Restrictions to be added

Amendment explained

by Larry Savage

In order to gain more control of campus activities, administration has been attempting to place restrictions on campus organizations' spending.

The social committee is one of them; the circumstances are complicated. First some background: Last year the Executive Council of the Student Government proposed an amendment to the constitution which would make them responsible for choosing the Social Committee chairman. This would insure that someone responsible and capable would be chosen. Attached to this amendment was the stipulation that if the committee wanted to spend more than five hundred dollars they had to get written authorization from the Council. Concert expenditures were exempt.

The feeling was that the amendment would have passed if voted on by the Student Government directly but it was decided that a referendum be held. It failed to obtain the needed two-thirds majority, and was defeated.

This year the amendment has been changed, but the spirit has been retained. The Executive Council would only screen the nominees to determine what names would appear on the ballot. The student body would still elect the chairman but only qualified people would be nominated. This compromise, hopes its proponents, should please most everyone and the amendment is expected by them to pass on Thursday (9-29).

The required authorization for large expenditures ($500) of the social committee is still part of the amendment. This is possibly academic, since the social committee rarely spends more than five hundred dollars for nonconcert activities or major capital expenditures. It is the opinion of many members of the Social Committee hierarchy that this new development will effect them very little. (A copy of the proposed amendment can be found in last week's (Sept. 20) Newspeak).

The Student Affairs Office, through Assistant Dean Bernard Brown, recommended that the same financial requirements be placed on the Student Activities Board; more precisely on the clubs and organizations that comprise the SAB.

Brown said he could not understand why the clubs should not have to get written authorizations when all academic departments do. He thinks it is a good proposal to help reduce the chances of excessive spending. The SAB receives a lump sum (last year: $56,400) from the trustees which it must distribute fairly to all the clubs. Each club submits a budget which is usually modified (lowered) and approved by the members of the SAB.

Many members of the SAB felt the $500 restriction was useless for two reasons. They felt that clubs should not need authorization to spend money which has already been budgeted for them. Also, there are only four or five clubs of about two dozen which have the capability or the need to spend more than $500 at one time. For those reasons the SAB voted down the proposal from Brown's office.

WPI Newspeak

The student newspaper of Worcester Polytechnic Institute

Vol. 5, No. 18 Tuesday, September 27, 1977

Those OTHER schools

by Phil Czapla

Bright and early every morning at 7:20, a light green Ford Econonline van pulls up to the front steps of Sanford Riley. A group of students waiting on the steps quickly files in line at the van's door. With all on board, the van drives away past Alden, right onto West Street, heading out to Clark.

The students on this bus have one thing in common, they are Consortium students, or more specifically, members of the "Worcester Consortium for Higher Education."

The Consortium is a nonprofit organization consisting of 10 member colleges in the Worcester Area. They are: Anna Maria College, Assumption College, Becker Junior College, Central New England College, Clark University, College of the Holy Cross, Quinsigamond Community College, UMASS Medical School, W.P.I., and Worcester State College.

The Consortium was formed with one central idea in mind — to make course offerings and activities of each individual campus available to all students of the ten colleges. By pooling their resources, the Consortium Institutions offer wide and varied field of academic disciplines that could never be found within one school. Students who are currently enrolled as full time day students in any member college may cross register for courses at any other member at no additional cost to themselves!

Ideally, this means that a student of a Consortium college has the opportunity to sample nearly any course of his choosing, from engineering, the humanities, music, medicine and hundreds of other fields. Students in liberal art programs can sample scientific areas, and engineers may sample liberal art courses. Students whose home schools have a lack of courses in one area – or none at all can effectively create a custom curriculum for themselves by cross registering. For example, a W.P.I. student who wishes to have advanced studies in a foreign language such as French, perhaps to complete his sufficiency, may register at Holy Cross which has an extensive foreign language program.

Beyond normal course offerings, the Consortium also has many special programs, arranged through member colleges specializing in one particular area. Among the programs are:

Water Quality-Resources Study Group – Formed when a hepatitis outbreak among Holy Cross football players resulted in an investigation of the local water supply, the group is now composed of students and faculty members researching water supply standards with close ties to Worcester County agencies.

Health Studies Option — For those students in premed areas, or contemplating careers in the health field, the program offers career counseling, internship arrangements in hospitals or nursing homes, and aid in planning health courses through cross registration at Consortium colleges. This program enables interested students to examine possible health career without having to commit themselves fully to anything.

Work with Associate Institutions — In addition to member colleges, the Consortium also has special arrangements with organizations like Old Sturbridge Village, the Worcester Craft Center, the Worcester Art Museum and others to make the facilities available to Consortium students.

Free transportation between Consortium college campuses is provided by light green vans more commonly known as the shuttle bus service. Operating daily on three routes the shuttle buses run a continuous schedule from early morning to late evening making stops at designated areas on each campus.

Information on offerings at each institution may be best obtained by consulting the college catalog for that school, many which are on file at Gordon Library, or by simply visiting the admissions office or registrar.

In brief, the procedure for cross registration involves consultation with your advisor and approval by the Dean of Academic Advising and the registrar, with final approval at the Consortium institution where the course is to be held. W.P.I. students should keep in mind that they must consider a consortium course as a substitute for any one course of a normal academic workload, i.e. taking a consortium course in additon to three one third courses here would be considered an overload and subject to additonal fees. Detailed information on registration procedures can be found in the operational catalog.

As with any other large program, the consortium inevitably has problems. It must be emphasized that in order to be fair to each college's own students,, cross registration is done only on a space available basis with first perference given to the host institution's students. Since this may limit the enrollment in any one course, the need arises for carefully planning one's schedule. Other difficulties arise from the fact that course time schedules are often very different from school to school. For example: Wheras W.P.I. courses generally start on the hour, Holy Cross courses start on the half hour. Thus if a student here at W.P.I. finishes a course at 8:50 a.m. and has a course at Holy Cross at 9:30, he many not be able to catch a bus that will get him there in time, since he must leave his 8:50 class in time to catch the 9:00 bus which arrives at Holy Cross at 9:30, leaving him no time to get to class. Other difficulties arise from the fact that all school calendars are not alike. Different enrollment days,, vacation times and the fact that W.P.I. is on four 7 week terms, vs the fourteen week semesters of most other schools cause problems. During term break between A and B terms or C and D terms, a consortium student may have to remain at W.P.I. in order to continue classes at any other college which operates on a semester basis.

Students wishing to obtain further information on the Consortium are used to see Dean Van Alstyne (OH211), or may call or write the Worcester Consortium for Higher Education at 300 Mechanics Tower, Worcester Center.

Finally, the best advice one may hear concerning the Consortium can be summed up in the words of Lawrence E. Fox, Executive Director of the Consortium: "The advantage of being a Tech student in Worcester, is that if you want to bother, you can have an entirely different experience going over to another college and it's a pity not to take advantage of it."

photo by Andy Gelbert

Groove tube

T.V. Guide

by Phil Czapla

According to a recent W.P.I. poll, taken late one night at the pub, the top five T.V. hits of the term A session are:

1. Displacement, Velocity and Acceleration (PH1101) starring S.N. Jasperson
2. Fourier Series, Trig and Exponential (EE3301) with R.L. Moruzzi
3. Equation of State-Pure Gases (CM2002) featuring W.L. Kranich
4. The Derivative (Introduction) (MA1010) with J.P. Van Alstyne
5. The Parabola (A Conic Section?) (MA1030) starring W.J. Hardell

While these five runners are indicative of what most Techies are watching on the tube these days, and by no means do they represent the complete picture. The fact is that everyone is watching more and more T.V.; and shows of all subjects have steadily increasing audiences.

This year's viewers will find that much of the violence of previous season's lectures has been toned down, with a corresponding increase in situation comedy lectures (some are really hilarious), mystery lectures (real puzzlers), and of course, game lectures (like What's my Integral?).

Popularity of these shows has increased so greatly that the viewer audience has reached gigantic proportions. While one could formerly enter the A.V. room in the basement of Gordon Library without worrying about missing a favorite show at one of the viewing stations, today the situation is quite different.

Many a disgruntled viewer, including this reporter has had the experience of entering the A.V. room expecting to watch a show, only to find the room overflowing with freshmen watching calculus tapes and upperclassmen looking at various lectures. On one occasion one may be able to see five different poses of Dean Van A doing different problems on each T.V. screen.

Waits of from one-half to one hour are not uncommon during busy periods. When interviewed, Steve Robichaud ('78) commented that he had come to the A.V. room at 7 p.m. and found a line of six people waiting. At. 8 p.m. he was still

Continued on page 8

Tuesday, September 20, 1977 Vol. 5, No. 17

Cinematech flick — "The Magic Flute," Kinnicut Hall, 7:30 p.m.

Editorials:

The recent Civic Center vote in Worcester cast some hope for the future of Worcester. Although the issue passed by only 45 votes, or one-tenth of one percent, the issue has been decided (barring an overturning in a recount, which has been called for by both sides). The decision in favor gives the city the go ahead to float a bond to cover part of the costs of the Civic Center.

Worcester is a city plagued by the same ills as any other city. One of these is a dying retail district, where stores that once flourished are moving to the suburbs and leaving boarded-up buildings. The Civic Center will help to reverse this trend by creating a place for exhibitions, conventions, and the like, thus drawing potential customers to the downtown businesses. It will also increase the night life by offering various sporting events and concerts to the people of the area, who would normally go elsewhere for such entertainment. In addition to the Civic Center, a new hotel will be privately built, and many businesses have made commitments to develop here. A city such as Worcester can only benefit from such life.

What remains to be seen is what lengths the opponents of the Center will go to in order to slow progress on the construction of the Center. They are presently planning lawsuits (against a legally binding referendum, mind you), including some that will challenge the environmental impact of increased traffic flow in the downtown area. It seems that they are tackling the environmental problem from the wrong angle (although I somewhat admire their strategy). Let's hope they finally admit that the people of Worcester have made an intelligent decision and decided on a Civic Center.

