FOCUS

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Senate Makes CFA Recommendations

In its April 5 meeting, the Senate formally accepted the Educational Affairs Council's "Report on Educational Quality and Faculty Morale in the College of Fine Arts" and approved recommendations for possible actions and further study.

(See pages 8 and 9 of this issue for the complete text, with selected backmatter, plus Akram Midani's response.)

Examining criticisms of CFA's management from a position paper by Rob Roy Kelly (see FOCUS, September 1983), the EAC found that educational quality in CFA appears to be excellent, judged by available measurable data. However, its inquiry confirmed that "low morale is a serious issue and continuing problem for many CFA faculty." In particular, the EAC asserted that —

- chances for tenure are lower than in the other colleges, due partly to a decline in number of tenure lines of 25 percent in the past decade;
- criteria for tenure have changed without clear, public documentation and notice;
- lack of communication between the dean and faculty, in the perception of many survey respondents, is causing a "widespread feeling of disenfranchisement";
- teaching loads, calculated in contact hours, appear to be significantly higher in CFA than in other colleges;
- top-level administration in CFA arguably suffers from lack of delegation to such posts as associate dean.

The EAC's recommendations followed from these findings and include: 1) revision of CFA's tenure and promotions document; 2) optimized communication; 3) expanded administration staff; 4) further study of teaching load equity.

In the April 5 Senate discussion, Dean Akram Midani responded to the EAC report by arguing his own perception that communication between dean and faculty has been strong, and by asserting that teaching loads in CFA are in conformity with the Faculty Handbook. He also said he would be delighted if he was given more money for administrative support.

VP Pat Crecine suggested that the movement toward an increased percentage of non-tenure track appointments reflects the particular need of arts students to learn from current practitioners.

The April 5 meeting, which was advertised as "closed," was moved open by Midani.

During April, the Senate also convened two meetings — on the 13th and the 19th — to discuss the latest draft of a CMU "Policy on Intellectual Property" that has been subject of discussion throughout the year in a special committee chaired by Rich Stern (ECE).

The effort to define an updated policy distributing ownership and income rights to intellectual property created by CMU employees or students with institutional support has been underway for at least two years. According to Stern, the current committee, which was created by the Senate in Fall '83, has met regularly and at length, and has made special efforts to consider all oral and written comment from interested parties and to distribute draft documents to all faculty and relevant staff.

The April 19 Senate meeting, lacking a quorum, could not vote on the latest draft version, but Stern in any event expects discussion to continue, with action by the Senate perhaps in the fall.

Current members of the Faculty Senate Committee on the Intellectual Property Policy are: Edward F. Cassassa, Angel G. Jordan, Thomas M. Kerr, Mark H. Kryder, Irving J. Oppenheim, Robert F. Sekerka and Richard M. Stern, Jr. (chairman).

Commencement Schedule Announced

CMU's 87th commencement is bigger and better, but best of all for the class of 1984, it's almost over. "With almost 150 more students graduating this year, we're expecting a crowd of around 7,000." says Maryann Moore, manager of special projects and commencement coordinator. "We've got a larger tent by about 50 feet."

Although main commencement ceremonies take place in the tent on Monday, May 14 at 10 a.m., there will be a variety of activities for graduates and the relatives to participate in all weekend.

For the first time, the university is sponsoring an informal dinner buffet on Saturday, May 12 from 5 to 7 in the tent with entertainment afterwards. Each graduate will receive three complimentary tickets to the dinner. Additional tickets will be available at the Skibo Information Desk for $8.00 each.

On Sunday, May 13 students and their guests can tour the new University Computing Center from 12 to 3 p.m.

President Cyert will hold a reception for graduates and their parents on the lawn in front of the College of Fine Arts or in the building's lobby in case of rain, in the following time schedule:

1-2:30 p.m. College of Fine Arts and Mellon College of Science

2:30-4 p.m. Humanities and Social Sciences and Carnegie Institute of Technology

Steve Jobs, Chairman of the Board of Apple Computer will deliver a talk to graduates and their parents at 4:15 in the tent.

At the ceremony on Monday, May 14 there will be three honorary degree recipients:

Joseph F. Engelberger, technology consultant, Unimation Inc. (Doctor of Engineering)

Janet L. Norwood, commissioner, Bureau of Labor Statistics (Doctor of Laws)

Claude E. Shannon, retired professor of electrical engineering (Doctor of Science)

"We're having a student speaker for the first time this year," says Moore. "Deans and student organizations were asked to nominate candidates and a committee chaired by Brad Walter will make the final decision."

After the main ceremony, each department will go to a separate location for their degrees to be conferred.

