you don't expect it," says Sarmonis.

"You're always surprised when it's underground."

Today's Quote
"Science is
the refusal to believe on the basis of hope."
C.P. Snow

27 — Citizens' Voice, Wilkes-Barre, Pa.

Thursday, July 23, 1992

Seven Tubs Nature Area a triumph of community

Editor:

On July 8, 1992, the Seven Tubs Nature Area was officially opened for the public to enjoy. Many volunteers gave countless hours working towards this day since this concept began in the late 1970s. It was through the dedication of both individuals and groups working with the different levels of government that the dream became a reality in preserving and displaying this environmentally significant geological area.

I would like to thank the county commissioners, both past and present administrations, for providing the foresight and continued support to see this project through — and Congressman Paul Kanjorski, Senator Raphael Musto, and State Representative Kevin Blaum for helping secure funding for the nature area.

I would also like to thank my staff at Moon Lake Park and the Luzerne County Road and Bridge Department for the excellent job they did in restoring the area.

Special recognition should be given to those who served or are serving on the Tubs Advisory Council.

Those concerned citizens are Ken Anderson, Alexandria Basinski, Annie Bohlin, James J. Brozena, Mark Carmon, Dan Comoroski, Sid Halsor, Ph.D.; John Ianotti, Barry Kaminski, Wesley Keller, Eugene R. Klein, Ken Klemow, Ph.D.; Kevin Kring, Richard Krokos, Lincoln Lange, Melanie Lumia, Adrian Merolli, Grace Ostrum, Louise Pesotski, George Raviol, Dr. Brian Redmond, the late Attorney Thomas Shea, Helen Stager, Linda Stallone, Paula Valunas, Bob Washilewski and Paul Zbegner.

This project, since the beginning, has been a community project. Thanks to their efforts and everybody else involved over the years this beautiful area will be preserved for our children and their children to enjoy for years to come.

Bob Pitcavage
Parks Director
Luzerne County

Presents

Water Seminar

^{P43(7)}
The Back Mountain Citizens Council, Penn State Wilkes-Barre, and the League of Women Voters, will present a two-part seminar on the issue of groundwater, on Tuesday, March 24, and Friday, April 3, beginning each evening at 7:00 p.m. The programs will be presented in the Center for Technology on the Campus of Penn State Wilkes-Barre in Lehman.

On March 24, the seminar presenter will be Dr. Brian Redmond, a hydrologist on the faculty of Wilkes University, who will speak on "Groundwater Resources." His topic will cover the water table, aquifers, and the effects of land use on groundwater.

On April 3, a panel discussion will focus on issues of land use affecting groundwater, and on proposals for regulation and enforcement. Members of the panel will include Representative George Hasay; Larry Taylor of the Susquehanna River Basic Commission; David Kaufman of PA Gas & Water Co.; James Ward, geologist and chairman of the Back Mountain Water Commission; Louise Wasserott, president of the League of Women Voters; and Representative Phyllis Mundy. Moderator will be Ray Boyle, vice president of the Back Mountain Citizens Council.

Approximately 37% of the population of this state uses groundwater from wells and springs for drinking and other domestic uses. Rural homemakers with their own wells are responsible for the safety of their own water supply. Both seminars are free and the public is urged to attend. Call 675-9240.

Water, water everywhere in the Back Mountain...or is it?

By ERIC FOSTER
Post Staff

Water. Everybody needs it. To drink, to bathe.

In the Back Mountain, most of it comes from under the ground, pumped up from wells.

But no one seems to know how much there is under the ground, and that has some folks worried.

In Lehman Township, people who live near the proposed Huntsville Golf Club are concerned that the use of an estimated 125,000 gallons of water a day to keep grass green would also leave little for them.

In Jackson Township, people who live near the State Correctional Institution fear that the prison's use of 240,000 to 250,000 gallons a day will dry up their wells.

But that's small potatoes compared to the total volume of water which is used across the Back Mountain.

The Dallas Area Municipal Authority treats about 1.95 million gallons of sewage water drawn from 6,000 homes every day, according to executive director Tom Bagley. The treated water is released into Toby's Creek where it leaves the Back Mountain altogether.

The Dallas Water Company, serving 1,800 customers, pumped an average 516,223 gallons of water a day in 1990 from eight wells. The Saveritown Water Company, like Dallas owned by General Waterworks, pumped an average of 265,528 gallons of water a day from two wells in 1990 to serve 980 customers.

Michael Coyle, who manages the companies along with the Noxon and Harveys Lake water companies, said that their best well pumps 200 gallons of the ground each minute, while the least produces only 50 gallons a minute.

So with all of this water being used, and much of it leaving the Back Mountain via Toby's Creek, are we using water faster than it is seeping back into the ground?

The answer is maybe.

"There may be some areas where we're pulling out more than is going in," said Brian Redmond, of Shawertown, a hydrogeologist and associate professor of geology at Wilkes University. "That's when you begin to mine the water."

Redmond stresses the "may" because in doing a study for Jackson Township last year, he used regional data to compute the amount of rain which falls on the area and the amount of the water which runs off. He then estimated that the average person uses 100 gallons of water each day.

"With the information we have now, you can only guess," said Redmond.

To get more accurate data to work from Redmond says that wells across the area would have to be monitored over time to account for seasonal fluctuation. Ideally, data would also be collected locally on the amount of rainfall, how much evaporates, and how much of it runs off.

"Unless you have that kind of information, you're doomed to crisis management," said Redmond.

Some Crises

When your well goes dry, that's a crisis. And well driller Bob Sorber has encountered about 60 of them in the past several years. Sixty wells which ran dry and had to be redrilled.

"We have a lot of wells my father drilled that have gone dry," said Sorber, 57, who works almost exclusively in the Back Mountain.

"This past summer, there's been a lot of wells that went way down during the drought. Most of them have come back to where it's available to drink," said Sorber, "but you don't fill up your swimming pool with it."

Sorber can also name springs which have dried up for the first time: two spring-fed ponds on Swampy Road, a spring and a dug well went dry on Pook Hill, and two more springs on Main Road in Hunlock Creek.

Jackson Township's zoning officer, Robert Culp said that six residents drilled new wells this past summer — four of them because their wells went dry, and two just as a precaution. The water used by the prison seems unrelated, said Culp, as the nearest well was half a mile away.

Other people have had problems with their wells becoming contaminated.

In Lehman Township, about 20 wells have been contaminated with gasoline which leaked from the Sunoco Station along Route 118 at Lehman Center.

The owner of the station is providing bottled water to those with contaminated wells, but the township supervisors have expressed concern that the 125,000 gallons a day the nearby proposed Huntsville Golf Club would use could draw the contamination to other wells.

Coyle said that water companies haven't seen a general downward trend in well levels, but points out that the average depth of the company's wells is 400 feet, deeper than many home owner's wells.

"There's no trend. Last year we did have some variations. I would say in some wells were a little down," said Coyle, "but not to the point where I would be of concern. We were pretty fortunate that we were pretty stable. I think a lot of that is due to the consumer responding early on."

Coyle said that when the company asked customers to voluntarily conserve water, water use declined about 12%.

But wells can be unpredictable. "I could have a well outside the building which is in very good shape, and I could go up the road 500 feet and have a problem."

The labyrinth of underground water

Drilling a well can be even more than a guessing game.

For example, Sorber says that the wells he's drilled on top of Red Rock Mountain are about 200 feet deep. You'd expect the wells at the

bottom of the mountain to be shallower, right? Wrong. The wells he's drilled at the bottom of the mountain along Route 118 are about 500 feet deep.

Part of the difficulty in finding out how much water is under the ground in the Back Mountain has to do with geology.

In some areas, such as the West Side area of the Wyoming Valley, the ground is composed of rock which is permeable to water, and so the wells are drawing on the same water table, says Redmond.

But in the Back Mountain, the rocks are impermeable to water. And so wells draw water from fissures, or cracks in the rock.

"If you drill a well and don't hit a fracture, you can have a dry well."

Everybody is taking water out of fractures. You can have two houses which are next to each other, and they may or may not be drawing from the same fracture, says Redmond. "There's no real way of knowing."

Sorber drilled three wells within 300 yards of each other on Main Street in Shawertown near Have's Nursery, and got a different result each time. The first was loaded with sulfur, the second was perfect, the third was contaminated with minerals.

"I won't drill a well deeper," said Sorber. "If you drill over 500 feet, the well is no good. All of the wells I've drilled over 500 feet, the mineral content is too great. Every one I've heard of, it's been contaminated."

Instead of drilling further, Sorber has an explosive expert blast to try to open a crevice to provide water to the well. So far, he said that technique has worked every time.

Redmond says Sorber is "dead right" about deeper water often being contaminated. The water far below the surface doesn't move, and so it absorbs minerals from the surrounding rock.

Seminar will address area water resources

In an effort to educate more people to the issue of groundwater, a two-evening seminar titled "Groundwater Resources" will be held at Penn State Wilkes-Barre's Center for Technology on March 24, and April 3.

The seminar, sponsored by the Back Mountain Citizens' Council, Penn State Wilkes-Barre and the League of Women Voters, will begin at 7 p.m. each night.

On March 24 the presenter will be Dr. Brian Redmond, who lives in the Back Mountain and is a hydrologist on the faculty of Wilkes University. He will talk about the water table, how aquifers are recharged, and the effects of land use on groundwater.

On April 3, a panel discussion will focus on issues of land use affecting groundwater, and on proposals for regulation and enforcement. Members of the panel will include the following: state Representative George Hosay Jr., Larry Taylor of the Susquehanna River Basin Commission, David Kaufman of Pennsylvania Gas and Water Company, James Ward, geologist and chairman of the Back Mountain Water Commission, Louise Wassent, president of the League of Women Voters, and moderator Ray Boyle, vice president of the Back Mountain Citizens Council.

There will be an opportunity for questions from the audience, according to Robb Lewis, chair of the Citizens Council open space committee.

"The current drought and water shortages, the contamination of ground water with benzene in Lehman Township, the proposed new golf course will all put pressures on municipal officials to protect the public interest," said Lewis.

Redmond calls the situation a "Catch 22" — the deeper you drill a well, the more likely it will be contaminated with excess minerals from the rock, while the shallower the well is, the more likely it will be contaminated by something from the surface.

In the case of a golf course, the water used to water the grass won't be a dead loss, says Redmond, but that may be a mixed blessing. "If you want grass to grow nice you'll probably use fertilizer that may be going back into the water too."

That shortage hasn't occurred yet, and may never happen, but people are now more aware of the potential problem.

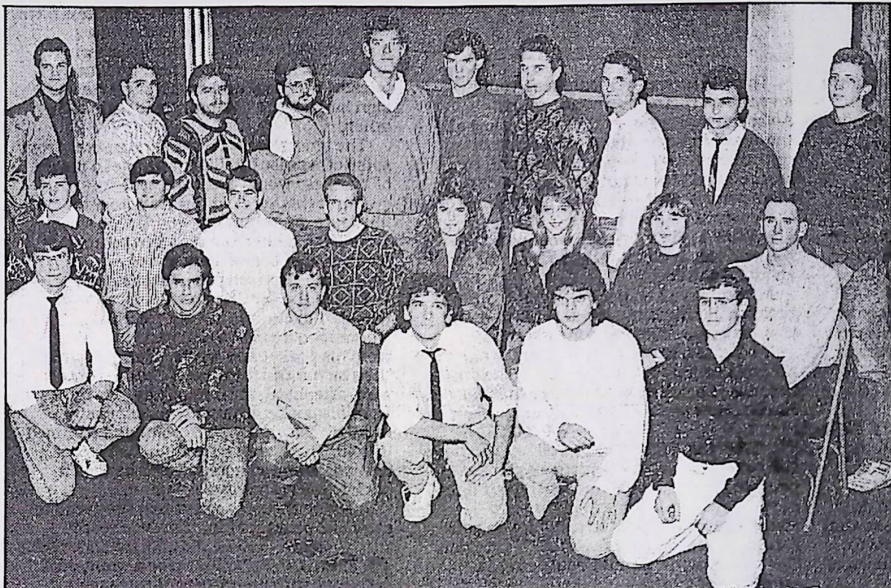
"That's the good thing about the drought. It makes people more careful," says Bagley. "We're treating 2 million gallons today. That 2 million has been polluted by 25,000 gallons."

"We've been water rich. It's never been an issue, before," said Bagley. "In the western states and Europe, waste water is treated then shipped to the water company to be further treated so it can be used again. It's not that we don't have the water, but it's polluted already."

Where the 70s were waste-water treatment. The 90s and the year 2000 we're going to be doing water treatment as a social issue."

Stymied by a lack of authority, Ward said the commission met last year for the last time, then

IN YOUR TOWN



Wilkes students inducted into honor society

29 Wilkes University science majors were recently inducted into the National society of Physics Students Honor Society, Sigma Pi Sigma. Dr. Clifford M. Will, professor of physics, and a member of the McDonnell Center for the Space Sciences at Washington University in St. Louis presented his lecture "Was Einstein Right?" as part of the celebration. Pictured in the photo at the induction ceremony, front row, from left are: Scott Segan, Nazareth; Chuck Stanski, Plains; Paul Ritchie, Wilkes-Barre; John Zukas, Barnesville; Ed Gall, Saint Clair; and Steve Pasich, MacAdoo. Second row: Dave Morris, Trucksville; Dennis Rauschmayer, Mountaintop; Todd Wiest, Herndon; Tim Cerniglia, Wyalusing; Susan Draus, Wilkes-Barre; Charlene Zimmerman, Lake Ariel; Holly Pitcavage, Shavertown; and Brent Trauger,

Factoryville. Third row: Jeff Prawdzik, Wilkes-Barre; Pat Bartorillo, Wyoming; Bob White, Wilkes-Barre; Joe Gryskiewicz, Nanticoke; Mark Kopec, Swoyersville; Mark Williams, Wilkes-Barre; Vince Socci, Askam; Pete Fedak, Mountaintop; Tony Veatch, Shrewsbury; and Steve Valvonis, Wilkes-Barre. Other inductees not available for the picture include, Todd Beckwith, Scranton; John Breckner, Endwell, New York; Tom Carter, Montrose; Mike Miller, Hazleton; and Ray Skocik, Atlas. Also inducted as faculty members of the society were Dr. Brian Redmond of Shavertown, associate professor of earth and environmental science; and Dr. Umid Nejib of Trucksville, dean of the Wilkes University School of science and engineering.

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Cawley Asks DER To Test Homes' Water

Rep. Gaynor Cawley has asked the state Department of Environmental Resources to begin testing water at homes where residents have been diagnosed as having giardiasis.

Cawley cited Scranton resident John Blackledge's documented case of giardiasis as sufficient reason for DER to begin the testing program.

"One case of giardiasis is too many. I have asked Secretary Arthur Davis of DER to work in conjunction with the state Department of Health in determining the existing giardiasis cases and to test the drinking water of each individual afflicted," Cawley said in announcing his letter to Davis.

"Since it is my understanding that there is not a large number of local residents suffering from giardiasis, my request would not place an undue burden on the state agencies involved but it would put citizens' minds at rest eliminating the possibility of another giardiasis epidemic," Cawley said.

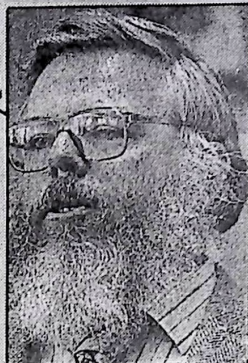
Northeast Pennsylvania became intimately acquainted with giardiasis in late 1983 when the state Department of Health identified an outbreak of the bacterial infection in upper Luzerne County and lower Lackawanna County.

