



HOTLINE

PRINCETON PLASMA PHYSICS LABORATORY

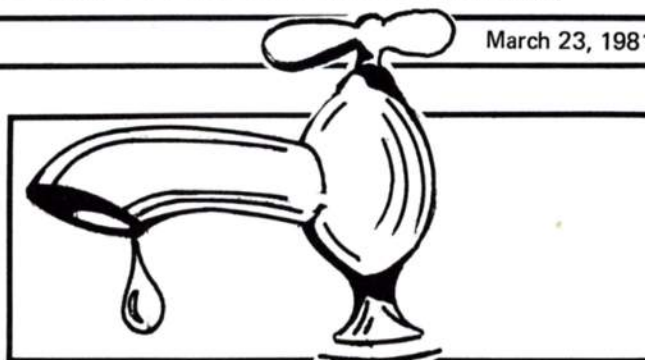
Vol. 2 No. 11

March 23, 1981

Water Conservation

In spite of the recent rain and snow, the laboratory's section of New Jersey is under a binding water restriction imposed by the Governor. Due to lowering water tables, the restriction includes not only users of public water supplies, but also those with wells — like PPL. In addition to banning car washing and watering of lawns, the restriction requires all industries to cut water consumption by at least 25% over past use or face heavy penalties and water shut-off.

Because of reduced activities in the experimental area, PPL has been able to meet this quota over the past month. No one can predict how long the restriction will last, however. Over an extended period, it will require us to redo some projects to reclaim and recycle water and, in general, throttle our consumption.



Engineers will be doing a survey of laboratory water use and talking to many employees, in an effort to identify areas of heavy use and develop ways to cut back long-term consumption. If you see an area that is leaking or wasting water, please report it to Plant Engineering, ext. 3092.

These restrictions are not expected to adversely affect PPL operations at this time. We do not expect to substitute Chablis for water in the cafeteria! However, all employees should be aware of this problem; treat water as a limited resource, don't waste it.

Blue Cross Billing

A six-year-old wrangle between Blue Cross and 43 hospital-based radiology groups was recently settled. The radiologists had been boycotting Blue Cross claims for service, claiming that Blue Cross rates were unrealistically low. Many radiologists billed subscribers directly for services, while others sent subscribers "balance due bills" in order to recoup the difference between Blue Cross rates and the higher fees.

State Insurance Commissioner James Sheeran has ruled that since the Blue Cross contract covers in full in-hospital radiological services, any balance due billings were improper. Any subscribers who

received and paid a full bill for in-hospital services from a radiologist since July 17, 1980, then notified Blue Cross, will be receiving a check from the plan. A fee schedule worked out with the radiologists is expected to settle the \$1.5 million in disputed back claims made by 30,000 subscribers.

Eleanor Schmitt has sent in numerous radiology bills from PPL employees to Blue Cross. If the bills were paid, subscribers can expect to be reimbursed by Blue Cross during the next few months. Any future radiology bills should be submitted to Blue Cross of New Jersey, P.O. Box 420, Newark, NJ 07101. Indicate on each your 10-digit ID number and your group number.

Contact Eleanor Schmitt at ext. 2046 with any further questions.

Coming Soon

Do you want to understand French films without reading the subtitles? Talk to Elke Sommer in German? Read "Zhurnal Eksperimental'noi i Teoreticheskoi Fiziki" in the original? The next issue of the HOTLINE will tell you about PPL's newest facility, the Language Laboratory.

Benefit Hours

Beginning March 25, Eleanor Schmitt will be available each Wednesday morning to answer questions about Blue Cross, Blue Shield, Major Medical and the filing of claims. Employees with questions should see Eleanor in Room B-336A LOB between 9 a.m. and noon each Wednesday.

Reading Under Pressure

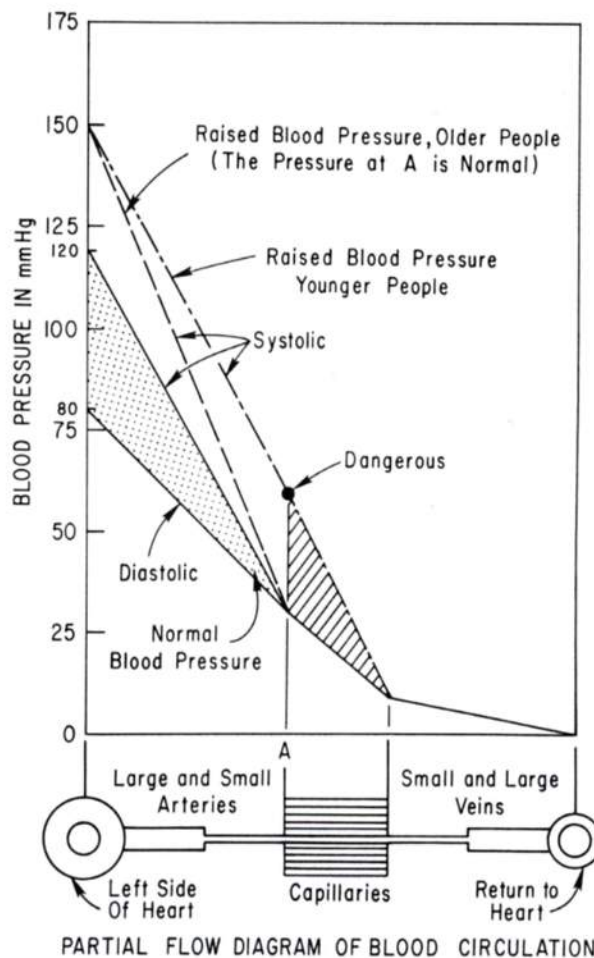
It is no exaggeration that warning lights, flow switches, voltmeters and similar devices outnumber people at PPL more than ten to one. Even so, their total is smaller than the number of protective devices in the human body.