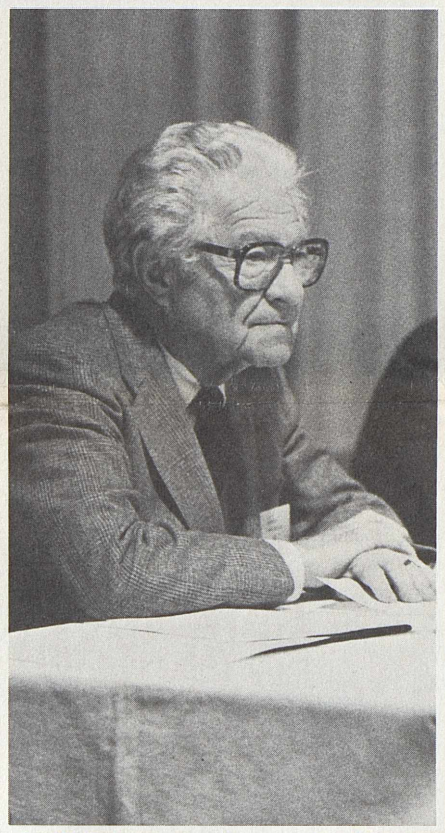
— *Susan Stauffacher*

Ben Fischer —
Rethinking Labor and Management

Fischer, a SUPA faculty member, was formerly a United Steelworkers' official.

"The World We Live In"

Demarest: I want to see if I can get you to talk a bit from a union point of view . . .
Fischer: I don't have one. I can speak from the point of view of being interested in the fate of unions. But you'll find it hard to find anyone in the labor movement who agrees with me, and if he does he won't admit it.



D: Well, let me put the question this way. What leverage do unions have at this stage of the game in the traditional industries, like steel? What strategies are there to create pressure, say, to keep plants open, or to modernize?
F: There are no strategies.
D: Unions have no strategies?
F: Not really. Most of the actors are mostly irrelevant to what's going on — to the real problems of the world we live in. This is a political year, there's a "great national debate," a number of people are running for president. But nobody's talking about the problems of the country. Everybody says, "We're going to supply jobs." But what does that mean?
D: So where does the process start?
F: With understanding basic economics. The politician don't want to face up to that. As far as unions are concerned, it would be nice to have the leaders understand — and more importantly, the workers. And as long as we're at it, it would also be pleasant if the media and academia understood the world we live in. It's very challenging. The country is spoiled and resists understanding. This country went through a terrible depression in the '30s, and then beginning with World War Two went through an unprecedented period of affluence and growth — long enough for a generation to grow up taking affluence for granted. That affluence didn't come about because of some great struggle. It was just there, created by a combination of circumstances that made it easily obtainable. Unions played their part, technology played its part, government, management, investors played their parts. It was a period of unprecedented success. Critics could find weaknesses and inadequacies; it's an imperfect world. Some people were poor, some were unemployed, some people were handicapped. But as a whole the '50s through the '70s were a period of affluence not only for America, but for the world. Unions were deeply involved, trying to influence the way income was distributed, and their participation helped to accelerate the growth. When unions were successful, they pressured employing organizations to make even greater economic progress. It's an interesting syndrome. The moment you get more from an institution or company, that institution tries to create more.
D: So is your argument that the system gradually grew lazy, people started taking it for granted?
F: No. We were not lazy — we were hard working, doing the things we were supposed to do.
D: Well, what went wrong?
F: Nothing went wrong. We had a great period of prosperity that simply came to a close.

Competition, Over-Production Vs. Traditional Assumptions

D: Well, what caused it to come to a close?
F: Two things intervened. One was the oil crisis of 1973. But the primary factor was world competition — the fact that other countries, for a whole variety of reasons, also made progress. Part of the problem turned out to be our aid to other countries. The moment you provide external aids to other people to help them solve their problems, an interesting phenomenon occurs: The recipients begin to do the things that attract the aid, rather than the things that are required. That's probably one of the reasons why steel plants were built in countries that don't consume much steel. The US operated on a set of traditional assumptions about its competitive position in the world. One tends to make assumptions based on history — the "way things have been." Economists will start a prediction by saying, "During the last eight depressions . . . " But that turns out to be very inadequate as a mode of analysis.
D: So what you're saying is that the end of the boom in America was caused by the rest of the world catching up?
F: By its becoming competitive — which isn't to say that the rest of the world wasn't buying its own problems. It has. But to the extent that the rest of the world has bought problems by its development, that accelerates our problems because, if these countries have productive over-capacity, they turn to the United States as a market. And they're almost bound to over-produce. There are very few countries in the world that tolerate unemployment; they prefer to keep people working than to pay unemployment benefits. If you are not governed by free enterprise as much as we are, if you rely more on government control, then you do what makes sense to your domestic situation. Instead of paying people for not working, you put them to work, or keep

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Ben Fischer . . .

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them working. If they work, they produce, and you have to do something with the product.

American Capital: A Cautious System

D: You emphasize that we are not competitive internationally any longer, but what about the argument that 20 years ago, American management — say, in steel — stopped investing in modernization?

F: It isn't true. We have a great capacity in this country for building myths, and one of them is that the steel industry hasn't modernized.

D: They were slow to introduce, for example, the basic oxygen technology.

F: On balance, American steel modernized.

D: I just read an interview today with a Bethlehem Steel executive who argues that when they built the Sparrows Point open hearths, they knew at the time it was outdated technology but did it anyway. You don't buy the argument that there was footdragging?