The cause of the disease was traced to contaminated Pennsylvania Gas & Water Co. reservoirs and accounts for at least part of the reason why PG&W has begun building and operating filtration plants at its dams.

"It seems to me that it would be a relatively simple task for DER agents to test the water of those individuals stricken with the disease," wrote Cawley in the letter sent Tuesday. "When the General Assembly provided funding for a testing lab several years ago at Wilkes University for DER usage, which is still funded and functional, it was established for many purposes, one of which would be this situation."

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In Sunday's Leader



■ **DOWN TO EARTH** — Long before it was fashionable, they were down to Earth about the environment. Now, as the 20th anniversary of Earth Day is celebrated, they're veterans of a burgeoning movement. In The Sunday Times Leader, you'll read about several area residents who decided years ago that putting stock in planetary preservation makes good sense.

OCT 13 88

Pike County Dispatch
MILFORD, PA
W-3,600

*File
Brian Redmond.*

Hires own experts

'Partnership' sells shares

MILFORD — The Pike Partnership, an alliance of builders, realtors and attorneys fighting the proposed upgrade of the Sawkill watershed to "Exceptional Value" (EV), is soliciting funds to help underwrite the costs of "two highly reknowned (sic) and completely independent sources" that have been hired to evaluate environmental and economic factors.

The Partnership has hired Dr. Brian Redmond, Hydrotech Ltd., a Wilkes College hydrogeologist, to investigate public and private data, and provide specific recommendations "for the best way to protect the Milford water supply and insure clean stream water."

Also The Pa. Economy League, based in Harrisburg, which for years has analyzed the taxation and spending habits of public bodies. PEL is expected to provide "an economic impact study" of the proposed upgrade.

"The Pike Partnership has no preconceived agreement as to what these reports will disclose. We believe they may be supportive of seeking other alternatives to an EV upgrade. Regardless of the outcome, we believe such reports are essential because of the complexity of the issues and its impact on property rights," the Partners state in a direct mailing to several persons, including their employees, seen as potentially sympathetic to their cause.

The Partnership has budgeted \$20,000 for the reports and its position paper, that will be presented at the Oct. 25 hearing at Hunt's Landing on the EV issue. A "minimum donation" of \$100

will entitle donors to a complete transcript of the Aug. 17 informational meeting held by the Pa. Dept. of Environmental Resources at the Pike County Courthouse

In their statement, the Partnership maintains that the DER recommendation to upgrade the watershed was made "without proper and logical local government input; without proper stream quality analysis; and without any consideration of the economic impact."

They state that water quality may be upheld through enforcement of current regulations, and that the EV upgrade will adversely affect property owners in the watershed, and even beyond, by establishing a precedent.

At the DER informational meeting, state officials said that it would likely halt major commercial or industrial development, although the present pattern of single-family homes on large lots could most likely continue unaffected.

1987

THE TIMES LEADER
WILKES-BARRE, PA
AD-65,194

Strip mining approval given

Firm withdraws sludge plant request

By MAUREEN MARZEN
Staff Correspondent

WILKES-BARRE — Facing overwhelming opposition, the Hunlock Sand and Gravel Co. on Tuesday withdrew its request to build a sludge treatment plant in Hunlock Township.

It had sought a variance from the Luzerne County Zoning and Planning Commission to establish the plant in a mining zone, triggering an uproar among neighbors.

About 100 township residents showed up at the courthouse to protest approval of the proposal Tuesday night, but the request was withdrawn by attorney William McCall before the hearing.

McCall, representing the firm, did not say why the request was dropped, but said it can be refilled within six months.

The firm planned to treat sludge from sewage treatment plants in other areas of the state.

Attorney Al Flora Jr., representing Hunlock Creek residents, accused the company of delaying its plans.

"It's just a runaround so there won't be more people here next time," one man shouted while leaving the room.

"It's unfortunate all these people came out tonight to hear this," Board Chairman Bill Isaacs said.

In other business, the board approved a request by the Silverbrook Anthracite Inc. to strip mine a 6½-acre parcel of land in Newport Township.

The Dupont firm had asked the board in November for permission to mine coal deposits on the north side of West Kirmar Avenue in the township. Many residents in that area have voiced strong opposition to the project.

Silverbrook had already obtained a permit from the state Department of Environmental Resources to strip mine the parcel, which is located in a mining district.

The board conducted its second on-site inspection of the permit area Tuesday afternoon.

After four hours of testimony from residents and expert witnesses, the board granted Silverbrook's request, with restrictions.

- There will be no blasting on Saturdays and Sundays and operations will not be conducted on Sundays.

- Only eight blastings will be permitted per month.

- The wooded area along the neighborhood must remain as a sound barrier.

- There will be no access roads from the site to Kirmar Avenue.

In case of hardship, Silverbrook or residents have the right to apply for changes in the rules.

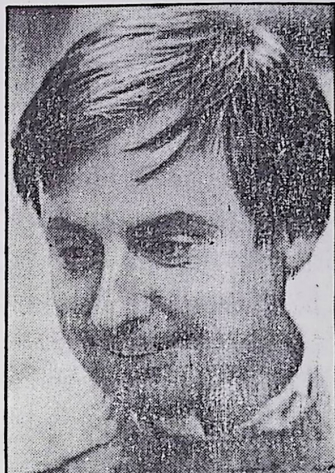
Many residents opposed the project, saying blasts from the dynamite could cause damage to their homes. Others worried that water drainage from the mining would reach their homes and cause damage.

Joseph Sklaney, who has lived on West Kirmar Ave. for 46 years, said there has always been excess rain which comes down from the hill.

Sklaney said he has found four bore holes approximately 300 feet from his property. He also said the permit area has already been staked out and the bore holes were outside of the approved area.

Isaacs asked Cary Kasa, owner of Silverbrook, about the bore holes. Kasa said the bore holes were drilled by his engineers, but he wasn't sure he will follow up on Sklaney's claim.

Theresa Broskoske, West Kirmar



Al Flora

Fears plan only delayed

Ave, said two of her porches were destroyed by blasting from strip mining in the past. She also said there has been subsidence around her garage due to the tunneling of water underneath her property.

Dr. Brian Redmond, a geology professor at Wilkes College, said he surveyed the 6½ acres and concluded that most water drainage will go directly into a mine pool, but the depth of the mine pool could affect nearby homes.

The board also approved a request made by John Godleski, Dickson Street, Duryea, for a rear and side yard variance, to construct a residential garage on his property. Approval is pending an investigation as to why the the garage was built before a permit was issued.

Incident Had No Environmental Effect

Independent 1/16

How serious was the so-called nuclear incident at Susquehanna Steam Electric Station, Salem Township?

Well, it caused no environmental problems—in fact background radiation as measured by equipment at Wilkes College reflected lower levels of radiation on the day of the incident, last Friday, than in 1981.

According to Dr. Brian Redmond, Assistant Professor of Earth Sciences at the college, background radiation last Friday measured 5.82 Roentgens—for the week of Jan. 10-15 it was 5.66 Roentgens.

(See accompanying charts.)

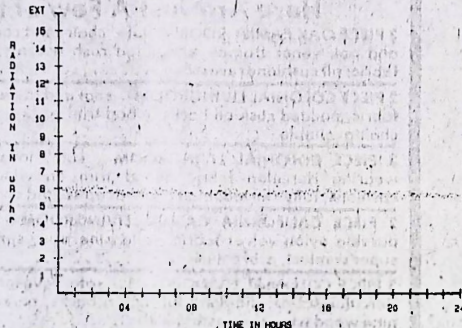
Furthermore, the readings last week were even lower than the yearly average of 1981, which was 6.06.

According to a Pennsylvania Power and Light Company official, the water itself was not radioactive, but rather the bacteria and particles in the water were contaminated.

He explained that water itself does not become

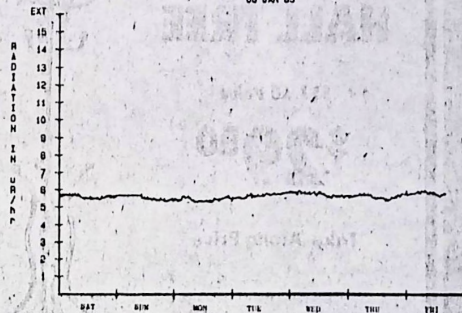
A=6.83 uR/hr
M=6.20 uR/hr
L=5.00 uR/hr

WILKES COLLEGE
BACKGROUND GAMMA RADIATION FOR
07 JAN 83



A=6.83 uR/hr
M=6.20 uR/hr
L=5.00 uR/hr

WILKES COLLEGE
BACKGROUND GAMMA RADIATION FOR
7 DAY PERIOD BEGINNING
08 JAN 83



radioactive, but the particles retain radiation. They were cleansed out by means of the plant's recycling system; contaminants are captured in a filter—the filter is eventually removed from the site as low level nuclear waste.

The incident, because it was not publicly disclosed for four days, did cause a furor at PP&L's headquarters in Allentown. Reports indicate company representatives at the plant, were scolded for not divulging sooner the events that took place.

As an off-shoot to this

situation, Jim Syracuse, Operations Officers for Luzerne County Civil Defense, expressed frustrations at not receiving notice of the incident. He stated his office received numerous telephone inquiries but had no information to relay to the public because of PP&L's failure to make a public disclosure.

Syracuse and his superiors filed a protest and they have since been informed by PP&L that in the future if "there's a leak in a bathroom at the plant, they will know about it."

In the meantime, Syra-

cuse has suggested that air monitoring equipment, such as exists at Wilkes, be placed in such communities as Nanticoke and Hanover Township in order that the

public might be better protected.

Wilkes' equipment conducts a 24-hour per day, 365 days per year surveillance of background radiation.



NORTHEASTERN PENNSYLVANIA
ENVIRONMENTAL COUNCIL
P.O. Box 3113
Scranton, Pa. 18505-3113

Lyle Brean Beomord

12 — THE SCRANTON TIMES, SATURDAY, AUGUST 10, 1985

TV TONIGHT

FOR COMPLETE LISTINGS
SEE TV UPDATE EACH WEEK
IN THE SUNDAY TIMES

WNEP To Offer Five-Part Series On the Dangers of Radon Gas

WNEP-TV, Channel 16, will present a five-part series on the dangers of radioactive radon gas beginning Monday.

"Radon: Home Sweet Hazard," will air twice daily, on "Newswatch 16 Midday" at noon, and on "Newswatch 16" at 6 p.m., from Monday through Friday.

Reporter-producer Dan Fiorucci, cameraman-coproducer Bernie Jellig and executive producer Ken Medd have spent parts of the past eight months gathering data on radon to see if the gas is as serious a health hazard in Northeastern and Central Pennsylvania as in other parts of the nation.

Radioactive radon gas is now the second leading cause of lung cancer death in America, right behind cigarette smoking. An estimated 10,000 Americans will die this year because of exposure to radon gas in their homes,

according to the report.

Radon gas is a by-product of the breakdown of uranium, which occurs naturally in the ground just about everywhere. Outdoors, radon usually drifts harmlessly into the atmosphere. But in this energy-conscious age, when more and more homes are built almost "air tight" to conserve energy, the buildup of radon inside homes can be literally a life-and-death matter.

The worst known case of radon contamination, ironically, was here in Pennsylvania, in the Stanley Watras home in Boyertown, Berks County. In December 1984, Watras, a worker at Philadelphia Electric Co.'s Limerick Nuclear Power Plant, set off a radiation detector going into the plant.

It was determined that his home contained a radon gas level 650 times that considered safe and 40 times greater than that allowed in a ura-

ium mine.

Experts say that living in the Watras home posed the same cancer risk for every member of the family as if they each smokes 135 packs of cigarettes a day.

Newswatch 16's research included placing radon detectors in selected area homes to measure the radon gas levels. The results of that study, as interpreted by experts in the field, form an important part of the five-part series.

During the series WNEP will announce that it is cooperating with the Northeastern Pennsylvania Environmental Council (NEPEC) and researchers at Wilkes College on the first major study of radon in Northeastern and Central Pennsylvania.

NEPEC and Wilkes researchers will be making radon detectors available at cost to anyone who wants one.



**NORTHEASTERN PENNSYLVANIA
ENVIRONMENTAL COUNCIL
P.O. Box 3113
Scranton, Pa. 18505-3113**

961-1150



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460**

Dear Caller:

Thank you for your call concerning indoor radon. In response to questions from you and other callers, the staff of the Office of Radiation Programs in the U.S. Environmental Protection Agency (EPA) have prepared this information sheet on indoor radon.



Information Sheet on Indoor Radon

1. What is radon?

Radon is a naturally occurring, almost chemically inert, radioactive gas. It is produced from the radioactive breakdown (decay) of radium, which is formed, through several intermediate steps, from the decay of uranium. Since radium and uranium are common elements in rock and soil, radon is constantly being generated. Because radon is not chemically bound or attracted to other materials, it can move easily through even very small spaces such as those between particles of soil and rock. Radon-222, produced by the decay of radium-226, is the type of radon most commonly of concern in indoor environments. In this fact sheet, "radon" will refer to radon-222.

2. Where does indoor radon come from?

A major source of indoor radon is radium in the soil and rock under and surrounding buildings. Radon moves through soil and rock and can enter a building through cracks or openings (sewer pipe and sump pump openings, cracks in concrete, wall-floor joints, hollow concrete block walls). Lower air pressure inside buildings (caused, for example, by wind and loss of indoor air) can help to pull radon into a house. The amount of radon reaching a building is dependent on several factors, including the amount of radium in the surrounding soil or rock and the soil permeability.

In some regions, water supplied from underground aquifers or wells contains dissolved radon produced in rock near those supplies. The churning of water in washers, showers, toilets and sinks releases much of the dissolved radon. Studies indicate that very few public water supplies contain enough radon to be a significant source of indoor radon. In some areas of the country, elevated levels of radon have been observed in water from private wells. Radon can also diffuse from building materials containing large amounts of radium, but such materials are not common.

3. Why is the radon concentration in buildings usually higher than that outdoors?

When released outdoors, radon mixes with the large amount of outside air and is widely dispersed. Radon entering a building is confined to a relatively small space. Once inside the building, the radon will tend to remain indoors (like an odor or any other indoor pollutant) because most structures are designed to keep heated or cooled air from escaping.

The accumulation of indoor radon largely depends on the rate at which indoor air is exchanged with outdoor air. It is important to note that the amount of radon actually entering a building depends on several other factors (see question #7).

A measure of the air exchange for a building is the ventilation rate, which is stated in air changes per hour (ach). In describing the ventilation rate in a house, one ach means that, on the average, a volume of air equal to the volume of the house enters the indoor environment each hour. Sealing buildings against air leaks, such as for energy conservation, reduces the ventilation rate. Lowering ventilation rates can increase levels of radon and other indoor air pollutants such as cigarette smoke and formaldehyde.

4. What happens to indoor radon?

Radon undergoes radioactive breakdown and produces radon decay products (also known as radon progeny or radon daughters) that are also radioactive. In about 4 days approximately half of any group of radon-222 atoms will have decayed into these other atoms (that is, radon has a half-life of about 4 days), emitting alpha particles* in the process. The first four decay products (polonium-218, lead-214, bismuth-214 and polonium-214) are responsible for almost all of the harm associated with exposure to radon. Unlike radon, they are chemically reactive particulates and have much shorter half-lives (less than 30 minutes).