Rory J. O'Connor

As we sit in our cozy little editorial office, shivering our shall we say, posteriors off, we have to wonder where all the heat has gone. We're now in the middle of yet another yearly, "Oh my God, it got cold before it was supposed to," spell. Unfortunately, we're also in the middle of the also annual "Sorry, Jack, but we're not gonna turn on the heat until October 15th" spell.

The reason that you feel that you're sitting in the control room of "Ice Station Zebra" is that WPI is striving to conserve energy in every way possible. Their hypothesis is simple: Save on heat, save on money, save on tuition hikes.

Great. I'm all for keeping my tuition down as low as possible. Unfortunately, I think that, once again, the people on the other side of West Street have missed the mark by a hundred feet in setting spending priorities.

Dorm rooms and class rooms are the only areas which are suffering from a lack of heat. I've noticed that a large number of offices on campus have nifty little electric heaters that appear under desks whenever the thermometer takes a hefty drop. This, of course, costs money; probably just as much money to heat the offices as it would have cost if the real heat were on.

Money gets saved, but, once again, it's saved at the expense of student services. We're at an impass as to what things need trimming. In my opinion, as worthless as it may be, you don't let, for instance, a quarter of a million dollars worth of equipment rot away because you won't spend a small fraction of that amount to wire it in. But, then again, that's another story that we'll have to tell in the weeks to come.

Tom Daniels
RJO
MBH

Staff opinion

Ice in September

by Phil Czapala

On a freezing wet and rainy Friday afternoon, the 16th of September to be exact, a semi-annual event took place in Stoddard B residence. The hot water system broke down.

Anyone wishing to dare take a shower discovered himself shivering from a cold icy blast issuing forth from the showerhead with the dial set on hot.

After taking a cold shower that afternoon, I was naturally glad to hear the following morning that the system was being worked on.

Late Saturday afternoon, warm water was coming out of the sink faucets, but with only lukewarm water at low pressure coming out of the shower. Sunday morning, the water was cold again.

Late Monday, to everyone's surprise, the system was completely repaired, with scalding hot water coming from the pipes. Everything was fine this past week until.....

.....Until Friday after September 21st when this reporter, a resident of Stoddard B, went to wash his dirty face. Upon turning the hot water faucet knob, I discovered dark brown rusty colored muck coming out (the muck wasn't even hot).

A check with the R.A. confirmed that the situation had been noticed and the Powers that Be had been notified. Saturday morning the brown coloring was gone, but the hot water was as usual, cold. It was then apparent that I would be taking cold showers for the rest of the weekend.

It is not that I really mind a temporary inconvenience, but it is clearly apparent that something is not being done right. This is the second year that I have lived in Stoddard B, and I can recall at least a few times last year when there was trouble with the hot water. It seems obvious that someone is performing makeshift repairs that keep on falling apart.

Until something proper is done, I suppose that I and the other people in Stoddard B will have to put up with this problem. By the time this article is published, the water will have undoubtedly been fixed, but I would not be surprised if I am shivering again in the shower this coming Friday.

Newspeak

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Energy

by Mark Kelsey

In this article, I will deal with the use of the thermal gradients in the ocean as a source of power. As you might expect, solar energy abosrbed by the ocean tends to maintain a temperature difference or "gradient" between the warm surface waters and the cold waters below. The amount of this solar energy absorbed is in the hundreds of Q of energy, most of which is dissipated, but some of which is kept in significant quantities in areas of the ocean like the Gulf Stream. Since, a temperature difference of at least 30 degrees F is necessary for practical utilization, tropical area of the ocean, like the Gulf stream where the temperature may go from an 85 degree F surface temperature to a temperature of 40 degrees F at depths of 1500 feet or more, would be suitable for development.

Therefore, it seems unlikely that coastal areas, except those in the Carribean and off the southern United States, could be locally developed. However, a number of experiments have been conducted to utilize these thermal gradients despite the great depths that must be used (1500 feet or more). In one of these experiments, a scientist, Claude, attempted to operate a heat engine between the warm surface waters of tropical ocean and the cold waters below. Unfortunately, Claude used ocean water as a working fluid which has a lower vapor pressure than other working fluids. Also, other problems like protecting the plant from the weather and pumping the working fluid contributed to the failure of Claude's experiments. However, other advocates like Andersons and Zener have prepared a number of conceptual designs with their operating efficiencies and costs estimated. Some important features of these designs are: heat exchangers with low cost per surface area, and a small temperature drop to the working fluid which could be ammonia, a fluorocarbon refrigerant, or an organic fluid like propane.

Many studies, like those put forward by Andersons and Zener have reported favorably on the technical feasibility and economic feasibility of ocean thermal-gradient power plants. Reviews, like the one done by T. R. W. Systems, the Energy Study Group, and Lockheed, groups which are independent and not necessarily advocates of these power plants also generally concluded that technical problems of the systems could be solved and that they are economically feasible.

Therefore, I must conclude that certain efforts should be made to overcome these technical problems, design and build ocean thermal-gradient power plants where feasible, such as in the Gulf stream.

Sources: *Annual Review of Energy*. Ed., Jack M. Hollander, Assoc. Ed., Melvin K. Simmons (Annual Reviews, Inc.: Paulo Alto, Cal., 1976). p. 143.

Energy R & D and National Progress. Prepared for the Interdepartmental Energy Study by the Energy Study Group under the direction of Ali Bulent Cambel, p. 336.

ANNOUNCEMENT:

There will be voting on two amendments to the constitution on Thursday, September 29, 1977 from 10-4 in Daniel's Lobby.

Petitions

Petitions will be accepted for: Independent Rep. (Student Government).

Qualifications:

A candidate must be:

1. A full-time undergraduate
2. A non-fraternity member

Nominations:

1. The petition shall state, "We, the undersigned, nominate (Name) for the office of Independent Representative."
2. All signatures shall be numbered and legible.
3. Only eligible *independent* voters may sign a candidate's petition, and may sign only one (1) petition for any given office.
4. Deadline for petitions is 4:00 p.m., Sept. 30.
5. Submit petitions to Tom Panek, Student Body President (Riley 309). *Don't mail petitions.*
6. Elections will be held in Daniels Hall on Thursday, October 6, 10 a.m. - 4 p.m.

RALPH NADER will be speaking at Worcester State College, Thursday, October 6th at 12:30 p.m. All WPI students are invited to attend – Contact MASS PIRG at x. 551 for more information, or watch bulletin boards for announcements.

LEGAL NOTICE:

Notice is hereby given of the annual meeting of the members of Goat's Head Club, Inc. to be held in the Commons area of the Pub on September 27, 1977 (Tuesday) at 12:00 (noon). Legal membership of this corporation shall consist of all students, faculty and staff of Worcester Polytechnic Institute who are eighteen (18) years of age or over.

The nominating committee's report is submitted herewith. Unless notice in writing is received by Clerk—Secretary Ms. Judith Scherben, WPI Box 1206, prior to the meeting, absence from said meeting will be deemed approval of the slate of officers submitted by the nominating committee by each member. Nominations may be made from the floor in addition to those submitted by the nominating committee provided that for nominations from the floor to be valid a notice signed by not less than seven (7) members giving the name of such nominees be first filed with the Clerk—Secretary (Ms. Judith Scherben, WPI Box 1206) not later than one (1) day prior to the date of the annual meeting.

Signed: Judith Scherben, Clerk—Secy.
H. C. Thompson, Pres.—Chmn.

LEGAL NOTICE:

In accordance with the Constitution and By-Laws of the Goat's Head Club, Inc. (Pub), the nominating committee submits the following names for members of the Pub board in 1977-1978:

Faculty—Staff	*WPI Students*
Prof. Peter Christopher	Chris Corpus
Prof. Theodore Crusberg	Beth Driscol
Prof. James Demetry	Mike Neece
Prof. Wilhelm Eggimann	Tom Panek
Prof. Thomas Keil	Rick Poole
Prof. James Matthews	Bill Potter
Prof. Alvin Weiss	Mark O'Neill

Respectfully Submitted:
John Nyquist
Dean Bernard Brown
Prof. Lyle Wimmergren

Student Govt. Meeting

The Student Government meeting of September 20, 1977 was called to order in the Student Affairs office at 4:00 p.m. by President Tom Panek. The roll was taken. The minutes were read and accepted.

Committee Reports

Senior Class — The Senior Class is planning the Senior Dinner Dance on the second or third weekend of May.

IFC — There was an IFC meeting on Monday, September 19, 1977. There will be one on Monday, September 26, 1977.

Announcements

There will be a Wine and Cheese party between the Clark, Holy Cross and WPI student governments on September 30, 1977 between 7:00 and 9:00 p.m. at Higgins House.

Mass. PIRG will be invited to a meeting so we can try and clear up some of the questions about the group.

New Business

At the request of Mr. Heselbarth, two sophomores were added to the Committee on Financial Aid. They are Mary Anne Cappe and Anne Marie Kruglewicz.

Discussion

We will have to decide on how to deal with students who have been reassigned to other classes when it comes time for elections. An amendment to the election by-laws will be proposed next meeting.

Respectfully submitted:
Paul S. Wrabel
Secretary

Elections

Once again, we are in the process of electing this year's *Dining Hall Committee, Dormitory Hearing Board,* and *Internal Residence Hall Committee.* Nominations (petitions) for both the IRHC and DHB are available from Resident Advisors as of Sept. 27th. Please note that these forms must be completed and returned (*not* mailed) to Cathy J. Reed at 28 Trowbridge House by 4:00 p.m., Mon., Oct. 3rd, as designated on the form. The final election will be held on Thurs., Oct. 6th.

Floor meetings will be held in order to elect members of the Dining Hall Committee. Also at that time we will need volunteers to man the polls on the 6th.

The *DHB* has jurisdiction of cases involving dormitory residents in their own role as well as hosts which involve infractions of dormitory rules and regulations. The *IRHC* serves as the official forum for residential complexes concerning residence policies. The *DHC* serves as an advisary committee for the campus food service. Additional information about all three groups can be found in the Student Body Constitution.

Any questions may be referred to Cathy J. Reed (Chairman) via Box No. 150.