F: Of course there was footdragging, but that's part of the American system. It was one of the reasons we had prosperity — we didn't throw thousands of people out of work. You can't have it both ways. People forget that if you visited the most modern steel mill in the world a few years ago — in Japan — in its shadow was an old broken down mill in which thousands and thousands of workers had been employed. Here in the United States we didn't displace thousands of people. We did things in a measured, conservative, balanced way. Domestically, it made sense for us not to disrupt a good situation. What made sense in other countries was different.

D: So you would argue that part of the conservatism of the American steel industry was a maintenance of employment levels?

F: Not as a goal. But built into a free capitalist system is caution — risk can be spelled "caution." If you are exposed to risk, you are cautious. There is nobody to pick up the check for you. In Japan, in Germany, they pick up the check for you — in England, in Scandinavia. Here nobody picks up the check. Chrysler was lucky. We tend to measure American management against some prototype of perfect management that doesn't exist. Management is imperfect —the management of a university, of a bank, of a bowling alley, of a steel company. But in steel we had a management that was consistent with what made sense in this country.

D: I assume you would argue that in this period of the '50s through the '70s, unions, like management, played the appropriate role?

F: The inevitable role. It's dreaming to say, "The unions should have been made up of social scientists who could see ahead, who understood the future potentials of engineering technology." Those are dreams, nothing to do with reality. The people who made up the steelworkers' union were steelworkers, and their leaders were human beings — I was one.

Whining Vs. Finding Answers

D: I know this is playing a game of retrospect — "if it had been so" — but I've heard the 1959 strike talked about as a key period when a concept, say, of shared ownership might have moved labor and management out of the adversarial mode.

F: Actually, that was exactly the outcome of that strike, exactly — the introduction of the human relations program in the steel industry. The idea was, "Never again. Now we're going to learn to solve problems together." The adversarial world was over, and there hasn't been a strike in the steel industry since. It was inherent in the culture of the situation that steelworkers recognized there were problems in the industry that were threatening to them, and managers realized there were problems they needed to address with the workers. Did the steelworkers and steel management understand everything? — they didn't, they don't, they never will. But they did a better job than the auto industry. The auto industry didn't look forward at all. The world was its oyster; nobody would ever do anything to harm the auto industry, nobody could ever compete with it. Why did they think that? Because the management was stupid? No. They just could not calculate what was going on, nor did anybody else. Who in America was saying, "The Japanese are gearing up for the greatest economic war that has ever been carried on?" I didn't see any of these Harvard and MIT professors saying that then. It doesn't do anybody any good to whine and whine and whine about how "we should have known." We're in a whining society today in which everybody's moaning and groaning and blaming everybody. But that doesn't give you the answers. Mr. Mondale said the other night, "Elect me president and I will see to it that there are jobs." Good — but what's he going to do?

Merging Unions?

D: One thing, I suppose, is that you can look back retrospectively to see if there are any clues.

F: But you must not oversimplify and misrepresent the past. If you do — as has been said so often — you're bound to live its mistakes again. If we're going to deal with our current situation we're going to have to accept a horrible truth: Manufacturing industries are not going to be our major source of employment. That is a horrible thought. This country was brought up on the notion that the core of the society was that people make things — somebody asks you what you do, and you apologize if you're doing something that's not making things; you feel a little "idle." But as a society we're not going to make things anymore; machines are going to make things. We have to accept that. It's a big wrench. Steelworkers are demanding modernization. OK, they're right, but do they know they're demanding that their jobs disappear? To the extent we can be successful at reinvesting in our industrial base — under rules that will work in a world economy — we will do so not by expanding jobs, but at the expense of jobs.

D: Presumably there will still be some manufacturing in the US?

F: Yes, but a small fraction of workers will be in it. Cyert estimates that we'll end up the century with 2.5 million manufacturing workers. I think it could be as high as 7 to 10 million. There are now under 15 million blue-collar manufacturing jobs in the country, out of a potential work force of around 100 million.

D: So where do you see ex-manufacturing workers going?

F: You mean, where *did* they go? They're *gone*. Eighty million American workers don't work in manufacturing. What are they doing? We don't spend a nickel finding out what they're doing — we're still so much in love with manufacturing workers. Within a few years the majority of the members of the United Steelworkers will not be in manufacturing. The major unions in America are the Teamsters — nonmanufacturers; the NEA, the National Educational Association; the United Food and Commercial Workers — nonmanufacturers. AFSCME is a big union; the AFT. Steel, autos, rubber, coal? — those unions will either sit back comfortably and adjust to their size, which I doubt; or they will combine, which they may; or they will expand . . .

D: Into other fields?

F: Yes, which is what they've been tending to do. Of course the big question then is at what point will unions cut out all this nonsense of competing with each other? When will they look at what industry is doing and start merging? They've been merging for many years, but usually it's been small unions with big ones, not big ones with big ones. But that's the way they'll have to go. It's happened in other countries.

Real-World Power

D: But you'd argue that unions have no power left to bring real pressure to bear in old industries like steel?