*Alpha particles are produced by one type of radioactive decay and typically transfer most of their energy to nearby atoms within a very short distance. Thus, an alpha particle emitted outside a person's body is much less likely to cause harm than one emitted inside the body.

5. Why is exposure to indoor radon harmful?

Long-term exposure to the short-lived radon decay products is associated with an increase in the risk of lung cancer. The decay products tend to adhere to dust particles or other surfaces and, if inhaled, can also adhere to the airways of the lung. The alpha particles emitted by two of the radon decay products (polonium-218 and polonium-214) can strike cells in the lung and damage them. This damage may lead to the formation of cancerous cells. Radon, on the other hand, is almost chemically inert and an inhaled radon atom is very likely to be exhaled before it decays. Thus, the main risk from radon is lung cancer associated with breathing in its short-lived decay products.

Estimates of the risk of lung cancer due to radon exposure are based on studies of workers in underground mines who were exposed to radon. These workers developed lung cancer at a higher rate than that observed in the general population. Although the epidemiological evidence is not directly applicable to people who do not work in mines, it is an adequate basis for concern about indoor radon exposure.

6. What are the measurement units for radon and radon decay products?

Radon is measured in terms of picocuries per liter (pCi/l). One curie equals 37 billion radioactive decays per second, and one picocurie is one-trillionth of a curie. Radon decay products, however, are measured in terms of working levels (WL). A WL is a measure of how much alpha particle energy will be eventually released in air by the short-lived radon decay products. It is roughly proportional to the concentration in air of the short-lived radon decay products.

One pCi/l of indoor radon is usually assumed to result in 0.005 WL under typical conditions in a building.

7. How harmful is radon?

Insufficient data exist to define an average residential radon level, but a reasonable assumption is about 1 pCi per liter of air. In terms of an individual's risk, exposure over a lifetime at that level gives rise to about 4 chances in 1000 of developing lung cancer. For long-term exposures at higher levels, an individual's risk is proportionately larger than the estimated risk for exposures at the assumed average level.

8. Why do radon levels vary from one building to another?

Many different factors affect the radon concentration in a building. These include building type, local geology and climate, and occupant activities. Differences in these factors can cause the annual average indoor radon concentrations to be as much as 100 times greater in one building than in another. These variations make it very difficult to predict areas of the country or houses that will have elevated indoor radon concentrations. Some of the more important factors affecting radon concentrations are:

- o Soil characteristics - The potential for indoor radon increases with increasing permeability and radium content of the soil. Clays and water-laden soils, for example, are likely to retard the flow of radon.
- o Building type - The type of structure and its design affect the amount of area in contact with the soil, the air exchange rate in the building, and the number and size of entry points for radon. For example, homes with well-ventilated crawl spaces are likely to have less radon than other homes on the same site.
- o Foundation condition - Cracks and openings in the foundation walls and floor can serve as entry points for radon.
- o Occupant lifestyle and weather - Both of these can affect the ventilation rate for a building and, hence, the degree to which radon or any other indoor pollutant is trapped inside.

9. How can the radon level in my home be determined?

For specific information on any testing program that might be available in your area, contact the radiological health office in your State or Local Health Department. You may also check whether your local utility company has a program to evaluate the effects of energy conservation measures on indoor air quality.

When measuring indoor radon, it is important to consider changes in radon concentrations over time. Indoor concentrations can vary on an hourly, daily and seasonal basis. For example, measurements made during a mild spring may underestimate the annual average because of good house ventilation from open windows. Similarly, indoor levels during a cold winter may be higher than average because the house is sealed up. Thus, longer term measurements (6 months to 1 year) made in structure during normal use generally provide more reliable estimates of the average indoor radon concentration. Shorter term measurements made under controlled conditions by trained personnel can also provide reliable information.

EPA knows of only one company that offers radon detectors and the necessary processing services to the general public: Terradex Corporation, 460 North Wiget Lane, Walnut Creek, California 94598, (415) 938-2545. However, by providing this information we are neither endorsing nor recommending their services.

EPA is not aware of any company that provides homeowners with an economical, highly accurate, and practical means of measuring the decay products of radon.

10. What can be done about elevated radon levels in buildings?

Two approaches to reducing exposure to indoor radon are (1) to prevent radon entry into a building and (2) to remove radon or radon decay products already in a building. The first approach is the more desirable, especially if accomplished in a manner that does not require maintenance or checks. EPA and other agencies have projects to develop cost-effective methods for both approaches. Some measures being considered in those projects are:

- o Seal cracks and openings (such as basement drains and utility openings) in the building foundation with sealants such as caulking or epoxy sealants.
- o Ventilate crawlspaces or underfloor areas such as sumps or other drain systems.
- o Seal tops of hollow concrete block with plugs of concrete.
- o Cover exposed earth inside or under the building using concrete or a tightly sealed polymeric vapor barrier.

- o Control the ventilation rate in a building through the use of air-to-air heat exchangers.
- o Remove the dust from the indoors with good-quality air cleaning systems such as electrostatic precipitators. This method does not prevent radon entry but can reduce the concentration of radon decay products attached to dust particles.

11. Is any published information readily available?

Many articles on radon have been published by government agencies and in scientific journals. Most of these articles address specific problems or topics and may not be helpful to those people seeking a broader discussion of the problem. The first reference below is an entire issue of a technical journal and addresses many of the problems on indoor radon. The second provides information for readers with little scientific training. Both publications are likely to be available from central or university libraries.

1. August 1983 issue of Health Physics (Pergamon Press).
2. June 1984 issue of New Shelter magazine (Rodale Press).

Lab hopes to be ready for any new water crisis

By DAVE DRURY

Staff Writer

WILKES-BARRE — In public health emergencies, decisions must be made quickly based upon the best, most accurate information available.

Wilkes College hopes to be able to provide such information should another waterborne disease outbreak strike.

Plans are under way to establish an independent microbiological water quality laboratory under the direction of Michael Case, assistant professor in the earth and environmental sciences department.

Such a lab would have come in quite handy in December 1983, when giardiasis first raised its ugly head, Case said.

"If what we're envisioning now had been in place Dec. 26, we could have analyzed samples and provided information to DER much more rapidly," he said.

Instead, the Department of Environmental Resources (DER) had to wait for days to get samples taken and analyzed by the U.S. Environmental Protection Agency.

Wilkes began testing for Giardia lamblia earlier this year in its existing water quality lab, which was established primarily to test for inorganic materials.

An independent lab would allow for faster, more accurate giardia testing, plus enable testing for other pathogens, disease-causing organisms such as salmonella, chigella and campylobacter, said Brian Redmond, associate chairman of



TIMES LEADER/JOHN BACHMAN

Dr. Michael Case, left, and Dr. Brian Redmond in the Wilkes College water quality testing lab

the earth and environmental sciences department.

Following faculty review, planners will seek federal and state grants to fund the initial cost, which is projected at \$50,000. That money will be spent on additional

lab equipment, primarily microscopes, Case said.

Operation of the lab, expected to cost \$60,000 a year, will be funded through additional grants and testing fees, Case said.

The lab is designed to be self-

supporting: "The college doesn't need to kick in thousands every year," Case said.

Plans are to seek initial funds in late October or early November, in hopes of having the lab ready to open by year's end.

T.L. 10/1/84

STL-3/20/88

Layered look

Ground underfoot was eons in the making

By JOE BUTKIEWICZ

Times Leader Staff Writer

WILKES-BARRE — Dig deep enough beneath the city's surface and you'll find a geological layer-cake full of surprises.

Imagine a time when the soft hills around us towered as large as the Andes Mountains.

Or when all of that was leveled and filled with rotting trees and bugs.

Even in the nicer neighborhoods.

As Brian Redmond explains it, the Wyoming Valley has gone through some drastic changes in the past 405 million years.

Redmond, associate dean of the Wilkes College School of Engineering and Physical Sciences, said that long before downtown redevelopment, coal mines, and even the Susquehanna River, there was swamp.

(There was more *before* that, but several hundred million years is the maximum chronology necessary for this story's purposes).

North America was closer to the equator and, as Redmond explains, similar to present-day southern Louisiana and the Mississippi Delta.

The world was flatter and oceans easily swept over and receded from this area. Layers and layers of gunk and sediment began to settle on the surface and solidify into slate, claystone and conglomerate sandstone.

Over a few million years, the deposits became 1,800 feet thick. Now geologists call that type rock the Catskill formation, a layer that is the bedrock of Wyoming Valley and also spreads over much of the surface of Northeastern Pennsylvania.

But that's just the start of it.

As the surface environment changed with shifting oceans and weather patterns, new and different layers formed.

Next, as the swamps drained over a few million years, various beach environments formed, and those deposits hardened into the Pocono Sandstone formation, which is about 600 feet thick in Luzerne County.

The continued ebb and flow of water left residue that created relatively soft shale and sandstone 2,000 feet thick, a layer geologists call Mauch Chunk Shale.

Still later, pebbles and coarser material formed the Pottsville Conglomerate layer, a hard section of sandstone that measures 300 feet thick.

Then, as the sea and coastline moved back and forth and swamps formed again, layers of sediment and rotting trees and bugs formed alter-

nating layers of slate, sandstone and coal.

Geologists know this process was repeated because the resulting Llewellyn layer is 2,200 feet thick, has alternating seams of coal.

That coal would have remained bituminous, or soft coal, no different than the coal mined in the western Pennsylvania, Virginia or many regions of the world, except for one dramatic happening — Africa collided with North America.

Redmond smiled as he described this continental pileup that occurred 200 million years ago and lasted millions of years.

The collision, he said, caused the terrain in eastern Pennsylvania to be shoved, crumple and folded up and down like an accordion, forming the Ancestral Appalachians.

Those mountains were towering, higher than the Andes and perhaps as high as the Himalayas, said Redmond.

The heat and compression of this collision also turned the bituminous coal here into harder, more valuable anthracite coal.

Because the weather in the area was still tropical, however, the rainfall was higher and the erosion greater. Within 100 million years, the mountains were leveled and eroded away, taking 95 percent of the coal.

Thus, 100 million years ago, we started with a clean slate (pun intended).

More seas came and new sediment layers formed. As it drained off, rivers flowed downhill, taking the most recent deposits and digging into the soft portions of what remained of the Ancestral Appalachians.

The old mountains were recycled into the ones that now surround us.

But that's still not the end of it.

Then came the glaciers.

About two million years ago, enormous ice sheets lingered over the area, as far south as about Interstate 80.

As the final glacier began to recede about 10,000 years ago, gradually melting water drained off around the edges and underneath the ice.

The long, flat-bottomed canoe-shape of the Wyoming Valley filled with sand, clay, gravel and soil, that had been swept along by the ice.

The ice disappeared.

Mammals roamed, history proceeded but the loose soil remained, over 100 feet deep in parts of the Wilkes-Barre area, a unique formation geologists call "the buried valley of the Susquehanna."

Wilkes College

News

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Contact: Melissa Meyers
Student assistant
Public Relations

WILKES SCIENCE STUDENTS STUDY SUSQUEHANNA DURING CANOE TRIP

WILKES-BARRE-Fourteen Wilkes College students recently returned from a two-day research trip on the Susquehanna River. The students are members of "Susquehanna River Basin: A Field Study," an earth and environmental sciences course taught by Damon Young, executive director of the Susquehanna River Tri-State Association.

The field study will culminate with a report by the students to the Department of Environmental Resources, detailing the class' findings as well as the results of a survey conducted in every town in the river basin. Through the survey, the students received input from citizens and local governments on issues such as floods, drought, and water quality.

According to Damon Young, "These students already have a good background on the river from their academic work. This field study provides them with valuable first-hand experience on the nature of the river basin itself."

The group traveled from Mehoopany to Tunkhannock in a fleet of nine canoes recently purchased by the college to aid in river

(more)

studies. Each canoe is equipped with water-quality testing apparatus, which the students used to test samples at several points on the river.

The highlight of the trip was a tour of the Procter and Gamble plant at Mehoopany, where students learned about the company's environmental protection techniques such as waste water treatment. The Procter and Gamble tour was conducted by William Eberhart, the plant's environmental engineer.

The trip also included a stop at the Vosburg Tunnel, one of the oldest railroad tunnels in Pennsylvania, and a bird watching expedition at the Tunkhannock bridge.

Chuck Petrillo, Susquehanna River Tri-State Association, talked to the group at Camp Lackawanna, where they spent the night. Petrillo discussed the canal systems and steamboats which operated on the river in the 1800's.

Shown are students before the research trip: kneeling, first row, John Ackerman, Todd Nixon, Chris Way, Dave Longmore, "Jake" James Geis, Dave Kern; standing, second row, Russ Banta, Dr. Brian Redmond, Petrillo, Young, Bonnie Levanovage; standing, third row, William Orr, John Heckel, Ken Yakositis. Len Shebby was absent from the photo.

College news

TZ 4/26/85

WILKES COLLEGE

The Wilkes College Division of Graduate Studies and Continuing Education will offer an introductory astronomy course as part of its fall 1985 curriculum.

"An introduction to the world of astronomy" will be taught by Dr. Brian Redmond, assistant professor, Wilkes College department of earth and environmental sciences, and Peter Lamb, Wilkes College observatory director.

Classes will be held on Mondays to Nov. 18 from 7 to 9 p.m. in Stark Learning Center Room 435.

For information contact the Division of Graduate Studies and Continuing Education at 824-4651, ext. 225.

CV 2/10/89 13

Wilkes dean looks to Swiss landfill fix

Dr. Brian Redmond, associate dean of Wilkes College School of Engineering and Physical Sciences, is helping to address the area's landfill and economic development problems with just one project. He is currently working with a firm exploring an innovative Swiss technique which transforms common garbage into construction materials. When successful in adapting this project to the area, the result will be new

plants, new jobs, more money in the area, and less need for incinerators and landfills.

Redmond and Dr. Umid Nejib, Dean of Wilkes School of Engineering and Physical Sciences, will be traveling to Switzerland in August to examine first-hand a Swiss method that turns trash into a product that can be used as filler for cement blocks. Redmond said the purpose of the trip was to clarify any questions that may arise

when the implementation of the new plants begin here, which will mark the first of their kind in this country.

When the tests are completed, the results will be not only a better reprocessing of waste, but also the creation of two or more new plants and at least 30 new jobs, which would bring approximately \$2 million to the area annually. Also, the nine-month construction period, which will be completed in late 1989, will employ another 50 people.

"This project could make an enormous difference to the area and eventually the environment in the region," said Redmond. "The problem with the other solutions is that they are only partial answers. For example, in the case of incineration, you have the problem of what to do with the ash. With this new project, everything is usable, and there is no combustion."

Redmond explained that the process collects ordinary garbage, then shreds it, dries it, removes the metals from it (so they can be recycled), and bonds it with a plastic-like substance. The result produces pellets which are used as fillers in cement blocks.

"Instead of mixing cement with crushed stone, you'd use the garbage pellets," said Redmond.

The Catrel Corporation of Pennsylvania, a division of Catrel Corporation of Switzerland, contacted Wilkes two years ago and indicated an interest in jointly exploring the possibilities of a new type of waste disposal system. Redmond said the project was received with enthusiasm by Wilkes College, and in turn, the Ben Franklin Partnership, a state-

sponsored group that funds cooperative education/business projects like this.