Watershed

The newly-formed Merrimack River Watershed Council is holding an incorporation meeting on Wednesday evening at 7:30 p.m. on September 28th, at the Speare House Restaurant, 525 Pawtucket Blvd., (Rte. 113) Lowell, Mass.

Some of the goals and possible programs of the Watershed Council include the development of a greenway plan for the Merrimack River; designation by the Department of Environmental Management of the Merrimack River as a "Scenic River"; land banking or land acquisition-easements of critical areas along the river; technical assistance to local boards and commissions on matters affecting the river; and to serve as a resource center and clearing-house for other tributary watershed associations, as well as to work to establish tributary organizations where they are now lacking. Dr. Evelyn Murphy, Secretary of the Massachusetts Executive Office of Environmental Affairs, will be the Council's keynote speaker.

Public awareness and commitment is vitally needed to bring about any one of these goals. Everyone is welcome to attend and to join, especially those who believe that government and industry are not beyond the reach of ordinary people, and changes can be brought to fruitition. For further information contact the Northern Middlesex Area Commission, 144 Merrimack Street, Lowell, Mass.

LEGAL NOTICE

Notice is hereby given of a special meeting of the members of Goat's Head Club, Inc. to be held in the Commons area of the Pub on October 4, 1977 (Tuesday) at 12:00 (noon). Legal membership of this corporation shall consist of all students, faculty and staff of Worcester Polytechnic Institute who are eighteen (18) years of age or over.

The following will be acted upon at this meeting:

1. Transfer of all assets of the Goat's Head Club, Inc. to Worcester Polytechnic Institute, Worcester, Massachusetts.

2. Direction to the officers of the Goat's Head Club, Inc. to dissolve the corporation; to do all acts and execute all documents necessary to accomplish the transfer of all assets and dissolution.

Signed: W.F. TRASK, Clerk-Secty. Protem
H.C. THOMPSON, Pres.-Chmn.

Consortium

by David Potter

A survey was taken last week on the subject Worcester Consortium Higher Education. The consensus was positive, but comments were made about improvements in the system.

One problem cited was that other schools start their classes at various times. For instance Holy Cross starts their classes on the half-hour. This means that if you take a course at the Cross, you will loose at least two hours of class-time here. One student suggested that a compromise starting time for Consortium schools could be reached.

Another student said that the starting dates of the members schools vary quite a bit. He said that it was necessary for him to come back to Tech early in order to attend classes at another school.

Most of the comments were about the Consortium Shuttle. A good number of people brought up the fact that the shuttles is free transportation. One student said that he used the shuttle to get to his IQP. His project is at a grammar school near Clark. This makes the shuttle convenient for him to use. The overall feeling was that most of the member schools were helpful to students from other colleges.

As was stated before, the only major complaint is that the schedules of the member schools should be amended by compromise. However, the general opinion of the students surveyed was that the consortium is an important educational tool and should be continued.

Women's Weekend

Women's Camp Project
West Side Station-Box 204
Worcester, Massachusetts, 01602
Harvest Time Gathering for Women
October 8-10, 1977

Ready for a change for the regular routine? Treat yourself to a weekend of rest and relaxation as women from different backgrounds, age and race come together for an experience in self-development and community building. Students, faculty, administrators, support staff as well as women from Central Massachusetts and across New England will be joining together to gather our energies for the winter ahead. Whether you are single, divorced, married, young, old, or inbetween, this week-end is designed especially for you as we learn to share and to support one another.

Through the efforts of the Worcester Area Campus Ministry and the American Friends Service Committee this Harvest Time Gathering is being held at Marion's Camp, just 20 minutes from downtown Worcester. The week-end begins with lunch at 12 noon on October 8 and extends through Columbus Day afternoon, October 10 at 2 p.m. This will be an experience in sharing, celebrating and learning as we rest and rap. A special feature will be folk dancing with Cindy Green on Saturday and Sunday evenings. A celebration is held on Sunday morning: participants are asked to bring something to share, like a poem, a song or music. A literature table containing various books and pamphlets on topics relevant to the needs of women are available for browsing or for purchase. Discussion according to the requests of participants will be an integral part of our sharing together.

Week-end Gatherings for
Revival and Survival

Come meet with friends and get acquainted with the developing network of women across New England. The cost is $26 for the week-end. Make your check payable to the "Women's Camp Project" and mail it to us at Box 204, West Side Station, Worcester, Ma. 01602 by the end of the month.

Marion's Camp is beautifully located on Lake Singletory, just south of Worcester, a perfect place for our Harvest Time Gathering with colorful fall foliage. The swimming conditions are ideal, and the setting provides cabins with bunks, a large lodge with toilets and showers in the same building. Marion's House provides a place to dine and lounge, while the grounds are an invitation to walk, relax, and enjoy. Here is an opportunity for revival and survival...recreation that re-creates!

For further information contact Reverend Jo-an J. Bott at 753-0007, or Peggy Marengo at 752-0074. In the Boston area call Kathleen Gooding at 661-6130.

Energy Source?

Have you heard of an energy source which: provides heat, light, and mechanical power, provides nutritious, non-offending fertilizer, may reduce pollution of underground water supplies, and disposes of garbage, lawn clippings and leaves,

and which: with simple precautions, is safe for general use, can be carried out on a small scale as well as large, uses simple, inexpensive technology, has no moving parts, and is not directly dependent on wind and sun?

Dr. B. T. Lingappa, Professor of Biology at the College of the Holy Cross, has just such a source under study. It is a methane gas generator.

By means of a simple fermentation process, organic waste materials are converted into methane, a colorless, odorless and non-poisonous combustible gas. Materials such as check or cow manure, garbage, and trash vegetation are shredded and mixed with water to form a slurry which is poured into an oxygen-free chamber. Certain bacteria act upon the slurry to produce a gas which is 60-70 per cent methane, the remainder being mainly carbon dioxide. The gas is then piped from this fermentation chamber to a collector, an inverted tank floating over water. Tubing fitted with valves deliver the gas from the collector to the heating and lighting appliances. These appliances are similar to those used with natural gas (which is nearly pure methane), but they require a different adjustment of the gas-air ratio because of the presence of the carbon dioxide in the "home-made" gas.

Since 1974, a small laboratory model of such a methane generator, designed by Dr. Lingappa, has been operating at Holy Cross. This generator, operating with a single weekly charge of four gallons of cattle manure slurry, produces about two cubic feet of gas each day. This amount is enough to cook a breakfast.

More recently, as a project involving students from Holy Cross, Clark University and WPI, a larger generator was constructed under Dr. Lingappa's supervision. This unit is capable of supplying the hot water heater and cook stove of a farmhouse, an ideal application because of the ready access to input materials.

Work on this project is continuing. Currently, Dr. Lingappa is investigating the feasibility of installing methane generators at local dairy farms. There are 290 of these farms within 25 miles of Worcester producing over two million pounds of manure each day. Methane generators offer the promise of supplying a significant portion of the energy requirements of the farm while at the same time helping to save the environmental problems posed by the disposal of this waste material in this densely populated region.

Project opportunities exist in this investigation. Dr. Lingappa is seeking WPI students to work in this study, starting *now*. If you are interested, contact either Dr. J. S. Demetry at the IQP Center or Prof. G. E. Stannard in Atwater Kent for further information.

WPI's Welfare System?

WORCESTER, Mass. — Worcester Polytechnic Institute is undertaking a study for the U. S. Department of Labor that may help shape future welfare programs.

Professor Leonard Goodwin, head of the Department of Social Science and Policy Studies, is conducting a two-year $378,000 investigation into the effects of welfare and unemployment insurance on the incentives of persons to work and to maintain their families.

About 3000 persons will be interviewed in three cities across the country, including men and women just entering a training program for welfare recipients, those starting on unemployment compensation, and for comparison, persons who are regularly employed. These same persons will be reinterviewed a year later, showing whether the programs increase or decrease willingness to work and to maintain a family, Prof. Goodwin said.

Initial data collection will begin in a month and a report on preliminary findings should be ready in Spring 1978, with the final data collection being completed a year after that, he said.

Prof. Goodwin has been at WPI since 1974. He came to WPI from the Governmental Studies Program of the Brookings Institution, Washington, D.C., where he had been a research associate. Prior to that he was head of administrative operations at the Committee on International Exchange of Persons, National Academy of Sciences, also in Washington.

THE GREAT NEWSPEAK PHOTO HUNT CONTINUES!

Only one person correctly identified photo no. 1. Photo no. 2 is even more challenging! Remember, though, you don't have to be right to win. Keep those imaginations working, too! Send all your entries to:

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WEEK TWO
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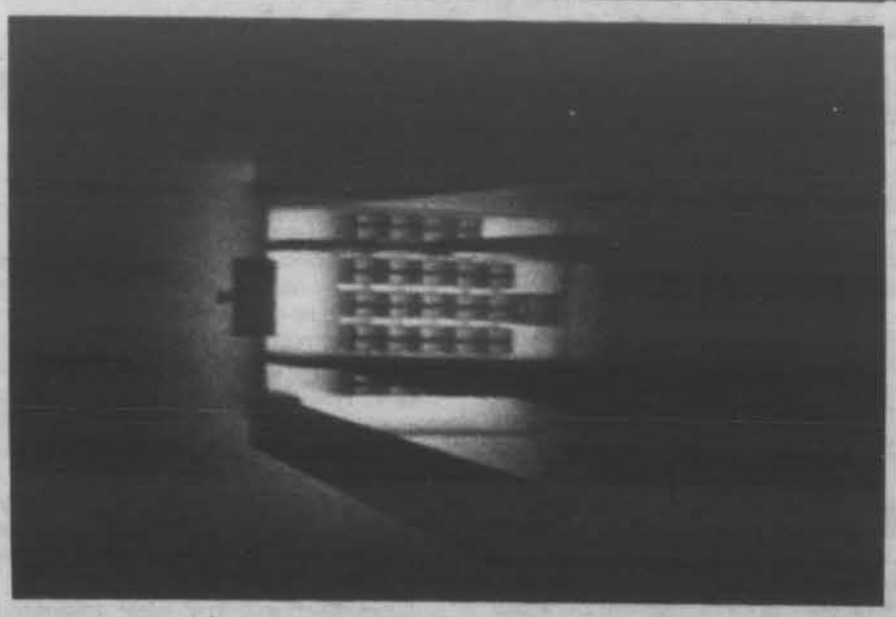


The nuclear saga

From neutrons to power

by Tom Daniels

Back in 1951, a homesick professor of thermodynamics at Duke University sent letters out to several New England schools, inquiring about any open teaching positions that might be available. Five years later, long after he'd thought they had forgotten him, Leslie C. Wilbur received a reply from WPI. It seems, however, that the school wasn't interested in a new thermo professor as they were in getting someone with the ability to open a new spectrum of study — nuclear engineering.