F: No. My point is that you have to understand what power means. Unions never had the power to do things that can't be done —no one has. People misunderstand what power is in the real world. Power to do something that is consistent with the direction of a society is a lot different from the power to make the river turn around and run upstream. The labor movement in the '50s, the '60s and the '70s was doing what made sense to the society — *and what the employers wanted*. You're wrong if you think that that vice president of industrial relations didn't want raises, improved pensions, better vacations, better health insurance. And he got them because of the union. People think, "He's a capitalist." Baloney, he's an employee of the company, and the union he's bargaining with is bargaining for him. And he knows it. But when you talk about "power," if you mean can a union stop a company from closing down an uneconomic plant? — they never could. Plants have been closing down since this system was created, but the workers went off somewhere else, or they were absorbed by the company or the local labor market. Usually a plant didn't go from a high level of operations to a shutdown from Friday to Monday. It gradually lost out in the marketplace, and by the time it closed, had a handful of people left. A shutdown may make good newspaper copy, but most of the tragedy — if there was one — took place over a period of time. And during that time unions like the Steelworkers were creating comprehensive methods to see to it that at least those workers with 20 years of service were taken care of for life.

Leaner Organizations, Better Incentives

D: So what policies should the unions in the old industries argue for now?

F: If they were asking me — and they're not — I'd say, "You better start fighting like hell to make this industry more competitive." Whatever that means — a lot of things.

D: For example? What would be on the agenda?

F: Very difficult decisions. Number one: If steel is going to survive, it's going to have to have leaner organizations — at every level. Many of the companies are beginning to do something about that. The old picture is a whole bunch of foremen sitting around supervising workers who already know how to do things better than the foremen. That's a luxury you can no longer afford. You do one of two things — either get rid of those guys, or put them to work. The whole history of "scientific management" — which has been taught at this school — has to be reexamined: the structure of having foremen who exclusively supervise and workers who exclusively work.

D: So one major area of labor-management debate must be about restructuring job assignment, work structure?

F: The whole way personnel is utilized, from top to bottom. We went through a long era in which if there was a problem, you "threw people at it." The last thing you ever did was ask the workers what to do. Workers were taught it was none of their business to solve problems; their business was to do what they were told. We can't afford that luxury anymore. Workers often know better than anybody else what to do.

D: What else is on the agenda?

F: We have to learn how to pay workers in ways that will make the operation more competitive. Will it help if they're partly paid in "paper" — with stock options, stock ownership? The basic aim is finding a mode that will give workers incentive, more identification with the success of the company.

D: Is there evidence about the stock-ownership route? Is Eastern Airlines a model?

F: There isn't enough evidence yet — you're talking about months. Anything new tends to have positive effects while it's new.

D: Do you see any model in the new mini-mills?

F: The most interesting thing about the mini-mills is that the management, being new, is thin. Heavy management takes time to develop. Every institution shows that — be it the church, the school, what-have-you. The mini-mills are set up in order to compete with Big Brother. They don't have to turn their organizations around; everything they do is planned to be competitive. The old established institutions have to take their whole culture and turn it around, and that's awfully tough. And anyone who thinks that the Japanese have done that magnificently is whistling in the dark. Worker participation in Japanese steel, or any other industry, is one of the great myths of our time, created mainly in the United States. Workers in Japan are permitted to express an opinion — a glorified suggestion box. Japanese industry, in fact the whole Japanese society, is one of the most authoritarian in the world.

A National Jobs List?

D: What other items do you see on the US labor-management agenda?

F: A key question — which we again don't yet know how to handle — is job security. We cannot do it in the hypocritical, disingenuous way the Japanese do, where they say, "We have lifetime job-security," but only give it to 40 or 50 percent of the work force in a plant.

D: In steel, the Japanese contract out more of the work?

F: Yes. They protect a core group in an industry and then contract out many jobs. The Japanese government does subsidize training for unemployed workers, and they have a culture both on the worker and management side that permits the exchange of employees — so if a steel company has no work, employees can be sent over, say, to an auto company. Here you can't always send them over to another department.

D: Do you see that idea of exchanging workers across industries as another policy to explore in this country?

F: It's possible. At least we might join the rest of the world in having a comprehensive nationwide list of job openings. Canada has a computerized central job service. We don't.

D: Presumably such a listing would be a governmental function. What other steps can the US government take to change the labor environment?

F: I think the government could aid research more and could become more involved in upgrading education. We have to earn our standard of living. In the old days, the theory was that we earned it by having the superior technology. But we don't have that any more, and we won't have. Technology is international, and it's going to stay that way. You hear arguments about whether some country "stole" something, but you're talking about an advantage of months, a year. Any technology that's around is for sale. If you can't buy it this weekend, wait till next week — it's for sale. The steel industry isn't crazy when it says, "Let other people develop the technology, and then we'll buy it." Given lots of other things — the big military establishment we have to maintain, a huge research establishment related to the military rather than the industrial scene — it's not crazy for steel management to say, "We'll wait, and buy the new technology later, if we need it." But — the point I'm trying to make — is that even if technology is international, the advantage we potentially have for some time to come is that American workers know more, have a stronger tradition of creativity and initiative than any other group of workers in the world. I hear all this talk about "retraining" steelworkers. What does that mean? Steelworkers know how to do a million things — a steel mill is a conglomeration of an infinite number of operations. Some workers have been on one of them all their lives; other have been on 50.