One final question that was examined was whether or not the process will work as well with American garbage as it did with European garbage, which is known to contain less plastics than the refuse of the United States. The only other area in the nation to explore this process is in San Diego, Calif., at Catrell U.S.A., where the testing has been positive, as it has been here.

The establishment of the municipal garbage processing plants would greatly reduce the need for landfills and provide an alternative to the construction of costly incinerators which cause air pollution.

Shown from left are Dr. Brian Redmond; Dr. James Michael Case, associate professor of Earth and Environmental Sciences, and Lisa Lipowski, a 1988 graduate from Nanticoke, who is holding a handful of the reprocessed pellets.



Dr. Redmond and associates

Wilkes College

News

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contact: Ken Swisher
Assistant Director
Public Relations

WILKES ENGINEERING PROFESSOR HELPING SOLVE LANDFILL PROBLEMS

WILKES-BARRE--Dr. Brian Redmond, Associate Dean of the Wilkes College School of Engineering and Physical Sciences, is helping to address the area's landfill and economic development problems with just one project. He is currently working with a firm exploring an innovative Swiss technique which transforms common garbage into construction materials. When successful in adapting this project to the area, the result will be new plants, new jobs, more money in the area, and less need for incinerators and landfills.

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1ST AD/WILKES PROFESSOR ADDRESSES LANDFILL

When the tests are completed, the results will be not only a better reprocessing of waste, but also the creation of two or more new plants and at least 30 new jobs, which would bring approximately \$2 million to the area annually. Also, the nine-month construction period, which will be completed in late 1989, will employ another 50 people.

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2ND AD/WILKES ENGINEERING PROFESSOR ADDRESSING LANDFILL

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One final question that was examined was whether or not the process will work as well with American garbage as it did with European garbage, which is known to contain less plastics than the refuse of the United States. The only other area in the nation to explore this process is in San Diego, Cal., at Catrell U.S.A., where the testing has been positive, as it has been here.

According to the tests conducted, there is no residue from the process, and since there is no combustion used in the manufacturing of the pellets, gasses are kept to a minimum. It also appears that once the pellets are made, there is no breakdown of material.

The establishment of the municipal garbage processing plants would greatly reduce the need for landfills and provide an alternative to the construction of costly incinerators which cause air pollution.

According to Michael Chapuisat, General Manager, Catrell of Pennsylvania, the only possible roadblocks to the implementation of the project are the approval of the Department of Environmental Resources and zoning ordinances. He also said that research is being done to reprocess sludge in a similiar manner.

"The tonage we take in doesn't have to go to landfills, which are diminishing. We hope the idea will grow and that other area officials will visit here to examine our process and begin similiar projects in their areas. It's not nearly as expensive as

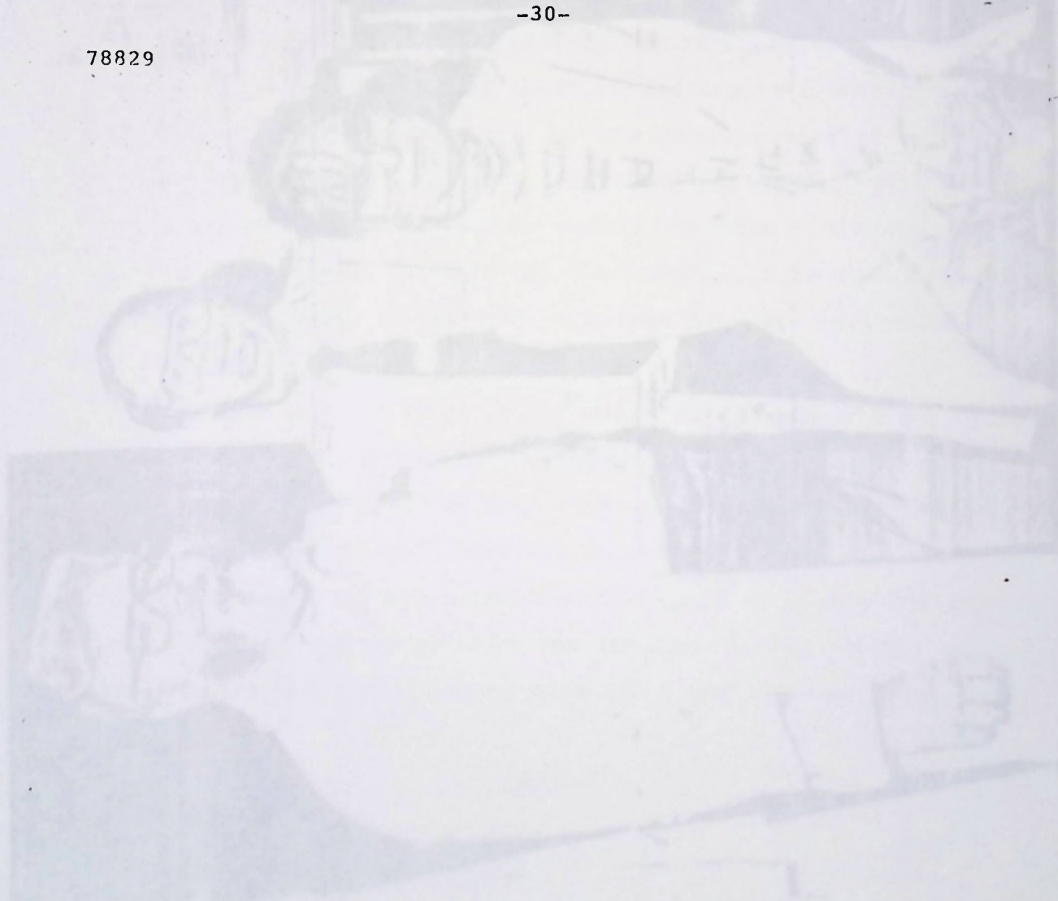
3RD AD/WILKES ENGINEERING PROFESSOR ADDRESSING LANDFILL

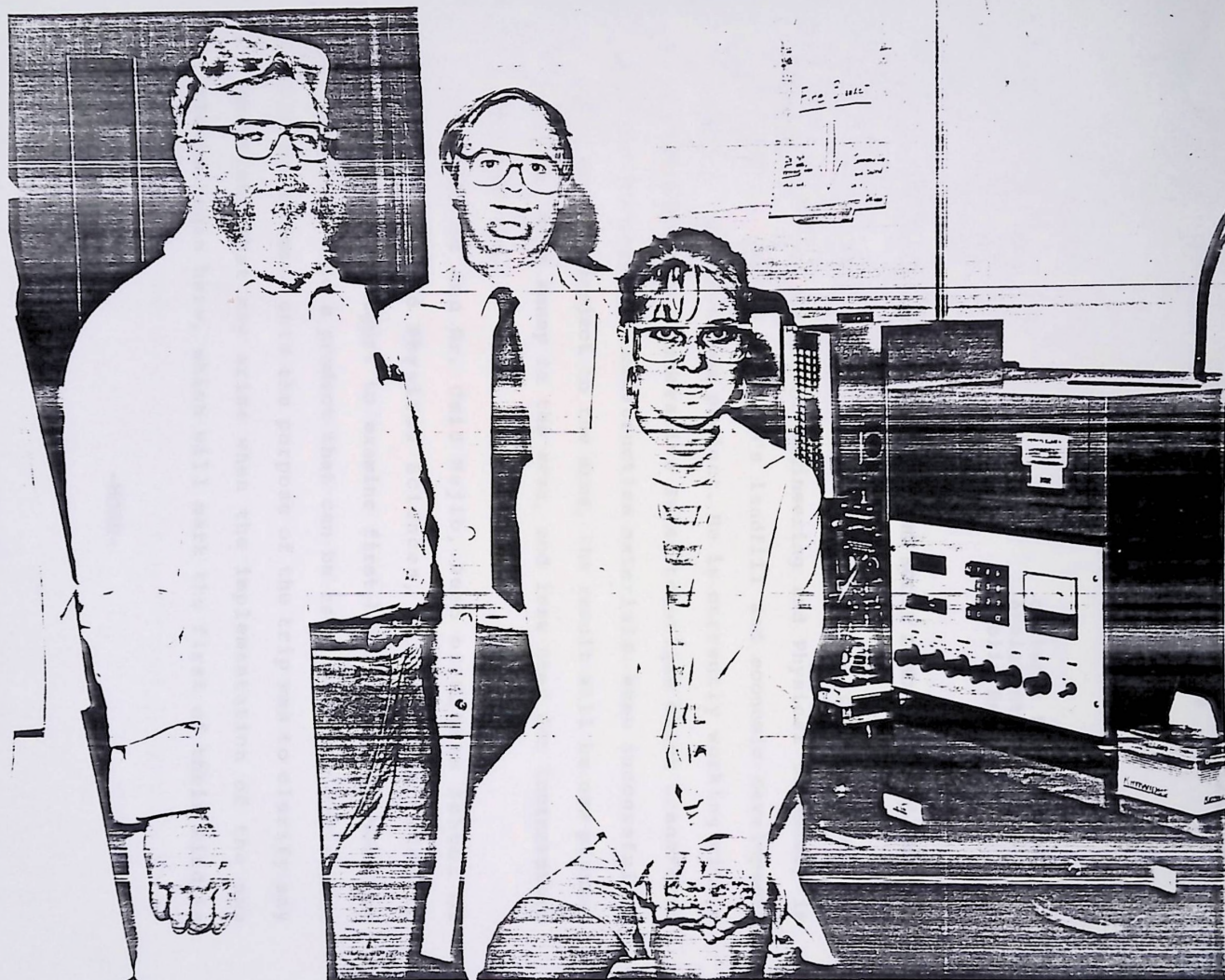
giant incinerators, and you end up with a useful product," said Chapuisat.

PHOTO--Shown, from left, are Dr. Brian Redmond; Dr. James Michael Case, Associate Professor of Earth and Environmental Sciences; Lisa Lipowski, a 1988 graduate from Nanticoke, who is holding a handfull of the reprocessed pellets.

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Wilkes College

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Faculty File

Jane Mangarella
Assistant Director

EXCLUSIVE TO THE CITIZENS' VOICE

WILKES PROFESSOR SAYS EARTHQUAKE IS NOT A PRECURSOR OF MORE TO COME

WILKES-BARRE--The earthquake which originated in Blue Ridge Lake in New York's Adirondack Mountains and reverberated through Northeastern Pennsylvania yesterday, (Friday, October 7) is NOT, according to Wilkes Professor Brian Redmond, a precursor of larger earthquakes." In fact Redmond said, "We have undoubtedly felt the last of it."

Redmond, chairman of the College's Department of Earth and Environmental Sciences, said that the quake was not a phenomenon to this area and further stated that "there is not a single spot on the face of the earth which is free from earthquakes."

"The apparently solid rock on which we stand is really floating on molten rock and like any raft afloat, when there is a shift in weight from one spot to another, the raft moves or shifts." This is essentially what happens when there is an earthquake.

In this particular area of Northeastern Pennsylvania, the number of quakes experienced are few and they are weak. This one, though recorded at a 5.3 on the Richter Scale was approximately a 4.3 by the time it reached this region. The tremors were felt by

(more)

many people but there was no apparent damage.

Redmond commented on concerns voiced by several people about the effect the quake may have had on our particular environment in Northeastern Pennsylvania, such as damage to mines or starting underground fires.

"In mines" he said, "where roofs may already deteriorating, or a support pillar has started to shift, it is conceivable that the tremors could have some effect, but it would be negligible, for example, instead of its taking 100 years to partially collapse it would take about 60 years. The effect on an underground fire would be like shaking a fire down, and might temporarily cause it to flare but again, because it was so fast, it would be insignificant."

Professor assured his listeners that although the experience is frightening it is not likely to occur again for a considerable number of years.

Shown: Redmond (far left) is shown lecturing visiting engineers on a recent tour at Wilkes

Wilkes College

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contact: Melissa Meyers
Assistant Director
Public Relations

DR. BRIAN REDMOND PRESENTS CHILDREN'S LECTURE AT OSTERHOUT LIBRARY

WILKES-BARRE--Dr. Brian Redmond, Associate Chairman of Earth and Environmental Sciences at Wilkes College, demonstrates the workings of a telescope to two area youngsters. The demonstration was part of a special children's lecture on Halley's Comet, sponsored by the Osterhout Free Library. Shown at the library are, left to right: Billy Weidner, Redmond, and Christie Turriziani.

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Faculty File



T.L. 6/15/83

Wilkes prof will lecture on area floods

The Wyoming Historical and Geological Society will present the lecture, "Flooding Along the Susquehanna: Causes and Results," Saturday, June 18 at 2 p.m.

The program will be held on the second floor of the Historical Society's Museum, 69 S. Franklin St., Wilkes-Barre.

Dr. Brian Redmond, assistant professor of earth and environmental science at Wilkes College, will be the lecturer. He was recently awarded tenure at Wilkes College, where next year he will chair the earth and environmental science department.

The lecture is part of the Historical Society's spring lecture series to highlight its exhibit, "Along the Susquehanna: Man and the River," which can be viewed during the museum's public hours, Tuesday through Friday, noon to 4 p.m. and Saturday, 10 a.m. to 4 p.m. Admission is free.

Radon testing topic of lecture at Wilkes

Dr. Brian Redmond of Wilkes College will deliver a lecture entitled, "Latest Developments in Radon Testing and Regulations," at the college in Wilkes-Barre on March 2.

Redmond's talk, to begin at 7:30 p.m. in the Darte Center for the Performing Arts, will include remarks about radon in water and in the soil, and also about the Wilkes radon chamber, one of the largest in the country.

Redmond, who was involved in radon research long before radon became a national concern last fall, is associate dean of the School of Engineering and Physical Sciences at the university.

The lecture is free to the public and part of the college's Faculty Seminar Series.

HSS 2/21/89 30

Prof gives facts on radon danger

By ALAN BONE

Times Leader Correspondent

WILKES-BARRE — The recently much-publicized radon problem, unlike most of today's environmental hazards, is "natural, not man-made," Dr. Brian T. Redmond told an audience gathered at Wilkes College's Dorothy Dixon Darte Center Thursday night.

About 100 Wilkes College students and staff and townspeople showed up for the first in this season's series of Wilkes College Faculty Seminars.

Redmond, associate professor of geology and associate dean of the college's School of Engineering and Physical Sciences, pointed out that radon, a gas, is one of the elements, produced by the decay of the radioactive element radium.

The major health hazard radon has been found to pose is to the lungs, especially the chance of developing cancer, Redmond said.

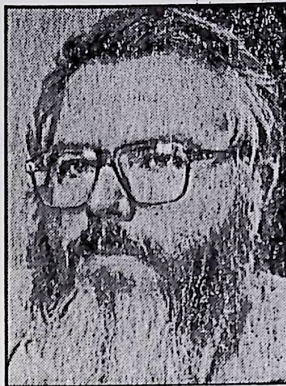
"The higher the levels of radon present in your house," he continued, "the greater the chance of developing lung cancer."

Redmond noted that the breaking point between "safe" and "hazardous" levels of the gas according to Environmental Protection Agency standards is 4 pico/curies per liter of air.

"At levels less than 4," he said, "you've got other more important things to worry about. Even a 15 level is no worse than smoking approximately one and a half packs of cigarettes per day."

Redmond called readings between 4 and 20 a "gray area," but warned that any higher levels call for definite action to protect health and perhaps lives. Many buildings in this area, he said, have been found to have readings into the 50s.