It is therefore surprising that the Lord left out both a gauge and a safety valve for blood pressure when He designed us. He did put in a regulator, though, which He set at "120 over 80" for most people. The first number refers to systolic pressure which occurs at the peak of the heartbeat. The second figure indicates diastolic pressure, which occurs in between beats. Both readings are expressed in millimeters mercury.

The flow diagram and the graph I have drawn show that at the exit of the heart and in the large arteries, the pressure moves up and down between the solid lines. When the blood reaches the capillaries, the pressure becomes steady at about 30 mm Hg.

The diagram applies to a person at rest. The values are higher for a person doing physical work, and could easily reach 180 mm Hg systolic for somebody who has just run from B-Site to C-Site. In healthy individuals, the pressures would revert to normal in a few minutes, and the body is well

equipped to handle those pressure excursions. For somebody with hypertension, however, the pressure stays up continuously, even at rest. Among the types of hypertension, one is related to age and one is not.



When we get older, our arteries lose some of their elasticity, which causes a higher flow impedance and a higher pressure drop in the system elements to the left of point A in the diagram. That may boost the systolic pressure to 150 mm Hg, as is shown in the graph. If a physician finds that value in someone who is 65, he will normally not be overly concerned; the larger arteries can withstand that extra pressure. But if 150 mm Hg is found in a young person, whose arteries have not yet had time to build up extra impedance, the extra pressure drop must be located in the capillary bed. That is typically represented by the double hatched line.

Certain very small arteries and their transfer points to the capillaries may then be permanently

exposed to 60 mm Hg — twice the design value. Sooner or later, a small artery may break or become clogged, causing part of an organ to receive no blood. When that occurs in the brain, the technical term is cerebral hemorrhage and the common term is stroke.

The remedy is simple in principle: let a doctor or nurse apply the missing gauge (a blood pressure check) once every year or every second year. If the figures are normal, so much the better. If they are not, the physician has a number of methods to bring the pressure down, including such simple prescriptions as telling you to put less salt on your food. In most cases (nothing in medicine is absolute), lowering blood pressure will dramatically reduce the risk of a stroke, lowering the risk to perhaps 25 or 33% of what it would be if you let things slide.

Nationally, deaths from stroke number about 177,000 per year, which corresponds to one per year among the 1100 staff members of PPL. Many PPL staff members read meters for a living and take appropriate actions thereafter. All of us ought to put reading our own blood pressure and that of our family members at the top of our "reading" list.

E. de Haas, D.Sc., P.E., Fellow, Academy of Medicine of New Jersey



True-False Quiz

- 1. Taxis are more expensive than rental cars in major cities.
- 2. Flying out of Philadelphia Airport to Atlanta is cheaper than flying from Newark Airport to Atlanta.
- 3. Some hotels give "educational" discounts.
- 4. Half of all business travel itineraries are changed at least once prior to departure.

- 5. PPPL has corporate agreements with some hotel chains.
- 6. The auditors seldom check or cross-check individual vouchers.
- 7. Auto rental insurance should always be accepted.
- 8. Eat and drink it up; you're on an expense account.
- 9. DOE requires the names of dinner guests who are not PPL employees.
- 10. PPL's average cost per domestic trip rose 38% from January 1980 to January 1981.

Answers on page 4

Safety Tips For Women

Muggings, purse snatchings and other street crimes point up a need for women to increase their safety awareness when walking or driving at night. Attention to just a few common sense safety rules can vastly reduce fear and avert a possible tragedy.

- When possible, don't travel alone. Walk on better lighted main streets; avoid walking near bushes, alleys and other shadowy areas.
- Carry your purse close to the body or under your coat. Hold it so the clasp will open to toward your body, not away from it.
- Make sure your car is in good repair and that the gas tank is filled.
- Don't hitchhike, and do not pick up any hitchhikers. That free ride may cost you more than you bargained for.
- Before leaving your parked car, roll up the windows and lock all doors.
- Keep your car locked and the windows up while driving and while the car is stopped at traffic signals or other traffic-flow blocks (such as train crossings or in a traffic jam).