Rebuilding Public America

D: So how does government fit in?

F: The most important first step is to find ways to locate jobs that are available: a job service. The government could also help in stimulating job-creation. For example, there is no single thing with greater job consequence than rebuilding the infrastructure —public America (private America could stand a little rebuilding too). I just came back from Montreal. Everything is going, going, going — highways, bridges, airports. It's the same in Toronto, Calgary — it's almost embarrassing for an American. We could commit ourselves to rebuilding this country, and put great emphasis on helping people get into the business who need the work. Construction is one area in which "training," not higher education, is sufficient. In the process we should rethink some of our training rules — it shouldn't take as long to train a bricklayer as a doctor. Rebuilding public America might be the most useful thing we could do — both to put structurally umemployed people to work and to give some of our older industries a chance to redesign themselves for the world market.

Machines That Push and Pull

CMU's Caber Club – offering "mechanized exercise" – is located next to the PC room in the Margaret Morrison storefronts. It has a neuter air. Slick venetian blinds shade the windows. In the flourescent light, grey industrial carpeting matches the grey cinder block walls.

The weight machines are backed up against the walls. A section of the longest wall, mirrored from floor to ceiling, reflects six lifters straining against the brown machines. One man works on the PEC-DEC, another on the LATERAL PULL DOWN, a third on the LATERAL RAISE BEHIND NECK PRESS. A woman pushes the LEG EXTENSION, a second lies on the HIP AND BACK MACHINE, another works the HIP ADDUCTOR/ABDUCTOR. A speaker hanging over the PEC DEC pumps pop music.

In front of the reception desk, near the door, an orange metal staircase twists up to the club's second level. An exercise bike sits at the top. Just beyond are the men and women's locker rooms; 17 lockers and two showers apiece.

"Weight lifting machines exercise specific groups of muscles," says Kathy Paczkowski, Caber Club manager and CMU's women's basketball coach. "When you use the machines, you get positive resistance as you push against the weight, and negative resistance as you return your arm or leg to the original position."

The machines have large brown metal frames, and whirr quietly as the weights are lifted. Lifters sit on leather covered seats and push against leather pads at the end of the machines' appendages, which lift the flat black weights.

The weights are stacked at the base of the machines, strung on a chain or pulley. The pounds are stenciled on them in increments of ten. The lifter places a pin just below the number of weights he wants to lift.

Initially funded by Auxiliary Services, the Caber Club opened last April, featuring a combination of Nautilus and Powermaster equipment, 18 weight lifting machines in all. Nautilus machines are operated by a chain that rides around a bevelled, silver metal cam. The Powermaster equipment uses a cable and pulley system. "With Nautilus machines," explains Paczkowski, "resistance is constant during a repetition of an exercise. With Powermaster equipment, you lose resistance early in the repetition.

"The Nautilus machines are better built and cost $2000 to $6000 apiece. Powermaster equipment is not as well constructed and costs $300 to $2000 per machine." All told, the Caber Club spent approximately $22,000 on its machines.

The club also offers free weights attached to barbells. Here lifters literally lift the barbells instead of pushing against a machine that operates a chain or pulley. Since free weights are not operated by expensive machinery, they are the cheapest form of weightlifting. "But," says Paczkowski, "the machines are safer, and for that reason they're better for beginners. Free weights tend to create bulk-muscle, whereas the machines strengthen and tone. When lifters don't want to bulk up, they use machines instead."

Club members exercise for different reasons. Oscar Mayer, head of auxiliary services, says, "I used the club in January and February to strengthen my upper body to get ready for canoeing season, and as a substitute for running in the winter." Susie Raginsky, a freshman in mechanical engineering and public policy, started to lift weights in January after breaking her wrist. "I wanted to work out the rest of my body while my arm healed. I'm the co-captain of the women's rugby team, which involves a lot of running. Lifting weights increased my leg strength."

GSIA professor Jeff Williams joined the club "because running wasn't helping lower back and posture problems which Nautilus has now solved. I get an aerobic workout by maintaining a high pulse rate while lifting. I also think I'm less subject to injury in sports than I was before."