Although radon was not recognized until quite recently as a significant health threat, Redmond urged testing of private and public buildings. He esti-



Brian Redmond
Urges testing

sylvania perhaps two out of four buildings have high radon levels.

Redmond warned that owners or those responsible for public buildings should learn from the asbestos problem.

"If you don't test and do have the problem," he said, "you could be sued 20 years down the line."

Addressing the best methods of testing a building for the gas, Redmond reminded his listeners that it enters a building from the ground below, so that basements have the highest concentration. To get the truest reading, one should close the house to the outside completely for four to 12 hours before making the test.

Redmond recommended a test using a small canister of activated charcoal exposed for about 40 minutes.

Questioned about the accuracy of the quick tests, Redmond contended that they have gotten a bad name primarily because many firms are in the testing business for a profit.

"You can make twice the money on 20-minute tests that you can on 40-minute ones," he said.

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3/3/89
18

Dr. Redmond to speak on radon at Dart Center

Dr. Brian Redmond, Associate Dean of the School of Engineering and Physical Sciences at Wilkes College, will speak on radon Tuesday, March 2, at 7:30 p.m. in the Dart Center for the Performing Arts on the corner of South and South River Streets. The lecture, which is open to the public free of charge, is part of the college's Faculty Seminar Series.

Dr. Redmond's talk "Latest Developments in Radon Testing and Regulations," will include remarks about radon in water,

radon in soil, and Wilkes radon chamber, one of the largest in the country.

The Shavertown resident was involved in radon research long before it became a national concern in the fall of last year following a federal Environmental Protection Agency (EPA) warning that radon was much more pervasive than previously believed. Last fall federal officials issued a national health advisory saying that millions of homes have elevated radon levels.

DP 2/22/89 p.4

**Community News
Meetings
Events**



Town Crier

Dr. Redmond will give lecture on radon

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The Shavertown resident was involved in radon research long before it became a national concern in the fall of last year following a federal Environmental Protection Agency (EPA) warning that radon was much more pervasive than previously believed. Last fall federal officials issued a na-

tional health advisory saying that millions of homes have elevated radon levels, and to help keep the public informed, Dr. Redmond participated in an information seminar at Wilkes. The discussion addressed the questions of "What is radon?", "How to Test for Radon" and "What to do about Radon Correction".

Dr. Redmond's research activities have included obtaining a \$35,000 grant from Pennsylvania Power and Light (PP&L) to establish a background radiation monitoring and analysis laboratory in 1981. He also received a summer fellowship from PP&L to study low-level radiation monitoring and analysis at the Penn State Breazeale nuclear reactor in 1983 and in 1985 he conducted a study of radioiodine for PP&L in sewage and river water. From 1985-87, he conducted an ongoing indoor radon survey of Eastern Pennsylvania, and he participated in the construction of Wilkes

radon chamber last fall.

He is a member of and/or has held office in nearly 20 national and regional, professional societies including the Governor's Radon Advisory Board (Vice-Chairman); Department of Environmental Resources ad hoc committee on Radon Certification; and the Northeastern Pennsylvania Environmental Council (Chairman, Technical Advisory Panel).

Dr. Redmond supervised the construction of more than 600 water wells in the United States and the Caribbean; conducted numerous groundwater pollution studies; characterized soils and geology for seven landfills, and designed several spring water systems and monitoring well systems.

Dr. Redmond earned a B.S. in Geology and an M.S. in Sedimentology from Michigan State University, and a Ph. D. from Rensselaer Polytechnic Institute.

2/19/89

6A The Times Leader, Wilkes-Barre, PA, Sunday, February 19,

Radon developments will be topic of talk

WILKES-BARRE — Brian Redmond, associate dean of the School of Engineering and Physical Sciences at Wilkes College, will lecture on the subject of radon on Tuesday, March 2.

The lecture, which will be at 7:30 p.m. in the Darte Center for the Performing Arts on campus, will be free and open to the public. It's part of the college's Faculty Seminar Series.

Redmond's talk, "Latest Developments in Radon Testing and Regulations," will include remarks about radon in water, radon in soil and Wilkes' radon chamber, one of the largest in the country.

The Shavertown resident was involved in radon research long before it became a national concern in the fall of last year following a federal Environmental Protection Agency (EPA) warning that radon was much more pervasive than previously believed.

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Brian Redmond

Wilkes College

News

OFFICE OF PUBLIC RELATIONS • WILKES-BARRE, PENNSYLVANIA 18766
TELEPHONE: (717) 822-8413



EXCLUSIVE PHOTO

contact: Ken Swisher
Assistant Director
Public Relations

WILKES FACULTY SEMINAR SERIES CONTINUES WITH REDMOND ON RADON

WILKES-BARRE--Dr. Brian Redmond, Associate Dean of the School of Engineering and Physical Sciences at Wilkes College, will speak on radon Thursday, March 2, at 7:30 p.m. in the Dante Center for the Performing Arts on the corner of South and South River Streets. The lecture, which is open to the public free of charge, is part of the college's Faculty Seminar Series.

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1ST AD/REDMOND TO SPEAK ON RADON

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2ND AD/REDMOND ON RADON

systems and monitoring well systems.

Dr. Redmond earned the B.S. in Geology and the M.S. in Sedimentology from Michigan State University, and the Ph.D. from Rensselaer Polytechnic Institute.

PHOTO--Shown outside Wilkes radon chamber, standing from left: Russ Hendershot, President of TEQ, a local radon testing company; Dr. Umid Nejib, Dean of Wilkes School of Engineering and Physical Sciences; Redmond; and Jack Madden, Science Officer, Nuclear Energy Board, Republic of Ireland, who toured the chamber recently. Seated is Dr. Roger Maxwell, Associate Professor of Physics and Director of Wilkes Radon Laboratory.

2ND AD/REDMOND ON RADON

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PHOTO--Inside Wilkes radon chamber, Redmond (left) speaks with U.S. Senator Arlen Specter, who toured the radon laboratory last December, and Dr. Roger Maxwell, Associate Professor of Physics and Director of Wilkes Radon Laboratory.

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10/23/92
Citizens' Voice, Wilkes-



Conservation District Week being observed in county

Luzerne County commissioners at their meeting this week at the courthouse proclaimed Oct. 19-23 as "Conservation District Week" in recognition of the service provided by the Luzerne County Conservation District since its organization in February 1964.

From the left are Commissioners Jim Phillips, Frank Crossin and Rose Tucker, Theresa Wallace, district administrative assistant and secretary, and Dr. Brian Redmond of Dallas, chairman.

The district is involved in the conservation of natural, scenic, historic and aesthetic resources of

the county and promotes sound land use management. It provides service to landowners and landusers in the development of natural resource management plans; provides consultative assistance to municipalities; sponsors flood protection projects and watershed management planning, and conducts informational and educational programs for the general public.

Information on specific programs and services of the district can be obtained by contacting the district at the courthouse annex, 5 Water St., Wilkes-Barre, telephone 825-1844.

CITIZENS' VOICE
WILKES-BARRE, PA
AM-50,000

River association will meet Monday

The Susquehanna River Tri-State Association will hold its summer board of directors meeting on Monday, Aug. 19 at 1 in the Hartline Science Center at Bloomsburg University.

One of the major functions of the association is to insure the orderly development and use of the Susquehanna River and its watershed through public education and the

sponsorship of water-related research projects.

Serving as officers of the 25 member board are Dr. Brian Redmond, Wilkes College, president; Mary Dolan, regional planning council, Baltimore, Md., vice president; Gerald Farver, community affairs, PP&L, Allentown, vice president; Robert Yowell, Lock Haven, treasurer; William Toothhill, Wilkes-Barre, executive director.

Joseph McCarthy, a Bloomsburg University senior majoring in environmental planning, will serve as an intern in the association's Wilkes-Barre office during the fall semester. Professor James Lorelli is the coordinator of the environmental planning program in the Department of Geography and Earth Science and assists Professors John Serff and Brian Johnson in the internship program.

OCT 13 88

Pike County Dispatch
MILFORD, PA
W-3,200

Hires own experts

'Partnership' sells shares

MILFORD — The Pike Partnership, an alliance of builders, realtors and attorneys fighting the proposed upgrade of the Sawkill watershed to "Exceptional Value" (EV), is soliciting funds to help underwrite the costs of "two highly reknowned (sic) and completely independent sources" that have been hired to evaluate environmental and economic factors.

The Partnership has hired Dr. Brian Redmond, Hydrotech Ltd., a Wilkes College hydrogeologist, to investigate public and private data, and provide specific recommendations "for the best way to protect the Milford water supply and insure clean stream water."

Also The Pa. Economy League, based in Harrisburg, which for years has analyzed the taxation and spending habits of public bodies. PEL is expected to provide "an economic impact study" of the proposed upgrade.

"The Pike Partnership has no preconceived agreement as to what these reports will disclose. We believe they may be supportive of seeking other alternatives to an EV upgrade. Regardless of the outcome, we believe such reports are essential because of the complexity of the issues and its impact on property rights," the Partners state in a direct mailing to several persons, including their employees, seen as potentially sympathetic to their cause.

The Partnership has budgeted \$20,000 for the reports and its position paper, that will be presented at the Oct. 25 hearing at Hunt's Landing on the EV issue. A "minimum donation" of \$100

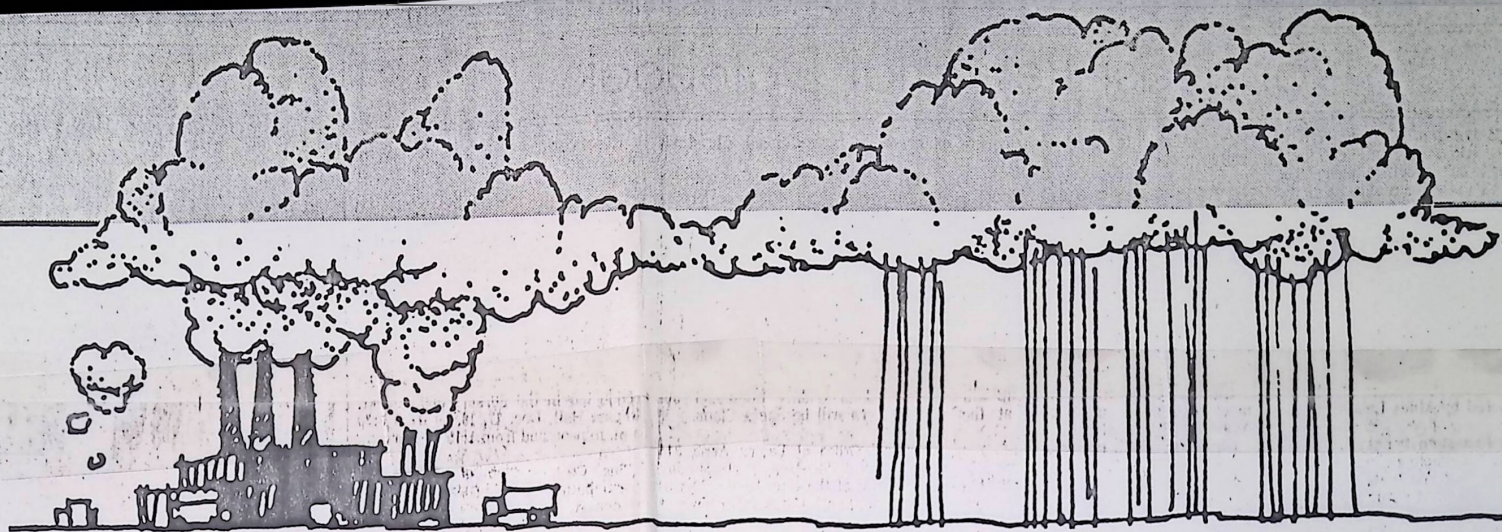
will entitle donors to a complete transcript of the Aug. 17 informational meeting held by the Pa. Dept. of Environmental Resources at the Pike County Courthouse

In their statement, the Partnership maintains that the DER recommendation to upgrade the watershed was made "without proper and logical local government input; without proper stream quality analysis; and without any consideration of the economic impact."

They state that water quality may be upheld through enforcement of current regulations, and that the EV upgrade will adversely affect property owners in the watershed, and even beyond, by establishing a precedent.

At the DER informational meeting, state officials said that it would likely halt major commercial or industrial development, although the present pattern of single-family homes on large lots could most likely continue unaffected.

3



Acid Rain: a Contemporary Threat

(First of Two Parts)
The trickling rain doth fall
Upon us one and all.

In *A Madrigal*, E.C. Stedman was praising the rain for its efficacy and the benefits that it brings to everyone.

Stedman lived in days different from ours. There were fewer homes burning less fossil fuel. And industry had not yet reached the mega-plant stage that allowed it to heave huge clouds laden with sulfuric and nitric acid and other pollutants into the atmosphere.

Certainly the air was being insulted with chemical pollution then, but the sheer volume being experienced today had no parallel in Stedman's era.

However, as the poet put it, that rain falls on each and every one of us. The problem with that in the case of Pennsylvania is that the state is the epicenter of acid rain pollution in the entire United States. What that means is that we catch the brunt of what is spewing from homes and factories throughout much of the balance of the nation.

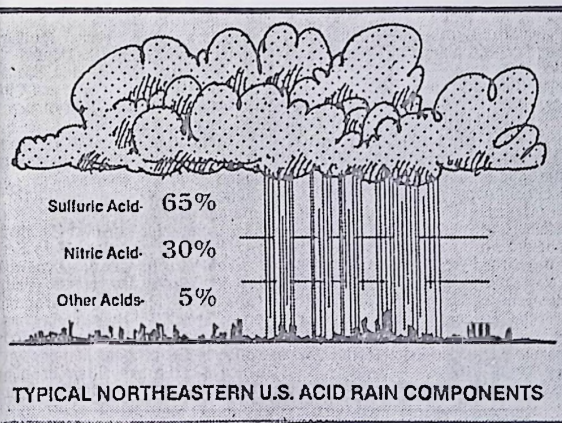
Part of the problem is the pollution itself. The other part is simply a quirk of nature. The prevailing wind patterns carry that pollution right over the Keystone State where it precipitates out. In fact, the most polluted waterway in America is only a couple of hours west of the Scranton area.

Pennsylvania is, in essence, in the eye of the acid rain-storm.

Throughout history, and the consideration of floods aside, rain has always been viewed as the bringer of life-giving fluids. Then, in September 1978, some acid rain fell in Harrisburg with the ability to inflict paint damage on at least 200 cars.

Prior to about 1978, the term acid rain was something restricted in its use primarily to the scientific community.

Now, though, it is part of the common vocabulary and people worried about the implications of it. From the out-



tween acidified to moderately sensitive, with three being extremely sensitive. The weighted mean pH of precipitation falling over Milford (Pike County) in 1982 was 4.17.

So that people may become aware of the daily pH factors, said Lavelle, his agency has undertaken a program similar to that used by the National Wildlife Federation to issue updated figures. "People here are just beginning to perceive (acid rain) as a threat," he said, adding that "concern is growing mainly among high school and college-age people."

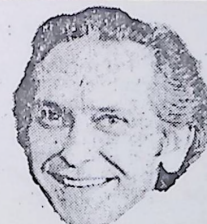
He observed that normally these two groups reflect the thinking of their parents but, in this case, the youngsters actually are the ones informing their elders of the potential problems.

The local monitoring and public information that is provided by NEPEC actually is carried out by a student at Wilkes College, working under the direction of Dr. Brian Redmond, chairman of the Earth and Environmental Sciences Department.