"They were thinking about nuclear back in 1956," said the soft-spoken Wilbur. "This was a new field, and it seemed fairly obvious to all of us that we needed something like this to supplement our fossil fuel supplies. At that time, everything looked good. The federal government was making grants of about $150,000 for the purchase of a small reactor, such as we have. General Electric, at that time, was making small reactors with eyes to the future, and building lots and lots of them. They sold the first few at a loss. We paid $135,000 of the $175,000 total cost. With $15,000 for additional instrumentation, I was in business."

Professor Wilbur's "business" takes up the north end of the first floor of the Washburn Shops. One enters the reactor facility via an always locked door, and enters a small office that is crammed full of set upon set of binders containing numerous license reports Federal Regulations, and operating data. This mini-Congressional library is required by the nuclear regulatory Commission, which mandates that all such records must be readily available for public inspection. Just last Wednesday, as students worked in the lab, two NRC inspectors appeared, without warning, and proceeded to tear apart the mountain of forms. Wilbur, while agreeing that they were just doing their jobs, cited one instance where the G-men took themselves a little too seriously. "Several years ago, we were cited for not having some of the federal regulations readily available to the public," he said. "They were in a bookcase, behind my desk. Before the next inspection, we had to build that little shelf in front of the desk!"

> "I've heard no new arguements in the past five years."
>
> — Prof. L. C. Wilbur

The heart of the facility is a pool-type, educational reactor, with a legal maximum power of ten kilowatts. "It's fairly small, as reactors ago," said Wilbur, likening the 10kw output to ten two-slice toasters of 1000 watts apiece. "We do, of course, operate in exactly the same way as any commercial reactor."

At first, a visitor to the facility sees nothing unusual about the eight by eight foot concrete pool in the middle of the lab. Fifteen feet below the surface, however, is a fifteen by twenty-four inch core, containing about seven and a half pounds of fully enriched U-235.

The WPI facility, which first achieved critical operation in December of 1959, was one of the earlier reactors in the United States. "We are the only pool reactor, of this size, in New England," explained Wilbur. "MIT has, I think, a five megawatt reactor that's completely enclosed. It's mainly used for contract research. The University of Rhode Island operates a 3 megawatt reactor for the state of Rhode Island. Lowell also has a 3 megawatt facility. They got the construction permit in 1961, but it went critical just last year. They had a lack of funds, as well as other problems." He added that Stanford purchased that is the twin of the WPI reactor.

To compliment the reactor, WPI has, over the years, built up an impressive array of radiation detection equipment, including scintillation detectors, several multi-channel analysers, and a PDP 11-10 computer, which is used along with a 4096 channel analyser mated to a GeLi detector, for high resolution gamma spectroscopy. This equipment allows students to carry out a variety of experiments in the area of neutron activation analysis. This process involves placing a sample of interest into the reactor, irradiating it, and then attempting to determine its exact makeup.

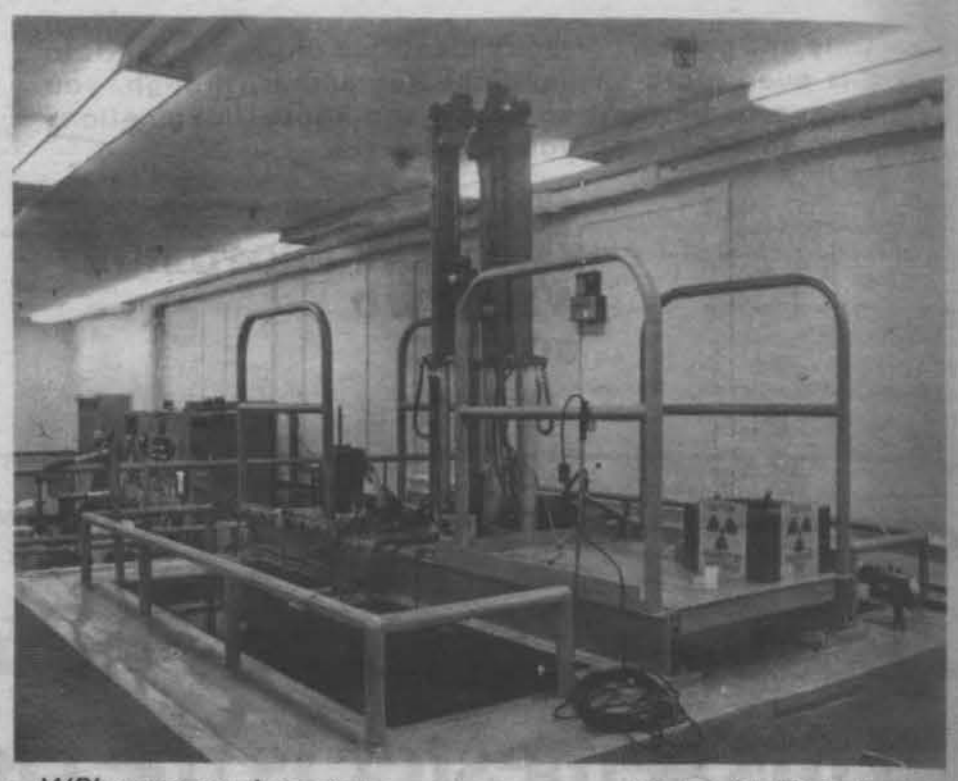
One such student project, which Wilbur cited as exemplary of the type of work possible at the facility, was a study of the possibility of mercury content in fetal blood. "A certain type of latex paint contained mercury, to prevent spoiling in the can," said Wilbur, "and some people were concerned about possible asborbtion. An expectant mother painting a room was exposed to higher levels of mercury vapor than are permitted by industry." The project was spurred on by a court case concerning a child born mentally retarded, possibly due to mercury poisoning before birth. Although accuracy of one tenth of one part in a million was achieved, the study requires going a factor or two lower. Further work on the subject is being carried out by the Life Science department.

Courses offered in nuclear engineering are now filled to the limit. Of the 28 students currently taking NE 2700, Professor Wilbur estimates that nine or ten will "go all the way in nuclear." While the nuclear option is not recognized as a major at WPI, those students who take at least three of the four basic, sequential courses, will in all probability end up working in the field. The majority of the students in the courses now are in ME, but, in the past, many electrical engineers, and some chemical engineers, have gone into nuclear. "Surprisingly," added Wilbur, "some of my students over the years have been math majors who decided to make the switch to engineering." IQPs are also being done in the field, including some dealing with federal regulations, environmental impact, and energy in general.

In light of the recent protests at Seabrook, one would expect that WPI would have received some complaints about having a reactor on campus. According to Wilbur, however, the public has been relatively quiet. "The only complaint we ever got was back in '59, when a man called the school, and said that his television reception was being ruined by the reactor. Unfortunately, he'd misread the newspaper stories, since the reactor was still at the GE plant in California! The nearest thing that ever came close to another complaint was about two years ago, when the newspaper called to check a story. Some guy was coming up West St. in his Volkswagen, and his catalytic converter warning light came on. He went to the garage, and they told him, 'Oh, you were near Worcester Tech, and they have a nuclear reactor. That makes the light go on!' I told the paper we weren't even running the reactor at the time. I later found out that one of our radio stations was, in fact, causing some kind of interference that was turning the light on. Nuclear reactors tend to get blamed for almost anything."

After reading this feature, there will be those who feel threatened by the possibility of a nuclear disaster occuring on campus. Professor Wilbur, who has years of experience in the field, including a stint at the world renowned Oak Ridge laboratory, the worst possible thing that could happen, would be an accident in which one of the reactor's 24 fuel assemblies was damaged. Replacement of the unit would be very costly. "It's not really credable that you could hurt anybody, unless they deliberately swam to the bottom of the pool, and then the operator would probably kill him first! If you fell in, you'd get wet, and that would be the extent of the damage." If all four control blades were pulled out all the way, there might be some localized boiling of the water, but it would eventually level off at 50 degrees C above ambient. A core meltdown is a physical impossibility, unless all the water were removed from the pool. If there were no water, the core would not operate. "It's not a matter of machinery," says Wilbur, "it's the laws of physics that prevent this from happening."

Moving to the field in general, Wilbur stated, "I'm still optimistic about nuclear energy. It comes down to a discussion of the relative disadvantages of all the ways of producing power. The common way of looking at things is risk-benefit analysis. I think that a better way of doing it is to say, 'What are the risks, and what are the risks?' This makes more sense, because you're comparing the same things. Risk-benefit is hard, because, if someone should die, how can you weigh a life against something? I've done quite a bit of research over the years, and I'm thoroughly convinced that the least risk is with nuclear power, far and away. You're not going to get down to zero risks in any category. You're going to produce some environmental damage, no matter how you produce the power, even with hydro or solar."



WPI open pool reactor *photo by Tom Daniels*

Although he's basically optimistic, Wilbur cites footdragging as the reason that we're now facing an energy crisis. "The numbers seem to indicate that we're not going to make it, even with all the nuclear we can build. We've been too slow getting up there. A typical station requires about thirty different licenses." An enormous amount of duplication is involved in the issuing of these licenses. One of the biggest detriments to the licensing of a station is a maneuver known as the "intervener procedure". Under this provision, any person or group may ask "pertinent questions", thereby delaying issuance of the license. "The intervener procedure has been perverted by those who are simply against higher technology. They take up valuable time with just nonsense questions; like 'how many employees were on your site during construction in the month of March in 1971?' Now, the company doesn't know offhand, so it has to go back through its records of the past six years, taking maybe a week or more. Then, a witness can't come on the day he's scheduled, and the months pass. In the old days, this was a subtle form of blackmail. An intervener group would go to the power company and say, 'Look; if that station is down, after it's completed, it's going to cost you $2 million a month to keep it idle. What we want is only going to cost you $10 million, but we could keep you closed for a year."