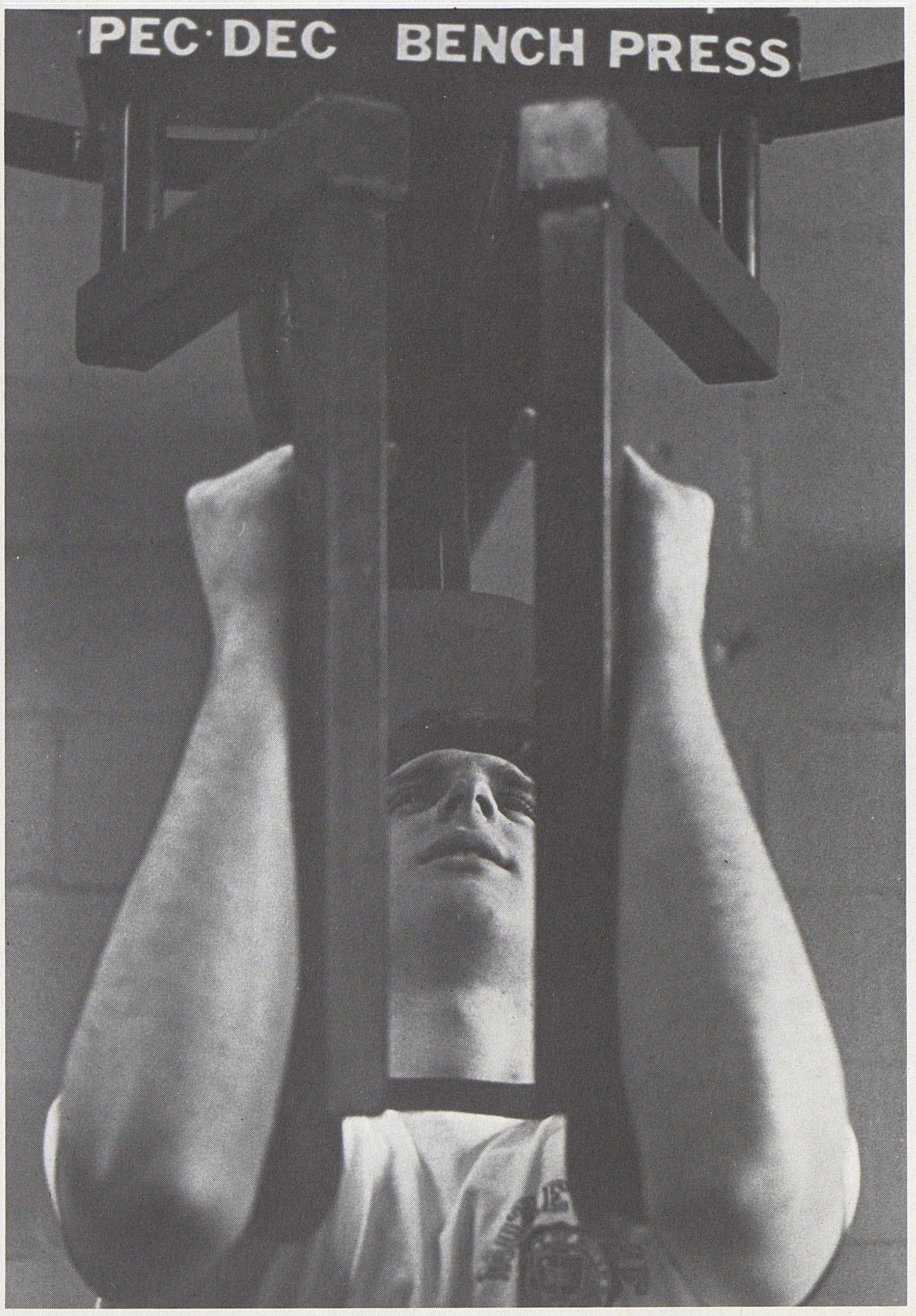
The Caber Club has 180 members. One hundred thirty are students and 50 faculty and staff. Of the students, 40 are female, 90 male. Of the faculty and staff members, 30 are male, 20 female. Pazckowski supervises the club full-time. Other staff include a part-time supervisor and eight workstudy students who can set up routines for new lifters.

Despite the enthusiasm of the participants, Paczkowski is puzzled by the club's small membership. "A membership of 180 out of 5000 students, is a pretty small number."

Williams speculates, "Perhaps few faculty use the club because they think Nautilus is only for macho body building. If this perception were corrected by realizing lifting is a total fitness program, more faculty might use the facility."

Rick Hinston, club staff member and junior in AMS, speculates club membership is limited because "students don't know about the club or they work out in the gym for free."

Argues Paczkowski, "The gym does not have the Caber Club's range of equipment, and is unsupervised. Supervision is important for beginners so staff can point out mistakes and show how to perform exercises correctly."



The Caber Club charges $2 per visit, $25 for a month, $70 for a semester, $110 for the academic year, $150 for twelve months, and offers families a special rate of $250 for the year. The Nautilus club in Oakland charges $150 for six months, $300 for 12 months, and does not offer membership for under half a year. "Compared to most local places, the prices at the club are cheap," states Jeff Saller, club staff member and sophomore chemistry major.

The mixed setting — male and female, faculty and students — does not bother the club's members."I don't mind working out with guys," comments Raginsky. Saller notes, "It's nice having the girls around." Mayer adds, "I enjoy working out with students, and wish more would use the facility."

The Caber Club's hours are 7:30 am to 10 pm, Monday, Wednesday, and Friday. Tuesdays and Thursdays, 10 am until 10 pm, Saturday 10 am to 6 pm, and Sunday 12 pm to 6 pm. Summer hours are Monday through Friday 10 am to 7 pm, 12 pm to 6 pm Saturday, and closed Sunday. The club's summer rate is $60 for June, July, and August.