As to the success of the National Wildlife Federation to get television stations to broadcast the daily data, Lavelle said: "There are only 10 stations in the country that do it, and that includes both Channel 16 and Channel 28 in this area. The others are eight stations in Maine." Elsewhere, there is apathy to the need for such public information.

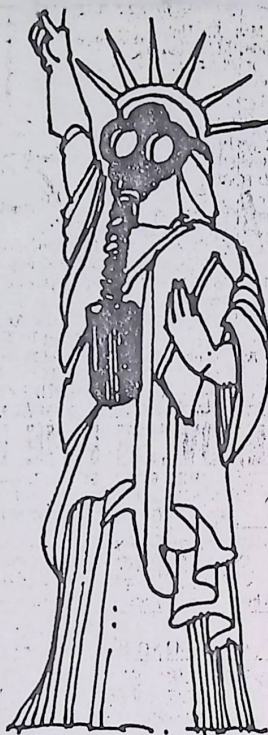
Lavelle, like many of his colleagues in the environmental-protection movement, feels that "The problem lies

By DANIEL L. CUSICK
Times FOCUS Writer



focus

neutral between acid and alkaline Natural Sciences, (this region) re-



In 1979 New York State, along with other states, protested a proposed relaxation of emission limits pertaining to two Ohio river power plants. In the protest, a New York official asked that air be regarded as "a flowing river which can transport contaminants from one part of the nation to another. Airshed boundaries," the official stated, "must be reevaluated to make sure all states live up to the same clean air goals."

problem. And from the same time, there has been more energy expended on study after study of the situation and the conditions than has been put forth on the solutions to the problem.

In 1978, Dr. Lowell Smith, a researcher for the U.S. Environmental Protection Agency, said sulfates in the atmosphere cause 145,800 to 180,000 "excess" deaths a year in the United States, largely from heart disease.

That was at a time when Pennsylvania's Department of Environmental Resources planned to sue the state of Ohio, EPA and the Cleveland Electric Illuminating Co. over air quality and when the state had sued EPA over permitting lower emission standards at West Virginia plants.

As with many such actions, those two got bogged down in bureaucratic maneuvering and protectionism.

To show basically where the efforts to clean up the air have gone since then, the statement on Nov. 28, 1984, by the chairman of the Pennsylvania Legislative Acid Rain Caucus bears reading. Rep. John Bruojos, an Adams County Democrat, stated that the state's coal industry could be hurt by attempts to curb acid rain, but no action at all would hurt the state even more.

"We have to look at the entire Pennsylvania economy, the entire environment," Bruojos offered. "The cost to us would be greater if we don't take action."

The panel, which held hearings on the issue, called acid rain an "interstate problem requiring an interstate solution" on the federal level. That sounds like something straight out of the mouths of the 1978 committees involved with, and worried about, acid rain. And, as in the past, the committee has vowed to go to the nation's capital to carry Pennsylvania's message of concern. It sounds like an old refrain of approach and rebuff through immobility.

What the Pennsylvania contingent is trying to tell the federal government, for example, is that Crooked Creek Lake, in Armstrong County, is considered the most polluted lake in the country. In 1982, it showed a pH level of 3.98. Also, Yellow Creek State Park, Indiana County, averaged precipitation with a pH factor of 4.02 in 1983. That level puts the rainfall in those areas in a category more acidic than vinegar.

One effect of such a level is that lakes and waterways gradually have lifeforms eliminated. At the 4.0 pH level, whirligigs and water boatmen, two common pond insects are about all that will remain alive. Killed off will be smallmouth bass, lake trout, brown trout, yellow perch, salamanders, mussels and even those pesky mayflies.

For a comparison, the pH level of battery acid is 1.0, and that of distilled water is 7.0, which is just about

of the water. In the United States, it is interesting that in 1930 the lakes of the Adirondacks had a pH level of about 6.4 — about as close to pristine as it can get. That has fallen, in those same lakes, to somewhere near the 4.0 to 4.5 pH range.

Patrick Lavelle, executive director of the Northeastern Pennsylvania Environmental Council, told FOCUS that acid rain is "one of the most environmentally damaging and complex issues of our day."

Lavelle continued, "It is a problem which confronts us as a nation and we in Northeastern Pennsylvania have a vital interest in the solution of this problem."

NEPEC has spent 15 years in an attempt to educate the public of the region about acid rain and other threats to the environment. It is an outgrowth of the older Luzerne-Lackawanna Environmental Council, better known as Lu-Lac.

According to Lavelle, "Acid rain occurs when emissions of sulfur dioxide combine with the oxygen in the atmosphere. Through a chemical process, it is converted to sulfuric acid and that precipitates as acid rain. Northeastern Pennsylvania is the epicenter for acid rain in the country. According to the Academy of

Nov. 4 was 700 times more acidic than normal unpolluted rain. As a state, Pennsylvania has felt the damages of acid rain through the acidification and loss of life in numerous lakes and streams."

To back up his contention, Lavelle cited the research of Patricia T. Bradt and Martin B. Berg, of the Lehigh University Department of Biology, in Bethlehem. The pair of biologists reported in a preliminary survey of Pocono Mountain lakes that "Ten lakes in the area of eastern Pennsylvania were sampled chemically in 1981 to determine their sensitivity of effects from acid deposition. The pH of precipitation (there) averages from 4.1 to 4.3. When acid precipitation falls on a lake with low alkalinity the pH of the lake may be decreased to a level past which fish, macroinvertebrates or algal populations may be reduced and/or altered."

Those 10 lakes were in Monroe, Pike and Wayne counties and were chosen after conference with state and federal authorities with knowledge of the Pocono region. The lakes are Long Pond, Reservoir 7, Lacawac, White Deer, Bruce, Minisink, Silver, Pocono Plateau, Mountain and Deep. With only three exceptions, all were stream- or spring-fed.

Analysis showed them to range be-



The Canadian Sudbury smelters have one of the tallest stacks in the world, nearly a quarter of a mile high — as high as the Chicago Sears Tower. A main concern is the transboundary exchange of pollutants between Canada and the United States.

the solution lies in the reauthorization of the Clean Air Act. But people like Congressman (Dennis E.) Eckart of Ohio, stop all bills on the subject in committee."

The NEPEC executive director also scorns the Band-Aid approach to ensuring life in the waterways of the state. He related that there is a breed of trout that has become more tolerant of the higher acidity in streams, and that is being used as stock. But that doesn't settle the initial problem. "Also," he said, "agricultural production is down from the effects of acid rain which can stunt plant growth."

But plants and fish are not the only elements to suffer from the problem. Since people eat those, they also are being affected.

And there is yet another type of victim — the very buildings we live in and the stone adornments put on them. Acid rain falls on the masonry and marble, forms a crust which eats at the material, then is washed away along with the stone by subsequent rains. Lavelle noted that that is one of the reasons for the decay that now is being repaired on America's national symbol, the Statue of Liberty.

"Drinking water is becoming more acidic," said Lavelle. "That can leech copper and lead from the plumbing and put it into the water we consume. As we excrete them in a more concentrated form and they end up at a water treatment plant, they become even more concentrated and are returned to the public water system. The sludge from those plants is converted into fertilizer and cattle feed which, in turn, is consumed by humans and the whole process becomes cyclical. And the higher the concentrations become, the less usable are the sources."

One of the problems that has evolved from the increased acid rain is mutual recrimination between the public, governments and industries. Each wants to lay the major blame on the others when, in reality, all are contributors to the dilemma.

Members of the public and some of the more intense advocacy groups blame industrialists for spewing the highly acidic fumes from their plants into the air. The industrialists vow that because of increased use of nuclear fuels and smoke scrubbing devices, they are actually polluting less than the homes burning coal and wood in their furnaces and stoves.

Meanwhile, many governmental agencies make more studies that lead to still more studies with less results and waffle about what can be done, not wanting to offend either side since votes and support come from both of the contending factions.

The upshot is that all sides continue to lose natural resources and have increasing health dangers as a bitter harvest in the matter.

(Wednesday: Solutions)

OVER THE LAST FEW CENTURIES THE HUMAN POPULATION HAS FINALLY REACHED A POSITION WHERE IT COULD AFFECT GLOBAL CLIMATE. OF COURSE, THIS IS NOTHING NEW FOR LIFE IN GENERAL. PRIMITIVE PLANTS BILLIONS OF YEARS AGO GREATLY CHANGED THE COMPOSITION AND THICKNESS OF EARTH'S ATMOSPHERE THROUGH PHOTOSYNTHESIS WHICH NOT ONLY RELEASED OXYGEN TO THE ATMOSPHERE BUT ALSO REMOVED CARBON DIOXIDE FROM IT. THE EARLY ATMOSPHERE WAS DOMINATED BY CARBON DIOXIDE AND HAD NO FREE OXYGEN, RATHER REMINISCENT OF THE PRESENT-DAY ATMOSPHERE OF VENUS.

CARBON DIOXIDE GAS, LIKE OTHER ATMOSPHERIC GASES, IS TRANSPARENT TO VISIBLE LIGHT WHICH IS JUST AS WELL OR OURS WOULD BE A VERY DARK, COLD WORLD. BUT WHEN THE SUNLIGHT STRIKES THE EARTH'S SURFACE, SOME OF IT IS ABSORBED AND THEN RE-EMITTED AS THE LESS ENERGETIC, LONGER-WAVED, INFRARED RADIATION. AT THIS POINT, CARBON DIOXIDE AND TO A LESSER EXTENT, SOME OTHER GASES SUCH AS WATER VAPOR, PLAY A CRUCIAL ROLE. WHILE CARBON DIOXIDE WILL READILY PERMIT THE PASSAGE OF THE VISIBLE LIGHT, IT WILL BLOCK THE PASSAGE OF SOME OF THE INFRARED WHICH THEN REMAINS TRAPPED IN THE ATMOSPHERE AND WARMS IT UP SLIGHTLY. THE EARTH TODAY, WITH ITS SMALL AMOUNT OF ATMOSPHERIC CARBON DIOXIDE, SOME 0.3%, IS ABOUT 40 DEG. F. WARMER THAN IT WOULD BE WITHOUT AN ATMOSPHERE AT ALL. VENUS, BEING 26 MILLION MILES CLOSER TO THE SUN, MIGHT BE EXPECTED TO BE HOTTER THAN THE EARTH BUT THE TEMPERATURE ON VENUS IS HOT ENOUGH TO MELT LEAD AND IS HOTTER EVEN THAN THE HOT SIDE OF MERCURY -- THE PLANET CLOSEST TO THE SUN. THE DIFFERENCE IS IN THE ATMOSPHERE. NOT ONLY IS THE VENUSTAN ATMOSPHERE DOMINATED BY CARBON DIOXIDE, IT IS 90 TIMES AS DENSE. IF VENUS HAD THE SAME ATMOSPHERE AS THE EARTH, THE TEMPERATURE AT ITS NORTH POLE WOULD BE ON THE ORDER OF 90 DEG. F. -- STILL QUITE WARM BUT NOT OUTRAGEOUSLY SO.

HUMANITY'S RECENT CONTRIBUTION TO WORLD CLIMATE HAS BEEN THE BURNING OF FOSSIL FUELS WHICH DOES 2 THINGS: IT ADDS CARBON DIOXIDE TO THE ATMOSPHERE BUT IT ALSO PRODUCES PARTICULATES. THE PARTICULATES WOULD TEND TO HAVE THE OPPOSITE EFFECT ON TEMPERATURE, RENDERING THE ATMOSPHERE LESS TRANSPARENT AND THEREBY PERMITTING LESS SUNLIGHT TO REACH THE EARTH'S SURFACE. WHEN THE VOLCANO ON THE ISLAND OF KRAKATOA ERUPTED 100 YEARS AGO IN THE DUTCH EAST INDIES, SO MUCH VOLCANIC DUST AND ASH WAS PUT INTO THE ATMOSPHERE THAT THE FOLLOWING YEAR WAS KNOWN AS THE YEAR WITHOUT A SUMMER. THE LESSER ERUPTIONS OF MT. ST. HELENS APPARENTLY HAD A NEGLIGIBLE EFFECT ON TEMPERATURE BUT OUR INDUSTRIES, UTILITIES, AND EVEN AUTOMOBILES, WHEN COMBINED, FAR OUTSHADOW MT. ST. HELENS -- AND THEY ARE CONTINUOUS. SCIENTISTS FEEL THAT THE IMPACT WILL NOT BE NEGLIGIBLE BUT THERE HAS BEEN QUITE A CONTROVERSY OVER WHETHER THE COOLING EFFECT OF THE PARTICULATES OR THE HEATING EFFECT OF THE CARBON DIOXIDE WOULD BE MORE IMPORTANT.

A CHANGE OF ONLY A FEW DEGREES IN AVERAGE WORLD TEMPERATURE COULD HAVE A LARGE EFFECT ON WORLD CLIMATE. IF THE AVERAGE TEMPERATURE DROPPED A FEW DEGREES, IT COULD TRIGGER A MAJOR GLACIAL ADVANCE. IF THE TEMPERATURE ROSE A FEW DEGREES, IT COULD RESULT IN THE MELTING OF THE ICECAPS -- RAISING SEALEVEL OVER A HUNDRED FEET. NEITHER OF THESE EFFECTS WOULD OCCUR OVERNIGHT BUT WOULD HAPPEN GRADUALLY OVER THOUSANDS OF YEARS. THESE EFFECTS ARE POSSIBLE BECAUSE A CHANGE IN THE AVERAGE TEMPERATURE OF, SAY, TWO DEGREES WOULD NOT BE EVENLY DISTRIBUTED OVER THE EARTH. THE TROPICS MIGHT

58 EXPERIENCE A CHANGE OF ONLY HALF A DEGREE BUT THE POLAR LATITUDES
59 MIGHT SEE A CHANGE OF 6 TO 8 DEGREES. CHANGES WOULD ALSO BE SEEN
60 IN RAINFALL AND OCEAN CURRENT PATTERNS. NOT MUCH MORE THAN 10
61 THOUSAND YEARS AGO, NORTHEASTERN PENNSYLVANIA WAS COVERED BY
62 GLACIAL ICE SEVERAL THOUSANDS OF FEET THICK, THE RAINFALL WAS ABOUT
63 100 INCHES A YEAR (COMPARED WITH THE PRESENT 35 INCHES), AND THE
64 SUSQUEHANNA RIVER WAS 4 TIMES AS WIDE AND FLOWING THROUGH WYOMING
65 VALLEY WHICH WAS 100 FEET DEEPER THAN IT IS NOW. OVER A FEW
66 THOUSAND YEARS, THE GLACIERS DISAPPEARED, RAINFALL DROPPED
67 DRASTICALLY, AND THE SUSQUEHANNA RIVER FILLED IN THE LOWER PART OF
68 WYOMING VALLEY TO CREATE THE BURIED VALLEY OF THE SUSQUEHANNA.