- If you see someone stopped along the highway and decide to help out, keep your doors locked and your windows up high enough to prevent anyone from reaching in. Quickly find out what assistance is needed, then drive to a well-lighted service station and notify an attendant, the police, or emergency service.
- Carry the telephone number of the police, a local garage, and your automobile service club in your billfold in case emergency aid is needed.

True-False Answers

1. False. For one or two passengers especially, you could take 5+ taxi rides each day for the cost of a rental car. (Don't forget to add in hotel parking, gas, mileage, to rental car costs).
 2. True. Generally, Philadelphia costs \$10 less than Newark when flying *south*, \$10 more when flying *north*, and about the same for westerly travel. However, Philadelphia usually has fewer flight options.
 3. True. But you must *ask* and show your Princeton University I.D. Some hotels require you to ask about such discounts when making reservations and/or when registering. See the Travel Office for details.
 4. True. At PPPL the percentage is usually higher — and some travellers can't seem to get off the ground until they've changed tickets three times!
 5. True. For some you need a special reservation number, so be sure to check with the Travel Office.
 6. False—False—False! It might take a year or two, but the auditors *DO* check, cross-check and sometimes ask for return or reimbursement money.
 7. False. Princeton University has travel accident insurance which covers you while traveling on business. They will also pay the deductible in case of damage to the rental vehicle.
 8. False. There is flexibility to University policy, allowing for variation in expense costs in different areas. But the policy states you are expected to be moderate and reasonable in selection of restaurants and submission of claims. DOE policy will not allow reimbursement for alcoholic beverages.
- In general when spending travel money, you should be as prudent as you would be spending your own. After all, through taxes that's exactly what it is — your money!
9. True. If there is a group, it's often simpler for one person to pick up the check. When all diners are from the same contract, fine. But don't play the big spender; you could get stuck with the check. And don't forget the receipt.
 10. True. January was the lowest rise for this fiscal year. Although the number of trips decreased from January 1980, total costs for January were up 7%.
- Travel policies, discount cards, and other fine services are available free at the Travel Office. Check with the office before your next trip.

A Thank You

Christine Schuster wishes to thank everyone for their thoughtful expressions of sympathy.

The PPL Hotline is issued by the Princeton University Plasma Physics Laboratory, a research facility supported by the U. S. Department of Energy. Correspondence should be directed to PPL Communications Office, Module 2, C-Site, James Forrestal Campus, ext. 2754.

ppl people

For Mary Alice: The Play's The Thing

Shakespeare tells us that "all the world's a stage, and all the men and women merely players. . . and one man in his time plays many parts."

Mary Alice Eubank took the Bard's words literally. The C-Site receptionist by day, evenings often find her vocalizing during rehearsals for her next appearance in a musical or a Gilbert and Sullivan light opera.

Always musical as a child, Mary Alice learned to sing and play the piano and viola while in high school. Listening to a soloist's performance in her church, she felt she could do a better job and determined to try out for the solo spot. Her audition won her the job.

It was then that Mary Alice began taking lessons in singing, since she'd never had any formal voice training before. Those lessons taught her to use her muscles in breathing while singing, as well as how to project the voice. She believes that serious lessons shouldn't begin until the singer is mature, however, in order to let those important diaphragm muscles develop.

While still in her native Philadelphia, Mary Alice got very interested in a Gilbert and Sullivan light opera company there. "I love to do Gilbert and Sullivan," she enthused, "because no matter when you do their operas, they always relate to the times."

Another reason for her affection for Gilbert and Sullivan is the treatment they give alto and mezzo-soprano voices. "Altos usually have so little to do in normal productions," she explained. "But with



Mary Alice is ready for a day at the Ascot Races during the PJ&B production of "My Fair Lady", done at McCarter Theatre in 1979.

Gilbert and Sullivan, there's always something to do, even if the part's a little gross!"

She played in "The Gondoliers," "Princess Ida," and the "The Pirates of Penzance" with the Gilbert and Sullivan Society of Philadelphia. When she relocated to Princeton, she joined the Princeton Gilbert and Sullivan Society, with Lee Bristol and Goerge Gallup. Among other productions, she appeared in "The Yeomen of the Guard" and "H.M.S. Pinafore" with the group.

"They always did top-notch performances," Mary Alice recalled. She remembers a specific evening of Gilbert and Sullivan, presented to a black tie audience at the Gallup Research Foundation. "Everyone was so familiar with the pieces we did that they knew all the words, and at times even sang along with us!"