Such idleness has already cost the United States the race in developing a successful fast breeder reactor. France developed and is now operating the Phenix breeder, and Russia, West Germany, Italy and Japan have followed suit. As you may know, President Carter earlier this year called for a halt to breeder development in the U.S. He claimed that, since the fuel produced in the reactor is plutonium, which is also used in the production of bombs, to continue it's development would only serve to promote the arms race throughout the world.

Professor Wilbur disagrees greatly with Carter's policy. "Any nation that wants a bomb can have one," he argues. "The technology is already in the open literature. Spend the money, use the literature, hire, if necessary, foreign technicians, and you can certainly do it. India did it with a small research reactor from Canada, and heavy water from the United States." Most policy experts agree, in fact, that most small countries would rather not have an atomic bomb, since it is generally much safer to fight it out with conventional weapons. Many smaller countries are too unstable to enter the atomic race, as the ruling party fears that a rival political force might gain control of the bomb. In a measure of support for this way of thinking, Congress, last Wednesday, voted to continue breeder development over the President's objections.

Even with the Clinch river breeder funds restored by Congress, however, it appears that the best move would be to purchase a reactor design from the French. "It (Clinch River) is pretty far behind the times, and it's costing enormous sums of money," Wilbur mused. "The French reactor cost something like $40 million, which is a nonsense figure at today's cost. They built it in four years. Clinch River, last I heard, was budgeted at $1.8 billion, and was going to take until the late 1980's. They keep changing the programs! They don't know from one year to the next if they're going to exist, and you just can't do anything on that basis."

Two problems, waste disposal and decommissioning costs, have often been mentioned by opponents of nuclear energy. As of now, waste fuel is being store mostly underground. Processing plants, which have long been advocated, by the industry have been built, but government regulations have kept them closed. Again, Wilbur sees a lack of governmental leadership. "You've got to have a clear picture of what the regulations are," he says. "We're in the middle of a tight energy situation, and the government is making us put a very large source of energy in the ground!" As for, decommissioning, Wilbur says that detailed cost studies of what it will take to decommission an obsolete reactor in 30-40 years will themselves soon be obsolete, due to a constantly changing technology. He points out, however, that many power companies are already putting some money away towards this future need, and he sees no reason why this relatively trivial question should hold up the entire industry.

Since there won't be enough nuclear power for quite a while, alternatives are sorely needed. "What we have to get into is coal, now," said Wilbur, "but just a thing like moving the coal is going to be hard. It takes something like 150 railroad carloads of coal every 24 hours for one power station, and, when you start talking about the number of power stations we'll need by the year 2000...well, the railroads are totally incapable of moving that much coal." Unfortunately, it appears as if now people are counting on solar and wind energy to take a major load of production in the next ten years. "We just don't have anything like a megawatt windmill," says Wilbur. "You can talk and speculate all you want, but for the next 30-40 years, we're down to coal, oil, gas and nuclear."

Professor Wilbur feels that most people are extremely uninformed about the nature of nuclear power generation. He claims that the nuclear industry has the best safety record "in the business. No civilian power reactor has ever had a serious accident related in any way to the nuclear segment. One worker was killed in one plant, but his death occurred when the reactor was down for repair and refueling, and he was not anywhere near the reactor."

The most frequently heard myth among nuclear opponents is that a nuclear power reactor could blow up. This is simply not

true. "It has totally different ingredients," stated the professor. "It's just like saying that a cake can't blow up in the oven. A power reactor core is 5 per cent U-235, and 95 per cent U-238. A bomb has U-235 or plutonium in the high 90's. The 95 per cent U-238 will not sustain a chain reaction, so it's physically impossible for it to blow up."

Looking towards the answer for the misinformation problem, Professor Wilbur said that he'd been involved in educating the public for 15 years, and he feels that further education will do no good. In almost every vote, he points out, the public has come out in favor of nuclear energy. In California, one such vote ran 2-1 in favor. He feels that those favoring it, as is often the case, are the comparably silent majority, the type of people who do not write letters to their senators or congressmen. Since Washington hears from only those opposed, politicians must assume that public opinion runs against nuclear power.

"The Congressmen, to a man, I think, are unknowledgeable about energy in general, and about nuclear in particular. It's a dismal situation." Thus, Wilbur was encouraged when President Carter took two steps recently to step up the work towards progress. "The biggest thing he's done was to shorten the lead time from eleven to five years, which is exactly what needed to be done. He's also appointed James Schlessinger as Secretary of Energy. He was formerly head of the NRC, and a very smart man; smart enough to know what the story is."

There are a lot of roadblocks on the road to what Professor Wilbur sees as the goal of establishing nuclear power as a safe, acceptable tool. Some are comical. "We had the situation once where a regulation was passed that a plant couldn't discharge water with over so much radiation per liter. One plant couldn't even flush the toilets, because the natural activity of the water coming into the plant was actually higher than the regulation allowed!" Radiation standards are, in fact, extremely tight. No nuclear plant is allowed to raise the average background of a person living on the boundary of the grounds 365 days a year, by more than 5 millirems a year. However, the average background radiation in the US is 145 millirems a year, and a plane flight from Boston to San Francisco and back will increase backgrounds by five millirems.

Most roadblocks encountered, however, were not a bit comical. "I've heard no new arguments in the past five years," said the weary advocate, "it's just the same thing. You can show these people where they're absolutely wrong, but at the next public meeting, they're back saying the same thing. It's an exercise in futility."

Student opinion

Somewhere in Washburn?

by Don Calawa

The pulse of public opinion was read once again on campus — this week on the long-standing issue on nuclear energy. Students were stopped and polled on the quad, at the cafeteria, heading for classes, doing laundry, etc.

Questions posed by the survey generated a maze of replies. The WPI populace answered in many intelligent and-or imaginative ways. The first question, "What is the first thing you think of, when someone talks about nuclear energy?", proved either a thoughtprovoker or ice breaker, depending on the interviewee's personality. Dave Wilson ('80) from Sudbury, Mass. (also an ME) offered, "It's one of the only alternatives (for energy) — one of the big ones. If they ban it from the start...say, 'You're not going to do any research,' then they're going to be stuck. It won't get a chance...to reach its final state where it'll be all right."

A "core melt" — the loss of collant and subsequent overheating and melt-down of a reactor's core is a big problem, and major fear of the opponents of nuclear energy. When asked what the term "core melt" meant, Hal Solbert ('81) of New Jersey, a CE major inquired, "Is that a failure of some sort?" By and large, however, the students recognized the danger of a core melt, I.G.: an irradisted countryside around the plant. An irradisted area did not worry Hal, as he spoke from personal experience, "We had a radioactive fallout in New Jersey this summer. It fell on the grass and the cows were eating it, and their milk was becoming contaminated. I think it was an Asian or Japanese test. The fallout came over New Jersey and it started to rain...It wasn't that bad, because everybody just stayed inside and didn't drink the milk...and when it was done raining, it was alright."

Others responded with a variety of speculation to the suggested situation, "If a core melt occurred near your home, what would you do:" A young Bio-Med. Eng. freshman whom I knew as simply "Lisa" from Shrewsbury, gave an oft-exclaimed response. "I don't know. There isn't anything you can do." The remainder of those surveyed concured with Paul ('79) a ME under-grad; "I'd get out. *Fast.*" Mark Andrews ('80), a CM major from Acton, Mass. extended a third alternative. "I'd say I'd be ticked off...the only thing I could think of is to bring them (The people in the contaminated area) in protective bomb shelters and stuff like that."

If terrorists captured a nuclear power could they convert it into an atomic bomb? Andy Cay ('81) of Keene, N.H., a ME student responded, "Yes, they could." Given the same problem, Bob Makowsky ('81) of Southwick, N. H. (a CS major) spoke curtly, "No...not possible." Who was right? In truth, both, as Dan Buckley ('80) from KAP (another CS major) explained, "Not at a nuclear plant, because the uranium is not "rich" enough, it's all U235, not U238. They could, however, build one out of plutonium that's produced by the plant (as a byproduct), if they stole a large amount of that."

As almost an after-thought, a final question crept into the survey, did you know that WPI has a 10-kilowatt, open pool reactor on campus? Most people flashed back their answer in a quick affirmative. An interesting note to this is that while most knew it was here (unlike Lisa, previously mentioned, who exclaimed, "They'll blow up the campus!"), a few weren't exactly sure where it was hid. Dave Wilson (also previously mentioned) stated (?), "Yeah, I think it's...where is it, in Washburn?" (Yes, folks, it's sloshing away happily in the basement of Washburn. Has Washburn ever had any 'radiation-alert' drills, one wonders.)

A great "thank you" is extended to all who participated in the survey. Whether 'in print' or not, everyone involved contributed thoughfully to the published result. This willingness to respond, especially when uncertain or skeptical proves that even when total "competency" is not always there, the "sufficiency" of their knowledge, peppered with reasons marks the "Techie" from the "non-Techie."

Jazz/rock preview

by Maureen Higgins

On September 30th, the Social Committee will present Pat Metheny and Ronnie Laws in concert. I was fortunate to see Pat Metheny performing at Clark University last Saturday. I was very impressed. The band was excellent, playing its own distinctive brand of Jazz-rock.

Metheny himself has been an incredible success. A Missouri native, he wowed the Kansas City Jazz Festival when he was just sixteen. Six years after he'd first heard them, he joined the Gary Burton Quartet. His flowing, freestyle talent on the six-string and electric twelve-string guitar is sophisticated, yet very listenable. Metheny released his first album in 1976 called *Bright Size Life* and has just recently released another, *Watercolors*. Metheny music is audible, but not deafening. Following this act will be the incomparable Ronnie Laws.