69
70 TWO RECENT STUDIES, ONE BY THE NATIONAL RESEARCH COUNCIL
71 (NATIONAL ACADEMY OF SCIENCES) AND THE OTHER BY THE ENVIRONMENTAL
72 PROTECTION AGENCY, CONCLUDE THAT THE CARBON DIOXIDE WARMING-EFFECT
73 WILL OUT-WEIGH THE PARTICULATE COOLING-EFFECT AND THAT THE EARTH
74 WILL BECOME SIGNIFICANTLY WARMER IN THE NEXT FEW CENTURIES. THE
75 PREDICTIONS INCLUDE A 2 DEGREE F. RISE BY THE YEAR 2040 AND A 5
76 DEGREE RISE BY 2100. SEALEVEL MIGHT BE EXPECTED TO RISE A FEW FEET
77 DURING THIS TIME -- ALL THAT ICE WILL NOT MELT IMMEDIATELY AS
78 ANYONE WHO HAS TRIED TO DEFROST A REFRIGERATOR QUICKLY FINDS OUT.
79 THE EFFECT ON NORTHEAST PENNSYLVANIA IS SPECULATIVE BUT WOULD
80 PROBABLY INCLUDE A SLIGHT RISE IN AVERAGE TEMPERATURE AND A SLIGHT
81 DROP IN AVERAGE PRECIPITATION.

82
83 IRONICALLY ENOUGH, THIS WARMING TREND WOULD BE IN DIRECT
84 OPPOSITION TO A MORE NATURAL COOLING TREND. BY NO MEANS ARE WE
85 OUT OF THE ICE AGE. THROUGHOUT MOST OF EARTH'S HISTORY, THE EARTH
86 HAS NOT HAD ICE CAPS AND THE AVERAGE WORLD TEMPERATURE WAS SEVERAL
87 DEGREES WARMER THAN IT IS NOW. TO BE SURE, WE ARE NOT AT THE HEIGHT
88 OF AN ICE AGE, RATHER WE ARE IN AN INTERGLACIAL WHERE 3% OF THE
89 WORLD'S WATER IS IN THE FORM OF GLACIAL ICE, MOSTLY IN ANTARCTICA
90 AND GREENLAND. AT THE HEIGHT OF THE LAST MAJOR ADVANCE SOME
91 15,000 YEARS AGO, 7% OF THE WORLD'S WATER WAS GLACIAL ICE. BUT
92 A TYPICAL VALUE IS 0% FOR GLACIAL ICE UP TO A FEW MILLION YEARS
93 AGO. GLACIAL ADVANCES AND RETREATS ARE AFFECTED BY VARIATIONS IN
94 THE EARTH'S ORBIT AND ROTATION. IT IS WELL KNOWN, FOR INSTANCE, THAT
95 THE EARTH'S AXIS IS TILTED 23 AND 1/2 DEGREES AND THAT THIS TILT
96 CAUSES THE SEASONS. WHAT IS NOT WELL KNOWN IS THAT THIS TILT VARIES
97 FROM ABOUT 22 TO 25 DEGREES OVER A PERIOD OF SEVERAL TENS OF
98 THOUSANDS OF YEARS. THE GREATER THE TILT, THE MORE EXTREME THE
99 SEASONS. THE MORE EXTREME THE SEASONS, THE HOTTER THE SUMMERS.
100 THE HOTTER THE SUMMERS, THE MORE GLACIAL ICE IS MELTED (WINTERS
101 HAVE MUCH LESS EFFECT SINCE IT REALLY DOESN'T MATTER ALL THAT
102 MUCH JUST HOW MUCH BELOW FREEZING THE WINTER IS, JUST SO LONG AS
103 IT IS BELOW FREEZING). THEREFORE, THE MORE EXTREME TILT WOULD TEND
104 TO DISCOURAGE A GLACIAL ADVANCE. SIMILAR FACTORS, ALSO WITH PERIODS
105 OF SEVERAL TENS OF THOUSANDS OF YEARS, TEND TO ENCOURAGE OR
106 DISCOURAGE ICE ACCUMULATION AND TEMPERATURE CHANGE. THESE PATTERNS
107 SOMETIMES COINCIDE AND REINFORCE ONE ANOTHER TO EITHER GREATLY
108 ENCOURAGE OR DISCOURAGE ICE ACCUMULATION. FOR THE LAST TEN THOUSAND
109 YEARS THE VARIOUS FACTORS HAVE ALL BEEN DISCOURAGING GLACIATION
110 AND AS A RESULT, WE HAVE AN INTERGLACIAL. NOW, HOWEVER, AS THE
111 DIFFERENT FACTORS MOVE FURTHER ALONG IN THEIR CYCLES, THEY ARE
112 BEGINNING TO ENCOURAGE A COOLING TREND WHICH WOULD PROBABLY
113 CULMINATE IN THE TERMINATION OF THE INTERGLACIAL. THE CARBON
114 DIOXIDE WARMING TREND APPEARS TO BE OVERPOWERING THIS NATURAL

115 COOLING TREND AND MAY RETURN US TO TEMPERATURES MORE CHARACTERISTIC
116 OF MOST OF EARTH'S HISTORY. UNFORTUNATELY, ANY SIGNIFICANT CHANGE
117 IN WORLD CLIMATE, IN ANY DIRECTION, COULD CREATE HAVOC AS OUR
118 CIVILIZATION IS ADJUSTED TO THE PRESENT CLIMATE. AGRICULTURAL
119 PATTERNS WOULD BE GREATLY AFFECTED AS WOULD COASTAL CITIES WHICH
120 CONTAIN A LARGE SHARE OF THE WORLD POPULATION.

121
122 IF FOSSIL FUELS HAVE CREATED THIS PROBLEM, IT MIGHT SEEM TO
123 MAKE SENSE TO GREATLY DIMINISH THEIR USE, TO STOP THE COAL AND OIL
124 CONSUMPTION AND THIS UNNATURAL ADDITION OF CARBON DIOXIDE TO THE
125 ATMOSPHERE -- NOT ONLY THAT, BUT ALL THIS BURNING USES UP OXYGEN.
126 FIRST, IF ALL OF THE FOSSIL FUELS IN THE WORLD WERE QUICKLY BURNED,
127 THE OXYGEN CONTENT OF THE ATMOSPHERE WOULD CHANGE BY CONSIDERABLY
128 LESS THAN 1%, AN INSIGNIFICANT CHANGE. SECOND, ALL THE CARBON THAT
129 IS PRESENT IN OIL AND IN COAL, INCLUDING ANTHRACITE, WAS ORIGINALLY
130 PRESENT IN THE EARLY ATMOSPHERE AS CARBON DIOXIDE. REMEMBER THAT
131 PHOTOSYNTHESIS CREATES CARBON COMPOUNDS BY REMOVING CARBON FROM THE
132 ATMOSPHERE. THIRD, IF ALL FOSSIL FUEL BURNING WERE TO STOP
133 TOMORROW, THE WARMING TREND WOULD ONLY BE SLOWED BY A FEW DECADES.
134 WITHIN OUR LIFETIMES WE WILL SEE SOME CHANGES IN THE CLIMATE BUT
135 THE CHANGES SHOULD BE GRADUAL ENOUGH THAT WE SHOULD BE ABLE TO
136 ADJUST TO THEM. YOU MIGHT WANT TO BUILD YOUR BEACH HOUSE ON
137 SLIGHTLY HIGHER GROUND BUT WILKES-BARRE WILL NOT BECOME A SEAPORT.
138 THE SUPPLY OF FOSSIL FUEL IS LIMITED AND PERHAPS IN A FEW CENTURIES
139 THE NATURAL COOLING TREND WILL BEGIN TO OVERWHELM THE WARMING
140 TREND. MEANWHILE, ENJOY YOUR COAL OR OIL OR NATURAL GAS FURNACE AND
141 LOOK FORWARD TO SOME SLIGHTLY WARMER, SLIGHTLY DRIER WEATHER IN
142 THE NEXT FEW DECADES.



Wilkes project addresses area landfill problems

WILKES-BARRE — Dr. Brian Redmond, Associate Dean of the Wilkes College School of Engineering and Physical Sciences, is helping to address the area's landfill and economic development problems with just one project.

He is currently working with a firm exploring an innovative Swiss technique which transforms common garbage into construction materials. When successful in adapting this project to the area, the result will be new plants, new jobs, more money in the area, and less need for incinerators and landfills.

Redmond and Dr. Umid Nejib, dean of Wilkes School of Engineering and Physical Sciences, will be traveling to Switzerland in August to examine first-hand a Swiss method that turns trash into a product that can be used as filler for cement blocks. Redmond said the purpose of the trip was to clarify any questions that may arise when the implementation of the new plants begin here, which will mark the first of their kind in this country.

When the tests are completed, the results will not only be a better reprocessing of waste, but also the creation of two or more new plants and at least 30 new jobs, which would bring approximately \$2 million to the area annually. Also, the nine-month construction period, which will be completed in late 1989, will employ another 50 people.

"This project could make an enormous difference to the

"This project could make an enormous difference to the area and eventually the environment in the region."

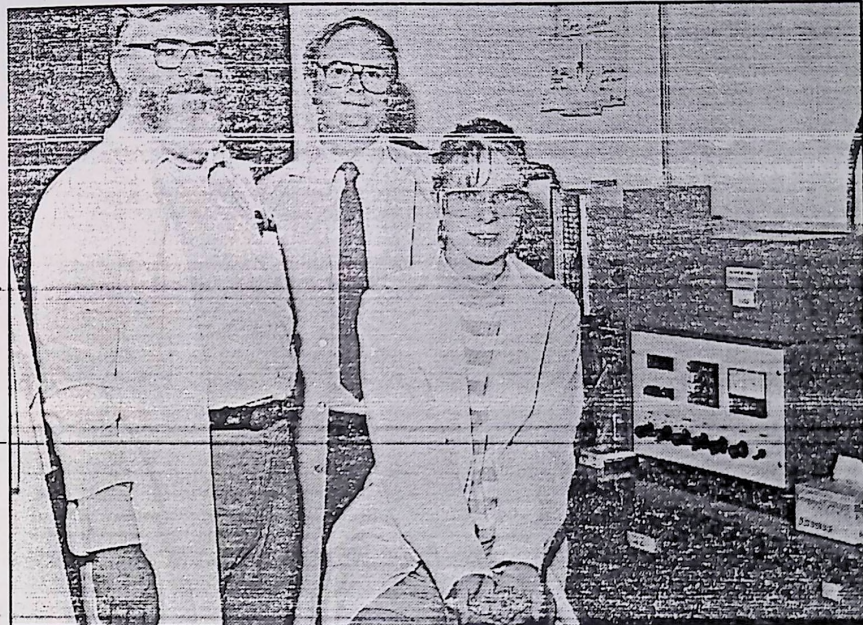
Dr. Brian Redmond

Associate dean

area and eventually the environment in the region," said Redmond. "The problem with the other solutions is that they are only partial answers. For example, in the case of incineration, you have the problem of what to do with the ash. With this new project, everything is usable, and there is no combustion."

Redmond explained that the process collects ordinary garbage, then shreds it, dries it, removes the metals from it (so they can be recycled), and bonds it with a plastic-like substance. The result produces pellets which are used as fillers in cement blocks.

The Catrel Corporation of Pennsylvania, a division of the Catrel Corporation of Switzerland, contacted Wilkes two years ago and indicated an interest in jointly exploring the possibilities of a new type of waste disposal system. Redmond said the project was received with enthusiasm by Wilkes College, and in turn, the Ben Franklin Partnership, a state-sponsored group that



SOLVING LANDFILL PROBLEMS — Shown from left are Dr. Brian Redmond; Dr. James Michael Case, Associate Professor of Earth and Environmental Sciences; and Lisa Lipowski, a 1988 graduate from Nanticoke, who is holding a handful of the reprocessed pellets

funds cooperative education/business projects like this.

One final question that was examined was whether or not the process will work as well with American garbage as it did with European garbage, which is known to contain less plastics than the refuse of the United States. The only other area in the nation to explore this process is in San Diego, Calif., at Catrell U.S.A., where the testing has been positive, as it has been here.

According to the tests conducted, there is no residue from the process, and since

there is no combustion used in the manufacturing of the pellets, gases are kept to a minimum. It also appears that once the pellets are made, there is no breakdown of material.

The establishment of the municipal garbage processing plants would greatly reduce the need for landfills and provide an alternative to the construction of costly incinerators which cause air pollution.

According to Michael Chapuisat, general manager of Catrell of Pennsylvania, the only possible roadblocks to the implementation of the project are

the approval of the Department of Environmental Resources and zoning ordinances. He also said that research is being done to reprocess sludge in a similar manner.

"The tonage we take in doesn't have to go to landfills, which are diminishing," Chapuisat said. "We hope the idea will grow and that other area officials will visit here to examine our process and begin similar projects in their areas. It's not nearly as expensive as giant incinerators, and you end up with a useful product."

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BURRELLE'S

By **Borys Krawczeniuk**
TRIBUNE STAFF WRITER

Flood meeting topic: raise levees or dredge?

Ed Gill thinks the best way to prevent the Susquehanna River from flooding the Wyoming Valley again is to dredge it rather than raise the levees that line it.

Brian Redmond thinks dredging would cost far more than raising the levees three to five feet, which the U.S. Army Corps of Engineers is planning to do.

The two men debated dredging vs. levee-raising Tuesday evening in Wilkes-Barre at a forum hosted by the Center for Responsible Government.

"How is raising the dike (levee) going to prevent flooding?" asked Gill, a member of the Coalition of Associations for River Protection.

Through natural methods, the river bed keeps filling with silt, creating islands that didn't exist 40 years ago, Gill said. The islands restrict flow and increase the chance of flooding, he said. And higher levees will eventually be useless because of the ongoing buildup, he said.

But Redmond, likening the river to a conveyor belt that im-

ports and exports silt, said dredging is costlier than levee-raising and the ongoing buildup just makes it costlier.

"The problem becomes how often you have to do it," said Redmond, a geologist and Wilkes University professor. "Dredging is something you have to do again and again."

Rather than dredging, an alternative might be reducing erosion outside the river, Redmond said. Rain that runs off uncontrolled on developed land carries more silt into the Susquehanna, he said.

Redmond also questioned where a dredger would put the enormous amount of silt scooped out.

Gill said the silt could fill abandoned underground coal mines. But Redmond said pollution from abandoned mines might have made the silt too hazardous to dispose of that way.

Gill countered by pointing out the proposed flood control project will use waste rock from coal mines and the rock could contain hazardous elements. Perhaps a contractor would dredge the

river for free in exchange for the silt, he suggested.

That wouldn't be a bad idea if a contractor like that exists, Redmond replied.

Reached later by telephone, Luzerne County spokesman Jim Torbik said he's never seen a proposal from a contractor willing to swap free river dredging for silt rights.

But Torbik had seen a mid-1970s Army Corps cost estimate for dredging the 25-mile length of river in the valley: \$976 million plus \$1 million in annual maintenance costs. That's more than six times the estimated \$150 million it will cost to raise the levees, which won't cost anything to maintain, he said.

Besides that, the amount of silt creates a disposal problem. The 62 million cubic yards of silt that would be removed would fill a space the size of a football field and 5½ miles high, Torbik said.

"I don't know why this continues to surface. We've addressed it, we've met with the people and we certainly respect their opinion," Torbik said. "But the statistics and the numbers just don't bear them out."

DEP Secretary Sounds Radon Alert

FROM STAFF AND WIRE REPORTS

Radon, an invisible gas that is the second-leading cause of lung cancer in the U.S., may be present in your home in unsafe amounts, a state official warns.

The alert was sounded by state Department of Environmental Protection Secretary James M. Self who thinks it a good idea for all Pennsylvanians to test their homes for the invader.

According to experts, the most common test is a do-it-yourself, short-term charcoal canister test available for about \$20 at most hardware and home-improvement stores. Homeowners also can hire a state-certified company or individual to do the testing.