Planted firmly on the machine's lap. Arms raised, bent at the elbows, aligned with the leather pads on the PEC-DEC. Deep breath. Pushing forward, slow and steady. The weights push back . . .

– Kelly Doyle

ESSAYS OF BIAS:

"Excerpts From Roswell's *Life of Doctor Bronson*"

This evening I found the Great Man holding forth, as was his invariable Custom, in a secluded Corner of Ye Tartan Inne, amidst a Congeries of Admyrers, where, as always, I could but marvel at the Contrast between the slovenly and uncouth Manners and Appearance of this Remarkable Person (I could wish he were less fond of eating with his Fingers and then wiping them on his Waistcoat or on his Wigge) and the dazzling brilliance of his Conversation.

Speaking of a Person well known to all the Company, a man of short Stature and towering Ego, "Sir," cried he, "here we see an example of a great Passion wasted on an Unworthy Object."

Of a Lady well known for her too great fluency in Utterance without Matter, "She hath," quoth he, "let the Horses of her Conversation gallop off, leaving behind them the Post-Chaise of Thought."

Of a Poet currently enjoying a Vogue: "He thinks that every Feeling that passeth through the System of his Nerves is thereby sanctified into Art. In this he is quite mistaken."

The Doctor (or the Great Cham, as I often referred to him, albeit never to his Face) frequently was severe on the subject of Governments. Of the present Government in power, he said: "A Man's Vocabulary, like his Cloathes, generally betrays him to the World. Observe the strange Language of this Group. 'Covert Activity' describes exactly the same sort of Thing that, when done by the other Side, we call 'Terrorism.' 'Deniability' — loathesome Phrase — is simply a Way of saying that we reserve unto Ourselves the right to lie when and if it pleaseth us. Surely this standard of Morality cannot long propser or endure."

"It is the Hallmark of the Executive Mind," quoth he, on another Occasion, "when confronted with Evidence of Misbehavior in the Party, to seek immediately, not to determine the Ethical Rights and Wrongs of the Situation and appropriately to punish Home, but to set to work to Protect each Other and to Conceal the Facts. This, Sir, is the melancholy Legacy of Watergate, which, far from repudiating with Reprehension, we seem to have Embraced with Ardor. *Sic semper bureaucratus.*"

On Occasions the Doctor had functioned as an Amateur but Severe Critick of the Theatre, so severe, indeed, that he had once been challenged to a Duel by an irate Theatricalist. "Sir," said he, "you must realize that Those whose Function in Life it is to exhibit Themselves to the Admiration of the General Publicke must of necessity be equipped with Egos of more than normal Size. However, it does not therefore hold that they are more strongly fortified against Attacks against their Self-Esteem. Nay, quite the contrary, for it is the Balloon inflated to the Bursting Point that most readily explodes at the smallest Prick of a Pin. And true it is that they whose Lives are solely devoted to winning the Love and Admiration of the World must be pitifully susceptible to Doubts as to their True Worth. Indeed, Sir, these poor Creatures in general deserve rather our Commiseration than our Applause."

Speaking of the current President of the nation: "Sir, such Mediocrity of Mind is not in Nature; it must have been assiduously cultivated. Whatever the explanation, though, it is lamentably clear that what this great Republick seeks in its Leaders is, not Distinction and Great Worth, but a moral and intellectual Mediocrity which can comfort every Citizen with the thought that he need feel no Envy but rather can be consoled with a pleasant Sense of latent Superiority to the Chief Executive. Alas, we see this, not only in the Seat of Government, but on all Sides. It is almost enough to make one despair of Democracy; it is certainly enough to make the Angels weep and all the Governments of the World to Smile behind their Hands."

Of our recent intercourse with the government of France: "The French must be watched carefully. Beware, Sir, a nation that couples a Sense of Style with a Shrewd Appreciation of Money, paticularly when it is dealing with a Nation that hath only one of these Qualities."

The Great Man was often regarded by many of us as a sort of Prophet of things to come, a Nook-And-Corner Nostradamus, as 'twere, and was sometimes pressed to give us his Views on the Future. Heaving a melancholay sigh: "Sir," he cried, "it may yet be well, but the Auguries are not hopeful. We must see to our South masses of Wretched Peoples whose Anger arises not from the Behest of Damnable Moscow, but from their own miserable Ignorance and Poverty, to which we have richly contributed. We must look to the world and see Peoples of many Races in similar Case, and we must have the Moral Courage to acknowledge our own Sinfulness of the Past in exploiting the Dark-Skinned of the World in pursuit of the National Greed. Nearer Home, we must have the additional Moral Courage to abandon Expediency for Principle, Defensiveness for Honesty, Hypocrisy for Plain Talk. Will this eventuate?" The great sigh of a Beached Whale. "I am hopefully Pessimistick."

— Jim Rosenberg

Victoria Santa Cruz with CMU drama students Gregory Thomas and Blair Underwood (kneeling left to right) and percussionists Rolando Morales (on the left) and Raphael Santa Cruz (to her right) from the University of Pittsburgh.