Who is Ronnie Laws? He is one of a multitalented musical Texan family. He picked up the tenor sax at age twelve, and now at twenty-four, he plays the flute and all reeds. He had played with Earth, Wind, and Fire, Quincy Jones, Walter Bishop, and Hugh Masaleka before branching out on his own. All of his three albumns have topped the popcharts. His success is simple. Laws realizes that straight jazz draws an older crowd, so he concentrates on writing for a younger one. His style is funky, percussive, often improvisational, but always controlled. Although he is rooted in jazz, he plays rock, funk, and blues.

Incidentally, in 1976 the Record World Almanac named Ronnie Laws number one top male artist, number one jazz flutist, and number two jazz sazaphonist. All his records are on Blue Note: *Pressure Sensitive* which brought him much critical acclaim, *Fever* which was more of the same good music, and *Friends and Strangers* (1977) which he co-produced himself.

With such talented musicians as Ronnie Laws with Pressure and the Pat Metheny Group how can one not go? And it's on a Friday!

A night in the pub

Peter Alsop is a one of a kind musician you have to see to appreciate. Last night, fifty cents was cheap for a fine evening of quiet entertainment in the pub. He is uninhibited, mellow, folksy, serious, rowdy, lewd, and comical all at once. He is a story-teller who was able to capture and hold the attention of the pub crowd, which is no easy task. He was competing with the other functions of the pub such as alcohol, the place to go, the pick-up scene etc. He did comment on how good the audience was. His silly songs went over well. Maybe this is just a silly place. He said "isn't it amazing the things people will do to make a living." A well-educated man, he is doing what he wants to do.

He writes and sings about things that are important to him. If he writes something that sounds good, but realizes just isn't true, he won't keep it. Relevant subjects such as drugs, the evolving male-female relationships, human rights, and sex are all dealt with. "The One About the Bird In the Cage" personified what is all too true in many relationships — one partner stifles the other. He seemed to thrive on the good energy generated.

The pub, because of its size, exudes an aura of closeness, a community affect which was perfect for the type of show Alsop puts on. He plays the kazoo, harmonica, guitar, and an American folk instrument called a dulcimer. His Appalachian dancing doll brought rounds of applause in "I'm Gonna Mail Myself to You." He is a man who sings about things traditionally covered by female vocalists. He is a different kind of brave and thoroughly entertaining. Asleep At The Helm, is a conceptual effort and his latest release. He plans to deal with child liberation in his next. Writing and playing are gratifying to him and when one likes to perform the outcome is usually good. It was!

Alden block-buster

Reviewed by Maureen Higgins

The nightclub concert last Thursday in Alden Hall featuring Rory Block and John Hammond was a financial failure. If you like to share a performer with a small audience of thirty-five, then you would have enjoyed this show. There were some pluses, such as a cash bar, waitress service, nightclub atmosphere, and top quality performers. But, the drawbacks included an uninformed campus, lack of publicity, the scheduled date (I know first hand about the CH 1010 exam Friday morning), and the not exactly intimate atmosphere in the nearly empty hall.

Rory Block, a female vocalist, tried to get the crowd to dance. Her music was very danceable, being a composite of blues, jazz, and soulful disco. A determined singer she belted out uptempo, rhythmic, and funky numbers. Her gutsy voice also carried quite a few oohs, aahs, and hmms. There was something for everyone. Her band consisting of Pat Murray on the congos, Eric Valdina on drums, lead guitarist Edgar Vaspovic, bassist R. John Hines, and Rory herself on the piano, were strictly backup. The band's set-up was unimpressive, but the result was anything but that. Rory says she likes playing anywhere because it's the feeling generated.

Her powerful "Sell Out" says you don't have to sell out to do what you want and Rory Block is living proof of that. She began playing guitar at eleven. She started in the traditional blues, was pressured to write her own songs, wrote, and found that it was a great relief. Her first album, *Rory Block*, was over-produced by RCA, more like something done to her than with her. *I'm In Love*, her second, was an expression of herself on a very tiny label. It attracted much attention. Her latest, *Intoxication*, is her music. In that album the means and her part in the production were better. She says Chrysalis is an innovative and talent, not name, oriented label. As you usually don't start famous, Rory noted that although you should mold, you should do your own thing, and when you make it, and you'll get the respect. She believes in herself before her career, and that her present situation is her definition of success — she is both recording and performing.

She played several blues numbers accompanying herself on the guitar, and than swung into her own material with the band. As far as I'm concerned everything she played was worth listening to, but particularly good numbers were "I'm In Love," "I Made It All By Myself," and "You Can Lie With A Straight Face." She ended her set with a surprise — "Carwash." The stage was then cleared for John Hammond — solo.

The stage was empty except for a stool, a chair, two microphones, a six-string, a twelve-string, and a steel bodied guitar, and one man, John Hammond. He opened with "You're So Fine" and continued to play good blues throughout his two sets. True blues numbers such as "Steadily Rolling Man," "Statesborough Blues," one of my favorites, "Who Do You Love," "I Can't Be Satisfied," and "Come On Into My Kitchen." He played without respite. Many were impressed by his amazingly fast fingering and talent on the guitars. He did what he does best — the blues. On stage he detached himself from the situation and became his guitar and harmonica complemented by a voice which can exceed ninety words a minute. The tell tale sign was his watch checking habit.

He felt that the concert was a dud and was extremely deflated. The echoes produced by his playing to such a small audience in such a large hall were destructive. The audience never really got into his music and the awkwardness was easily identified. John Hammond has played cross country five or six times this summer, usually playing to standing room only crowds. What happened here? His repertoire is extensive and he could have played on and on. Hopefully, those who did enjoy the show will have the opportunity to see him again under more favorable conditions. Until then, his new album, on Vanguard, will be released toward the end of October and is entitled "footwork." It features Roosevelt Sykes, a barrelhouse piano player and singer.

It is unfortunate that such good artists as Rory Block and John Hammond received such little recognition here on the WPI campus. Hopefully, the situation is changing.

TV Guide

(Continued from Page 1)

waiting for a free machine, and was on the verge of giving up.

The overcrowding problem is made even worse when one or more of the videoplayers breaks down, or requires cleaning; both frequent occurrences. According to library records, on the average there are upwards of 100 people a day using the machines. With this kind of usage, it is no wonder that the videoplayers are failing, since they simply were not built to handle that kind of strain. Other problems arise from poor image quality on worn out or otherwise abused tapes. One junior interviewed in the tape library said, "It gets discouraging when you're going through your fourth tape, it gets halfway through (the machine) and the thing just dies."

Unfortunately, there is little hope for the situation. The library has acquired some new video cassette players, making a total of three available. All new tapes are being recorded on video cassettes, and instructors are being urged to re-record the lessons stored on older reel tape to new medium. Video cassettes offer the advantage of being completely sealed units without any need for threading tape through the machine. This results in less chance of foreign matter deposits to degrade the tape images, as well as being more convenient to use than a reel to reel machine. The user simply pops the cassette into the player, turns it on, and starts watching. There is less chance of mechanical damage to tape or machine, thus reducing the chance for breakdown, and reducing the need for maintenance.

In spite of these problems, viewers asked for their opinions by this reporter seem to think that the tape library is a worthwnile and invaluable resource. Typical of many freshmen in the room, Michele Neville ('81) commented that the CS tape she viewed was very useful in learning to use the computer video terminals. Wilfred Bosquet ('81) felt that the tapes helped greatly in his MA1010 IPI course, as well as in his physics course.

Now if they could only get Farrah Fawcett on videotape.....

STUDENT-ORIGINATED STUDIES PROGRAM FOR JUNIORS OR SENIORS

This National Science Foundation through the S.O.S. Program has invited undergraduate students to submit proposals for grants to develop research projects around a topic of societal concern utilizing an interdisciplinary approach in the study of the problem.

The projects, probably done over the Summer of 1978, would provide for grants to each student working on the project for twelve weeks at $90.00 per week. The grant would also cover the costs of materials and supplies needed to do the research.

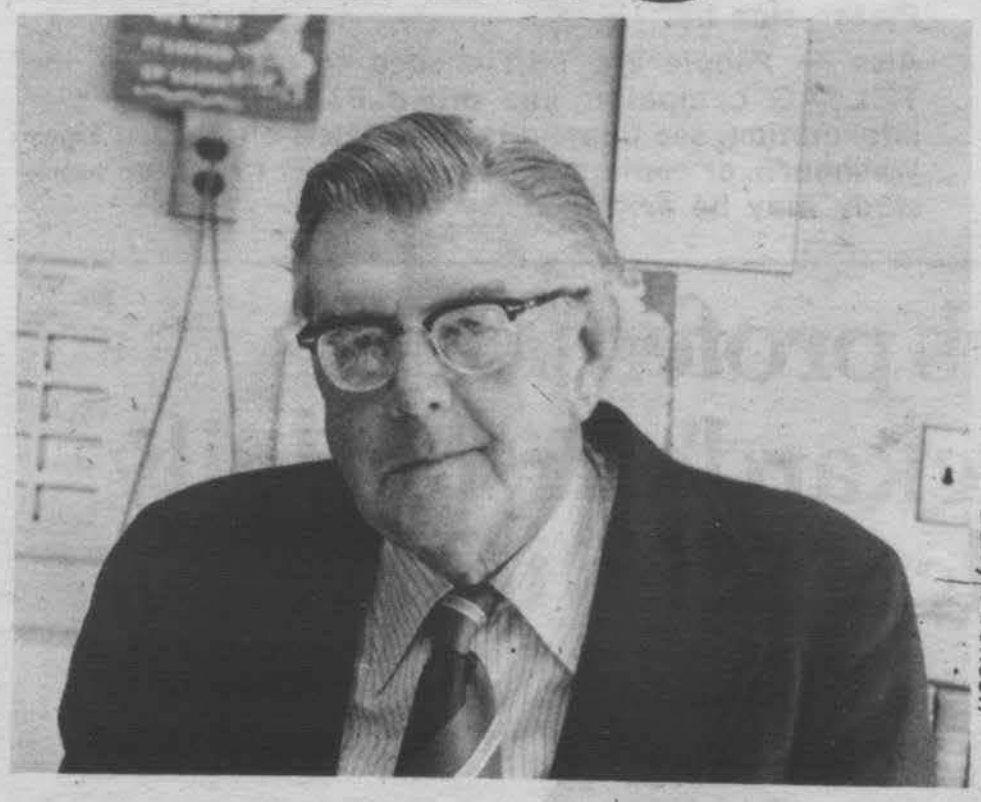
DEADLINE FOR PROPOSALS: October 28, 1977
INTERESTED STUDENTS SHOULD IMMEDIATELY CONTACT:
Dean Lutz, Projects Office
Prof. Demetry, IQP Center
Dennis Lipka, IQP Center

This program is a great opportunity to begin or continue work on projects at WPI.