Self advises using devices or testing companies that are certi-

fied to perform radon testing or mitigation work in Pennsylvania.

But such short-term tests are not necessarily the best indicator of a home's true condition, according to Brian Redmond, a Wilkes University professor of geology and chemistry who performed numerous radon tests for homes and businesses in the 1980s, before radon-testing became a commercial enterprise.

Short-term tests, such as the ones performed as part of a housing inspection and the ones the DEP percentages are based on, measure radon in homes that have been closed for 12 to 24 hours. That mimics conditions in

winter when radon levels are higher. In summer, levels are lower because doors and windows are open, creating ventilation.

The gas is produced from the natural breakdown of trace amounts of uranium in the soil. It seeps into homes through cracks in the foundation or walls, construction joints — even through the water supply — and is measured in picocuries per liter of air (pCi/L). The federal government's action level (or level at which steps should be taken to reduce radon) is 4 pCi/L.

DEP will sponsor a series of radon-awareness seminars for real-estate professionals during

October. The courses are approved for seven hours of elective continuing-education credits by the Pennsylvania Real Estate Commission.

The nearest seminar to the Scranton area is scheduled Oct. 7, at the Ramada Plaza Hotel in Wilkes-Barre. To register, call the Eastern Regional Radon Training Center between 10 a.m. and 2 p.m. at 732-445-3432.

More information about radon and certification is available by calling DEP's Radon Hotline, 1-800-23-RADON, or by visiting the DEP web site at <http://www.dep.state.pa.us> (choose information by Subject/Radiation Protection/Radon).

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State urges people to test homes for radon

DEP sponsoring seven radon-awareness seminars

STAFF AND WIRE REPORT BY JEFF

Pennsylvania Department of Environmental Protection Secretary James M. Seif is encouraging Pennsylvanians to test their homes for radon, an invisible gas that is the second-leading cause of lung cancer in the United States.

"High levels of radon have been detected in all 67 Pennsylvania counties," Seif said. "Testing is easy, inexpensive and the only way to know if your home has a radon problem."

Radon gas is produced from the natural breakdown of trace amounts of uranium in the soil. It seeps into homes through cracks in the foundation or walls, construction joints — even through the water supply.

Radon is measured in picocuries per liter of air (pCi/L). The federal government's action level (or level at which steps should be taken to reduce radon) is 4 pCi/L.

A 1989 study by DEP and the U.S. Environmental Protection Agency estimates 40 percent of Pennsylvania homes have radon levels greater than 4 pCi/L, com-

pared with the national average of just 6 percent. Radon readings of greater than 20 pCi/L have been found in all counties, and readings topping 100 pCi/L (or 25 times the action level) have been found in 60 of 67 counties.

The most common test for radon is a do-it-yourself, short-term charcoal canister test available for about \$20 at most hardware and home-improvement stores. Homeowners also can hire a state-certified company or individual to do the testing. People are encouraged to use devices or testing companies that are certified in Pennsylvania.

But such short-term tests are not necessarily the best indicator of a home's true condition, said Brian Redmond, a Wilkes University professor of geology and chemistry who performed numerous radon tests for homes and businesses in the 1980s, before radon-testing became a commercial enterprise.

Short-term tests, such as the ones performed as part of a housing inspection and the ones the DEP percentages are based on, measure radon in homes that

have been closed for 12 to 24 hours. That mimics conditions in winter when levels are higher. In summer, levels are lower because doors and windows are open, creating ventilation.

DEP bases its 20 pCi/L measurement on estimated annual

**Testing is easy,
inexpensive and
the only way to
know if your home
has a radon
problem.**

James M. Seif
DEP secretary

averages. But the numbers tend to confuse the public, Redmond said.

If radon measures between 4 and 20, "it's no major big deal concern," he said. "If it's more than 20, it's worth thinking about taking some action, but it's a gray area. It's probably best to run a long-term test."

In Scranton, homebuyers are not required to test for radon but

are given the option of doing so.

In the 1980s, when radon's dangers became widely known and many homeowners were testing for the gas, medium-level amounts showed up in some homes in Lackawanna County and other parts of Northeastern Pennsylvania, Redmond said. But those cases were clustered, he said.

Coal-mined areas may have less of a radon problem than other areas because the mines created a permanent underground ventilation network through which the radon can move without rising into homes, Redmond said.

DEP's radon division is sponsoring a series of radon-awareness seminars for real-estate professionals during October. The courses are approved for seven hours of elective continuing-education credits by the Pennsylvania Real Estate Commission.

The nearest seminar to the Scranton area is scheduled Oct. 7 at the Ramada Plaza Hotel in Wilkes-Barre. To register, call the Eastern Regional Radon

Training Center between 10 a.m. and 2 p.m. at 732-445-3432.

Other seminars are scheduled in Reading, Philadelphia, Pittsburgh, Erie, State College and Harrisburg.

More information about radon

and certification is available by calling DEP's Radon Hotline 1-800-23-RADON, or by visiting the DEP web site at <http://www.dep.state.pa.us> (choose Information by Subject/Radiation Protection/Radon).

RESUME (abbreviated)

Brian Redmond
99 Shaver Avenue
Shavertown, PA 18708 (717) 696-2906

Married: 4 children
Health: excellent
Born: 11 DEC 45

Degrees and Certificates

B.S. Degree	Geology	Michigan State University	1968
M.S. Degree	Sedimentology	Michigan State University	1969
	Thesis topic: The Utility of Fourier Estimates of Grain Shape in Sedimentological Studies.		
Ph.D. Degree	Sedimentology	Rensselaer Polytechnic Institute	1982
	Thesis topic: Sedimentary Processes & Products: An Amber-bearing Turbidite Complex in the Northern Dominican Republic.		
Teaching Certificate	State of Michigan	Physical Science	1968
Teaching Certificate	State of Pennsylvania	Earth & Space Science	1975

Professional Memberships and Positions

American Nuclear Society; northern PA Local Section
American Water Resources Association
American Water Works Association
Amer Soc Heating, Refrigeration, & Air-conditioning Engineers
Association of Geoscientists for International Development
Citizens Recycling Committee of Wilkes-Barre Treasurer
D.E.R. ad hoc committee on Radon Certification
Governor's Radon Advisory Council Vice-Chairman
Haz Waste Management Task Force of NE PA, EDCNP
HydroTech Ltd President
Luzerne County (PA) Conservation District Chairman, Director
National Association of Geology Teachers
National Water Well Association
NorthEastern Pennsylvania Environmental Council Chairman Technical Advisory Panel
Society of Mining Engineers of AIME
Susquehanna River TriState Association Vice-President (past President)
Water Management Task Force of NE PA, EDCNP

Research

Obtained a \$35,000 grant from PP&L to establish a background radiation monitoring and analysis lab (1981), received summer fellowship from PP&L to study low-level radiation monitoring and analysis at Penn State Breazeale nuclear reactor (1983), conducted a study of radioiodine for PP&L in sewage and river water (1985), conducted on-going indoor radon survey of eastern Pennsylvania (1985-7), participated in construction of Radon Chamber (1988).

Consulting

supervised construction of over 600 water wells in the U.S. and Caribbean, conducted numerous groundwater pollution studies, designed monitoring well systems and characterized soils and geology for seven landfills, designed several spring water systems.

Academic

Tenured Associate Professor, Department of Earth & Environmental Sciences
Associate Dean, School of Engineering & Physical Sciences
Completed 90 semester credits in the sciences since the PhD

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FOR ACADEMIC AFFAIRS

WILKES COLLEGE
DEPARTMENT OF PUBLIC RELATIONS
PERSONNEL RECORD

Date: 29 SEP 78

NAME Brian T. Redmond BORN 11 DEC 1945
Detroit, Michigan

(date - place)
MAY 1981 - Asst. Professor

ADDRESS 629 Westmoreland Kinston, PA 18704 DEPARTMENT Earth & Environ. Sci.

Republic

MARRIED TO Lois Fischbeck Redmond 13 JAN 1975 Santo Domingo, Dominican
(date) (place)

CHILDREN	<u>Margaret</u>	<u>Gay</u>	<u>-</u>	<u>2</u>	<u>10 AUG 76</u>
	(first name	middle	married	age	date of birth)
	<u>Abigail</u>	<u>Lee</u>	<u>-</u>	<u>1/2</u>	<u>21 MAY 78</u>

PARENTS' NAME George & Gladys Redmond

HIGH SCHOOL Cass Technical H.S. Detroit, Michigan

TRAINING AND STUDY

Colleges and Universities	Dates	Degrees	Degrees now sought
<u>Michigan State University</u>	<u>1964-68</u>	<u>B.S. (Geology)</u>	
<u>Michigan State University</u>	<u>1968-69</u>	<u>M.S. (Geology)</u>	
<u>Michigan State University</u>	<u>1968-69</u>	<u>Secondary Teaching Certificate</u>	
<u>Rensselaer Polytechnical Institute</u>	<u>1974-</u>		<u>Ph.D. (Geology)</u>

EXPERIENCE (before coming to Wilkes)

Educational Schools or Colleges	Dates	Grad. Asst. Position
<u>Michigan State University</u>	<u>1968-69</u>	
<u>Rensselaer Polytech Institute</u>	<u>1974-76</u>	<u>Grad. Asst.</u>

Business, Military, etc.

Organization	Dates	Position
Peace Corps Volunteer	1969-74 1975	Chief Hydrologist
		Instituto Nacional de Aguas Potables y Alcantarillados

Professional record at Wilkes College - (Specify instructor, assistant professor, associate professor, professor, or administrative position, and years (dates) in each position. Also indicate any extra assignments.)

Instructor 3 years

Academic Coordinator, Summer Upward Bound Program 1977

PROFESSIONAL AFFILIATIONS (indicate offices held)

American Water Works Association

National Water Well Association

Society of Economic Petrologists & Mineralogists

International Society of Sedimentologists

Association of Geoscientists for International Development

NON-PROFESSIONAL AFFILIATIONS

FACULTY PERSONNEL DATA

NAME BRIAN REDMOND Date of Birth DECEMBER 11, 1945

I. RECORD AT WILKES:	Date of appointment or promotion	Date of severance
Instructor	<u>AUGUST, 1976</u>	
Assistant Professor	<u>June 1, 1981</u>	
Associate Professor		
Professor		
Other:		

Other activities and responsibilities while at Wilkes:

II. EDUCATION:	Degree	Institution	Year
Bachelor's Degree	<u>B.S.</u>	<u>MICHIGAN STATE UNIVERSITY</u>	<u>1968</u>
Master's Degree	<u>M.S.</u>	<u>" "</u>	<u>1969</u>
Doctor's Degree	<u>Ph.D.</u>	<u>RENSSELAER POLYTECHNIC INSTITUTE</u>	<u>1977</u>
Other Degrees			

III. STUDIES AND PUBLICATIONS:

Title	Publisher or Publication	Date
<u>LOS ACUÍFEROS DE SANTO DOMINGO</u>	<u>UNIVERSIDAD AUTONOMA DE SANTO DOMINGO</u>	<u>1975</u>

Name Brian RedmondIV. EXPERIENCE Before Coming to Wilkes:

<u>Teaching: - School or College</u>	<u>Position Held</u>	<u>Date</u>
<u>Pennsylvania Polytechnic Institute</u>	<u>grad - asst</u>	<u>1933-34, 35-36</u>
<u>Michigan State University</u>	<u>teaching asst</u>	<u>1937-39</u>
<u>Escuela de Los Ciegos, Sta Dgo, Dom Rep</u>	<u>Braille instructor</u>	<u>1942</u>
<u>Universidad Antonina de Sta Dgo, Dom Rep</u>	<u>hydrology instructor</u>	<u>1975</u>

Business:

<u>Junior Accountant, Office Boy</u>		<u>1964-68</u>
<u>Ecologic Consultant</u>		<u>1975-76</u>

Military: - Service

<u>Rank</u>	<u>Year</u>

V. PROFESSIONAL AFFILIATIONS (Indicate offices held):

<u>National Water Well Assoc.</u>
<u>American Water Works Assoc.</u>
<u>Society Economic Mineralogist and Petrologist</u>
<u>International Sedimentologist</u>

VI. NON-PROFESSIONAL AFFILIATIONS:

<u>community orchestra, 1967</u>

Brian Redmond
140 N. Third
Lewisburg, Pa. 17837
(717) 524-2435

EDUCATION: B.S. degree, Geology, 1968.
Michigan State University, East Lansing, Mich.
Teaching Certificate, State of Michigan, Physical
Science, 1968.
M.S. degree, Sedimentology, 1969.
Michigan State University, East Lansing, Mich.
FSI Rating 3, Spanish, 1975.
Peace Corps, Santo Domingo, Dominican Republic.
Teaching Certificate, State of Pennsylvania,
Earth & Space Science, 1975.
Doctoral Candidate, Sedimentology, 1976.
Rensselaer Polytechnic Institute, Troy, N.Y.
(estimated completion: Dec, 76)

EXPERIENCE: Grinnell Bros. Music, Detroit, Mich., 1964-1969.
~~-----~~ ~~Started as office boy after high school, con-~~
~~tinued part-time all the way through college.~~
~~-----~~ ~~Became junior accountant and eventually head~~
~~of Inventory Control.~~

Michigan State University, East Lansing, Mich.,
1967-1969.
-Taught introductory geology lab in capacity
of teaching-assistant.
-Assisted in special earth-science program for
inner-city high school Juniors & Seniors

Instituto Nacional de Aguas Potables y Alcantarillados
(INAPA - National Institute of Potable Water &
Sewage), Santo Domingo, Dominican Republic,
1970-1975.
-In capacity of Peace Corps Volunteer served
as chief hydrogeologist of the Hydrology Sec-
tion of INAPA which included choosing well
sites, directing drilling, testing wells, su-
pervising well-field construction, and estima-
ting regional aquifer yields.
-As geologic consultant for Ingenieria Sanitaria
CxA (INSACA - Sanitary Engineering, Inc.) con-
ducted an exploratory drilling program of the
lower Nigua River near San Cristobal.
-Participated in the presentation of a special
hydrology course for engineers given by the
Universidad Autonoma de Santo Domingo (UASD),
resulting in the publication of "Los Acuíferos
de Santo Domingo", 1974.
-Collaborated with my opposite number in Corpora-
ción de Acueductos y Alcantarillados de Santo
Domingo (CAASD - corporation of Aqueducts &

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EXPERIENCE: Instituto Nacional de Aguas Potables y Alcantarillados
(continued) Sewage of Santo Domingo) in an evaluation of
groundwater pollution of the capital city
aquifers.

Rensselaer Polytechnic Institute, Troy, New York,
1973-present.
-Graduate Assistant, Sedimentology, 1973-74.
-Graduate Assistant, Mineralogy and Petrology,
1975-present.

Note: Several experiences are concurrent, thus,
I worked part-time as an accountant at Grinnell
Bros. while enrolled as a full-time student at
MSU. There is a nine month break in my time in
the Dominican Republic when I completed two
semesters of doctoral work at RPI and after my
return to Santo Domingo, was registered for
thesis credits at RPI.

PERSONAL: Born.....12/11/45-----Health.....Excellent
Height.....5' 11" Married - wife pregnant
Weight.....195 lbs. *2012 (from L.S.)*
How tall - 2 feet, 11 inch

MEMBERSHIP: International Association of Sedimentologists
Society of Economic Paleontologists & Mineralogists
American Water Works Association
National Water Well Association