Mary Alice has also appeared several times in the Washington Crossing State Park outdoor theatre. She was part of the Princeton Opera Company troupe that 'christened' that outdoor stage 15 years ago. Her various roles have included Hansel in "Hansel and Gretel"; a nursemaid in "Street Scene"; the Fairy Queen in "Iolanthe"; Sylvaine in "The Merry Widow"; Lizette in "Naughty Marietta"; and a chorus member in the Princeton Junction and Back (PJ&B) production of "My Fair Lady" at McCarter Theatre in 1979.

Most recently, Mary Alice lent her voice to the chorus of PJ&B's "Kiss Me Kate" at McCarter Theatre. One of her fondest performance memories, however, centers on her portrayal of the Mother Abbess in the Lawrenceville Players' 1977 production of "The Sound of Music". "That was a nice part to do, but it's also a demanding one. 'Climb Every Mountain' has a 2½ octave range, and it also ends the first act. If you don't get it right, the audience won't come back!"

Another high point in her career was playing the major role of Abigail Adams in "1776" with PJ&B — one of only two female parts in the entire production!

Those successes were bought by years of vocalizing and practicing, preparing to be the best at each audition. After having sung professionally for some time, Mary Alice no longer goes to every audition available. She restricts herself to parts that really interest her. But there's one aspect of auditioning that's never gone away: the nervousness.

"I'm always nervous," she explained, "because you want to be the best, and at times you're not physically up to it." Auditions can be closed (where one sings for the show's director) or open (where one sings in front of everyone, including



In 1976, Mary Alice portrayed Lizette In "Naughty Marietta" for the Princeton Opera Association.



Mary Alice (left) turned in numerous performances as Hansel in the Princeton Opera Association's production of "Hansel and Gretel" between 1965 and 1970.

your competition for the role). Although auditioners are usually asked to sing a song from the show being cast, they may be asked to sing something different on the spot — which only increases the tension level.

Mary Alice has found the competition fiercer among women than men. "So many more women try out for each part," she says, "and that may be because women have more time to rehearse than men do. But in auditions, you have to strive to be tops."

After winning a role comes the sheer hard work of rehearsals. Mary Alice has never "gone up" on any lines or songs during an actual performance, but rehearsal blank-outs are another story. "When you begin rehearsals for a show, you learn the part and then begin thinking about it. That's usually where blanking out happens; in that second stage, when you're rethinking your character."

Pre-performance "butterflies" are also a part of life on the stage. And things are doubly difficult for the singer, who must be sure her voice can



Mary Alice (right) compares notes with her fellow nursemaid in the 1971 Princeton Opera Association production of "Street Scenes"



The picture of Edwardian elegance, Mary Alice poses in another of her costumes from PJ&B's "My Fair Lady".

stand the rigors of the evening's performance. The vocal chords are some of the strongest muscles in the body, but they're also one of the hardest places to get blood to circulate freely. That's what singers mean by 'warming up' — increasing the blood flow to the vocal chords.

Mary Alice explained that although each individual singer may have her own problems warming up, experience tells one when the blood is pumping and you're ready to perform. "You're really like an athlete," she contends. "There's a lot of effort involved in professional singing, although it may look easy. You have to project, and that causes physical exertion. It's not at all uncommon to have a weight loss during a performance."

She pointed out that good singers try to do as little talking as possible before and between their performances. "For some reason, the normal talking voice tends to 'fuzz' the throat. And the throat is an instrument; you can't abuse it."

At times, it becomes very difficult to fine-tune that instrument. Besides the obvious differences between indoor and outdoor singing, Mary Alice says the singer has very little idea how he sounds when performing outside. "There are no walls to bounce the sound back to you," she says. "You have to be careful not to fall into the trap of trying to sing harder when you're outdoors."

There's also the problem of humidity or dryness bothering the throat outdoors — and the problem of inhaling small bugs every time you take a breath!

Mary Alice has faced audiences ranging from McCarter's 1,500 to Washington Crossing's approximately 3,000. She's also sung at private parties and been more nervous. Why, when the audience is so much smaller? Because another singer may be in that small audience, creating anxiety for the performer to turn in a good performance.

Since most of her roles have been part of a group effort, Mary Alice thinks it's difficult to feel you have done well as an individual when the group hasn't been as successful. "But everyone who's picked for PJ&B, for example, is top rate. And we're all a little shaky and scared together on opening night!"

In fact, neither peer approval nor audience applause are really necessary for a performer to know she's done well. "You know yourself when you've been successful," Mary Alice contends. "When you're in a production, you find yourself spending a lot of late nights, and I sometimes think I'm not going to do any more performances. But there's such fun in a production, such a sense of camaraderie that develops closeness. You find you get hooked, and you keep coming back."

Another reason for returning is that next "right" part. "There's always another part, one you feel you can really do justice to," Mary Alice concludes. "There's always another audition, and another chance."