MASS PIRG will be conducting a petition drive in the Wedge on Wed., September 28th from 11 a.m. to 1 p.m. in support of the TELCAG campaign. Any registered voter in the Worcester areas may sign the petition. Please stop by.

Also — People are still needed to help out on the TELCAG campaign and other PIRG projects. For information, see Charlie Harak, PIRG office, 3rd floor Washburn, or contact box 1839. Project Credit or work study may be arranged.

SPORTS



Barry Aronson

Pritchard to retire

by Barry Aronson

At the end of this school year Robert W. Pritchard will be retiring from his position as WPI athletic director. He will be retiring because school policy requires faculty members to retire when they reach 65 years old. As of now no replacement has been decided on. President Hazzard will form a search committee to make the decision. Pritchard said that he felt there were several people within the department who were qualified enough to take over as athletic director. He would not be more specific, but added that candidates from within and outside WPI would be reviewed.

Pritchard said he had no firm plans for his time after he leaves WPI. He went on to say that he will continue his interest in Tech's sports program. He also said that he would like to spend more time at his summer home in Ocean City, N.J. and on his hobbies, which include golf, fishing, and oil painting.

1941 was Pritchard's first year at WPI. He started as assistant football coach, but had to leave after two years to serve in World War II. When he returned, in 1947, he was appointed head football coach. He remained head coach until 1966. In 1954 Pritchard coached the Engineers to an undefeated season. That same decade Tech won 68 per cent of their games.

Pritchard became athletic director in 1952. The athletic department was started in 1917 and has only seen two athletic directors since its creation. While at Tech, Pritchard extended his talents to many areas of sports. He was president of the New England Athletic Conference, and is still on their executive committee. He was also on the executive committee of the Eastern College Athletic Conference. He was New England's vice president representative to the National College Athletic Conference. He is still chairmen of the NCAA Drug Education Committee, which he started eight years ago.

Mr. Pritchard said that he felt WPI had a remarkable sports program for an engineering school its size. He felt, due to lack of outdoor facilities and limited student body, that the sports program should not be enlarged, except for in the area of women's sports. He said that he thought there would eventually be five or six women's varsity sports.

Cross country 5-0

by Tom Rockwood

"Good effort," said Coach John Brandon, as each of his runners crossed the finish line. Super would have applied here as WPI's Cross Country team opened its season by annihilating Assumption, Worcester State and Clark for the Worcester City Championship. The final score was a convincing WPI 19, Assumption 54, Worcester State 65, and Clark 105, giving new Coach Brandon his first victories as the Cross Country mentor.

WPI captured an impressive six of the top 10 places and 11 of the top 20 places to boost their record to 3-0. Amidst the mist and down right raw 50 degree temperatures, John Turpin (22:53) and Dave Szkutak (22:57) set the pace on the 4.8 mile Assumption course. They were never headed, finishing 1-2. Rounding out the top 10 for WPI were Norm Guillemette (4th), Captain Frank Leahy (5th), Rick Molongoski (7th), and John Drumm (10th). Rick Seaver, Tom Horgan, Ed Szkutak, Eric Thompson and Vinnie Wolff all turned in fine performances as well.

WPI fans might take note of the fact that Assumption supporters were out in full force to cheer on their runners. Think about it. Cross Country, like any other sport at WPI, needs the support of the campus community.

NOTE: WPI won the Engineer's Trophy last Saturday by beating RPI and MIT. The final score was WPI 36, RPI 39, and MIT 45. John Turpin (4th), Dave Szkutak (5th), Norm Guillemette (6th), and Frank Leahey (7th) led the way for the harriers as they upped their record to 5-0. Next action for the Cross Country team is this afternoon at Wesleyan.

Soccer team stumbles

by Tom Rockwood

The WPI Soccer team began to fall on hard times last week, as they just slipped by Bentley 2-1 and lost a tough-luck heartbreaker to Coast Guard, 1-0.

The Bentley game was seesaw affair most of the way as WPI had trouble amassing a consistent attack against their young opponents. Only after Leo Kaabi's goal at six minutes into overtime did the boosters gain the final advantage, going on top 2-1.

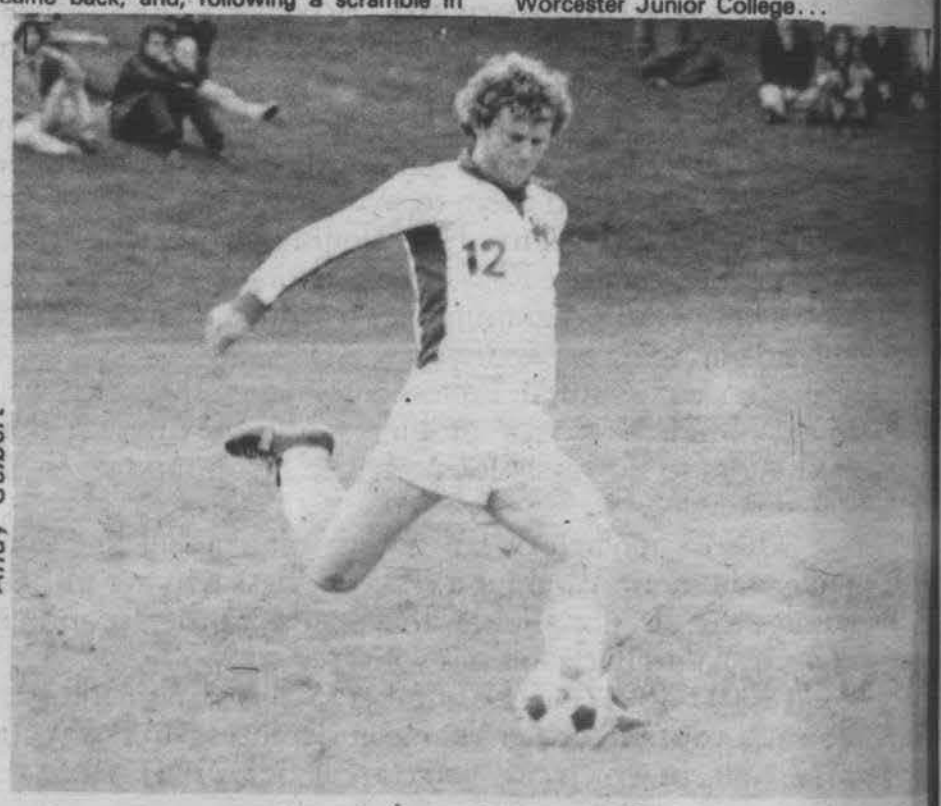
WPI came out as if they were going to blow Bentley off the field in the first half. For the first 15 minutes, the Engineers had complete control in the Bentley end, peppering the goalie with some testing shots. Yet, despite some good hustle by Dave Bachiochi and Kaabi, the booters just couldn't find the net. Star forward John Pavlos was closely watched throughout the first half and was effectively kept away from the net. As a result, Bentley began to perk up, taking the play away from a sloppy WPI attack. Some key defensive plays by the fullback line of Larry Shiembob, Dave Fisher, and Larry Hindle kept a surging Bentley squad off of the scoreboard as the first half ended, 0-0.

WPI stormed out again in the second half, showing signs of taking over the game. Three blistering shots off the foot of Pavlos and another by Kaabi seemed to wake up the team, as they put constant pressure on the goalie. Finally, midway into the second half, Freshman Artie Shorrock steered a Dave Bachiochi corner kick into the net for his first goal at WPI. The 1-0 lead was short-lived, though, as Bentley came back, and, following a scramble in front of the net, fired one by Goalie Bob Grochmal to notch the score at 1-1. Both teams held each other off for the remainder of the second half to send the game into overtime.

At six minutes into the first of two 10 minute overtimes, an inspired Leo Kaabi poked a shot by a stunned Bentley net-minder, putting WPI ahead to stay, 2-1. The defense held the opposition the rest of the way to preserve the hard fought win. Despite the closeness of the game, the WPI booters outshot Bentley 20-10.

On Saturday, the booters weren't so lucky. Traveling to New London to play Coast Guard squad that has always been tough on its home field, the Engineers just couldn't get any breaks. Three drives by John Pavlos, Jim Lukas and Artie Shorrock that hit the posts typified WPI's luck for the afternoon. The lone tally of the contest came 12 minutes into the second half, putting Coast Guard ahead to stay. Bob Grochmal recorded 12 saves and played well in a losing effort. WPI's record now stands at 2-1. The Engineers hope to regroup this afternoon as they travel to Cambridge for a date with MIT.

NOTES: At long last, sizable crowds are beginning to turn out for WPI Soccer games. Even a contingent from TV-27 was on hand to film highlights of the Bentley game for their news... This year's soccer team boasts four products of perennial Connecticut Soccer power, Rocky Hill, Senior Larry Shiembob, and Freshmen Dale Spencer, Dave Partridge, and Sean Blanar... The J.V. Soccer team will open up its season this Wednesday, hosting Worcester Junior College...



Andy Gelbert

Coast guard sinks Tech

by Barry Aronson

The WPI football team traveled, last Saturday, to New London, Conn. to play the United States Coast Guard Academy's football team. The Engineers endured two hours of cold, sporadic rain, only to suffer a 27-7 defeat.

Tech's only touchdown of the game came after a bad snap got away from Coast Guard's punter, Kevin Krumdieck, and ended up at Coast Guard's five yard line. Two plays later Mike "Smokey" Robinson took the ball around the end and into the end zone.

Coast Guard did not wait long to even up the score. The touchdown was set up by Alex Simonka, who took one of Mark Feldman's fine passes for a 31 yard gain. All quarterback Feldman had to do was fire another pass to Mickey Butler, and the score was even.

On the ensuing drive, Tech marched deep into Coast Guard territory; only to be cheated by the wet field. Quarterback Art Hughes slipped and fumbled while he was falling back to pass. Coast Guard recovered the loose ball and roared down to Tech's five yard line. A great goal line stand by the Engineer's defense kept Coast Guard out of the end zone. A Cadet fumble on the third and two to go gave the ball back to Tech.

After an exchange of punts, Coast Guard took over possession of the ball on downs. The Cadets came roaring down to the Tech end zone with the help of several good passes from Feldman. With 1:02 left in the half, Butler took the ball over the goal line on a 26 yard run for his second touchdown of the game.

The Engineers, not wishing to end the half seven points down, set out to even the score. They did not waste any time getting within touchdown range. Mike Walker made an incredible catch that gained 25 yards and put the Engineers on Coast Guard's six yard line. After an incomplete pass to Paul Fernside, quarterback Hughes decided to go to trusty Mike Walker. The pass was there, but the wet ball eluded Mike's grasp as it slipped through his hands. With only seconds left, Hughes gave the ball to Robinson, who could only get to within a yard of the touchdown. The scoreboard clock had gone to zero and the Coast Guard team swarmed onto the field, only to be waved back by an alert official who must have seen a time out signal from the Engineers. Tech lined up for one more try. Hughes gave the ball to the speedy Robinson and watched as Mike just missed clearing the pile of players.

Mark Hecker

The second half started with an exchange of punts. Tech started their second series of the half on their own 25 yard line. The Cadet defense would not budge and ended the series by sacking the Engineer quarterback. Paul Barret, who otherwise had a great day, could only manage a 28 yard kick. Cadet Ed Richards picked the ball up and ran it back to Tech's 20 yard line, which is where the play started out. Not much time elapsed before Butler took the ball in from the one for his third touchdown of the game.

The game was not completely out of reach for WPI until Coast Guard took 17 plays and eight minutes to make an 88 yard touchdown drive. The ball was finally brought across the goal line by Coast Guard's Ed Richards. With only 3:25 left in the fourth quarter, Tech had to concede defeat. Tom McBride came in with three minutes left and finished up the game at quarterback.

Tech certainly had the potential to put Coast Guard away. They out-rushed the Cadets 140 to 138 yards. Quarterback Hughes looked completely recovered from his knee injury. Fullback Alan Simakauskas was in fine form as he gained 85 yards on the ground and averaged four and a half yards per carry. WPI did suffer some costly injuries, though. Bob Guarasi, whose fine tackling was missed, and Mark McCabe were both hurt early in the game. Ken Swenson was hurt on the last play of the half. No word as to the extent of their injuries. Hughes had a good deal of trouble trying to complete passes. He could only manage 9 completions in 26 attempts, whereas his Coast Guard counterpart, Mark Feldman, completed 16 out of 22 attempts. The defense seemed to soften considerably in the second half, which contributed to Coast Guard's long drive that put the game on the shelf.

The next game, against Union, will be at home and will start at 1:30 p.m. That Saturday will also be Mike Walker Day. During half time there will be a ceremony honoring the senior end who is now 35 yards short of a WPI career total of 2000 yards.

Andy Gelbert

1977 Homecoming Queen Contest

Nominations are now open for the 1977 WPI Homecoming Queen Contest. Nominations must be dropped off at Student Affairs by Tuesday, October 4, 1977. Guidelines for the contest are as follows:

1. Candidate must be a full-time undergraduate woman.
2. Application must be signed by candidate.
3. Candidate must be sponsored by one of the following campus groups:
   a. Any official WPI organization (i.e. fraternities clubs, offices, departments)
   b. Individual floors from Riley, Daniels, and Morgan residence halls.
   c. Stoddard A, B, and C, Ellsworth and Fuller may nominate ONE candidate apiece.
   d. Trowbridge 25 and 28, Elbridge may nominate ONE candidate apiece.
   e. Commuters may nominate one candidate.
4. Fee of $10.00 must be submitted with application.
5. There will be a group meeting of all candidates on Thursday, Oct. 6, 1977. Candidates will be notified when their nominations have been received.
6. Any questions should be referred to: Karen Chesney, Daniels 207, 798-0593, Box 2632; Dean Brown, Daniels Lounge, 753-1411, X201.

The following schedule will be required of all candidates:

THURS., OCT. 6 — Group meeting of all candidates.
FRI., OCT. 7 — Pictures taken.
TUES., OCT. 11 — Group interview with preliminary judges, 7-8:30 p.m.
WED., OCT. 12 — All candidates notified of five finalists via campus mail.
THURS., OCT. 13 — Meeting of finalists and escorts for briefing of next two days.
FRI., OCT. 14 — Finalists and escorts (sponsoring group; meet at Higgins House at 5:30 p.m. with judges for a wine and cheese hour followed by dinner.
SAT., OCT. 15 — Motorcade to game 1:15 p.m. Announcement of winners at half-time.

Judges will include representatives from local fashion and photography studios and recent alumni of the college. Judges will consider the following in making their selections: poise, intelligence, attractiveness and personality.

HOMECOMING QUEEN NOMINATION

Sponsoring group: _____

Who to contact if necessary: _____

CANDIDATE INFORMATION:

Name: _____ Class: _____ Major: _____

WPI or Local Address: _____ P.O. Box: _____ Phone No. _____

Home Address: _____

Hobbies or areas of interest: _____

I have consented to be nominated as a candidate for the WPI Homecoming Queen for 1977 and will attend all functions connected with the Homecoming Queen Contest.

Candidates signature: _____

$10.00 fee enclosed. Make check payable to WPI NEWSPEAK. Deadline for submission is Oct. 4, 1977 to Student Affairs Office in Daniels Lounge.

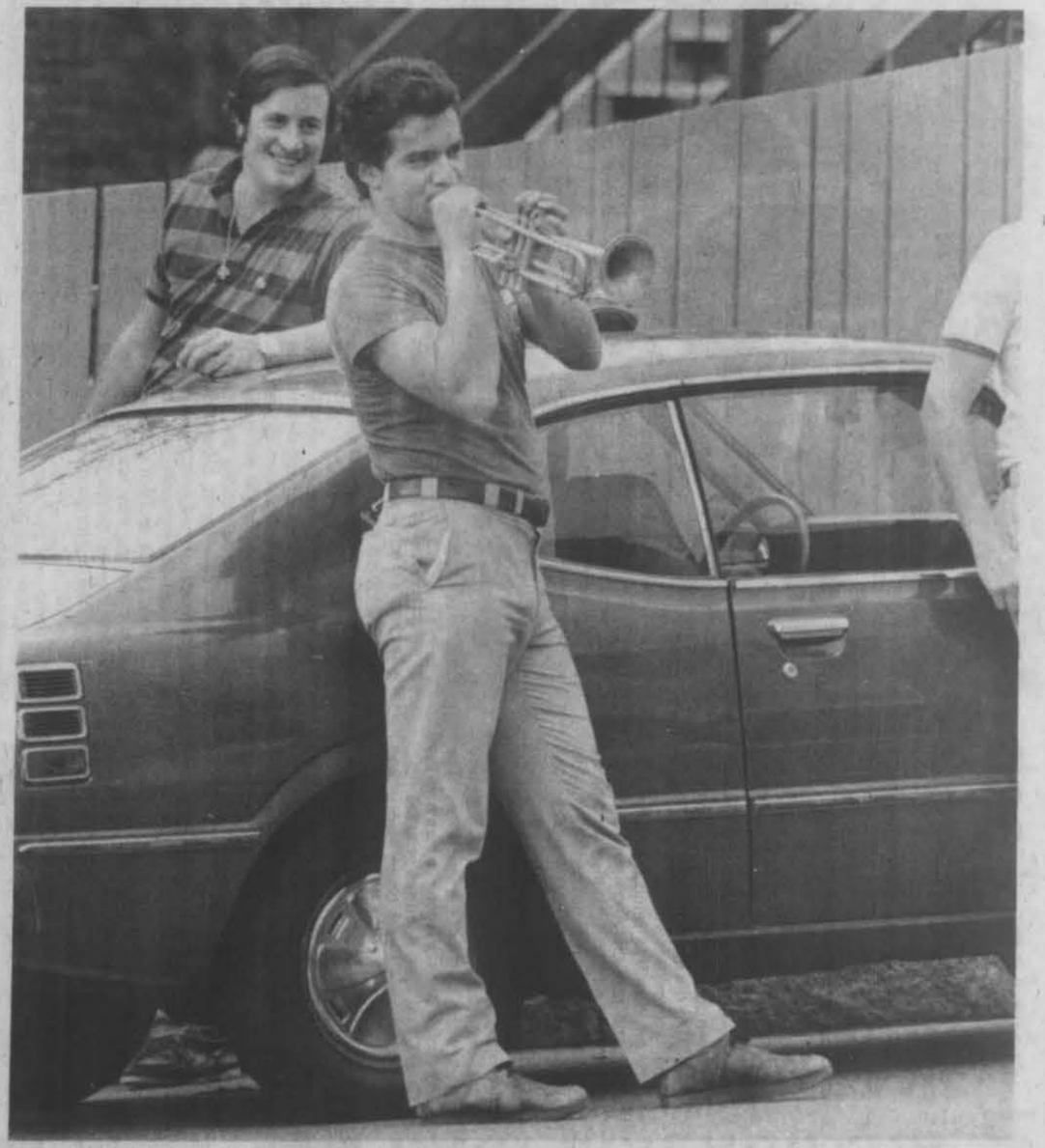


photo by Tom Daniels

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