"El Negro En El Peru"

Victoria Santa Cruz, visiting professor of movement in CMU's drama department, brings African culture to the Fine Arts. Seven black CMU students along with Santa Cruz and two percussionists from Peru and Ghana, West Africa, performed "El Negro en El Peru" at La MaMa E.T.C. in New York City on March 31 and at CFA's Kresge Theatre on April 11. The program, prepared by Santa Cruz, was on the black experience in Peru and included song, dance, poetry and music. "Being black and Peruvian I am interested in the roots of African culture in Latin America and especially Peru."

Santa Cruz maintains that there are secrets in African culture — in the rhythm, the percussion, the sense of the present —that are valuable not only to those who have inherited this culture but for other human beings. People in both North and South America have lost some of the secrets, she contends, particularly in societies that "emphasize working with the intellect rather than an organic understanding."

in the dark

Entertainment Values

The "movie season" is over. As neighborhood lawns disgorge their grubs-turned-beetles into the stagnant summer haze, so Hollywood begins cranking out its heat-sick summer offerings like *Romancing the Stone, Up the Creek*, and *Police Academy*. Indeed the vernal equinox of the film industry was religiously observed last month with the Academy Award presentations. And compared to the empty desert stretching out ahead and the mediocrity (*Silkwood* and *Living Dangerously* excepted) of the season just ended, the Academy Award ceremony looked strangely like the biggest show of the year.

Like any ritual — graduation, wedding, funeral — the awards-banquet liturgy, especially when staged by the pros, always inspires writhing agonies of embarrassment, brief respites of throbbing boredom, and a continuous, gathering nausea. For one thing, considering the expertise of the pros, the show was technically a bit ragged: several announcers had trouble reading the teleprompters, the film clips rarely appeared on cue, somebody misplaced an envelope . . . All part of normal human behavior, of course, but that's just the obscenity of ritual: in such rigid, sequined theatricality, the smallest misstep takes on grossly inflated horror, as in a nightmare where some hideous atrocity appears fisheye-magnified in tortuous slow motion. Why do we — by the millions, thanks to satellite hookups — put ourselves through this, or what primal urge does it somehow satisfy? While gingerly plumbing this anthro-sociological sinkhole, I managed to note a few outstanding images from the proceedings:

•Frank Sinatra presented the honorary humanitarian award. This is the mobster whom the Australians had to detain for a week to make him apologize (British class does rub off) for his brutishness during a visit. Still, Old Gunmetal-blue Eyes was warmly greeted by his fellow stars.

•When *Fanny and Alexander* won Best Foreign Film, the Oscar was accepted for the absent Ingmar Bergman by "his wife, Mrs. Ingmar Bergman." Had nobody bothered to find out her name? Surely Ingmar and Mrs. Ingmar hadn't *requested* this appellation. Of the many gaucheries committed that evening, this was probably the most boorish, yet not a tooth lost its sparkle.

•The song "Flashdance" (not to be confused with the "love theme" from *Flashdance*; did I see the same *Flashdance* as these people?) was performed by Irene Cara and a gaggle of bouncy schoolchildren. While Cara was got up in an egregious mini-skirt, the kids' costumes consisted of sweat pants and sweat shirts — no doubt those Sears bills are a small price to pay for glory.

•Last, and most harrowing, was the elaborate and inelegant juggling of Frank Capra live and Frank Capra in pre-recorded voice-over during his presentation of the Best Picture award. His eyes are apparently weak and his voice faltering, so first he *read* the title of a film, and then, as the camera switched onto the film-clip screen, a brief *taped* narration was played. All this toing and froing with multiple camera, mike, and light cues was repeated for each of the five nominated films — a white-knuckled eon, punctuated by at least three painful mistimings.

Also, a little step-stool was ever so graciously provided for Linda Hunt to jack her up to the mike. And Gene Kelly received a special Oscar to replace the one he lost in his house fire. Such shining moments were numberless in this bizarre spectacle of pointless rites and customs, parroted incantations, mindless smiles, and grotesque quasi-decorum — but evidently That's Entertainment.

— Sue Rosenberg

The Demand For Aerobic Fitness

"This year we actually had to put a ceiling on the number of people enrolled in aerobics — a first for a phys ed course other than racquetball," says Donna Pecman, CMU's varsity swimming coach and physical education instructor. Since its inception three years ago, Aerobic Fitness has grown dramatically. Initially a half-semester course with approximately 20 people, it is now a full-semester course enrolling over 80 people, mostly women.

Pecman, the course developer, believes that the Athletics Department should assign a second instructor, and an additional time-slot.

However, according to Jim Banner, Director of Athletics and Physical Education, there are no plans at this time to expand the course.

Banner says that one problem is the lack of trained instructors to teach the course. Currently Pecman is the sole instructor. "At this time, I'm the only one who knows my course but that doesn't mean that someone can't learn it — one of the other phys ed instructors possibly."

For those unable to enroll in the course, there are alternatives. Pecman, with a partner, recently opened The Body Firm in Shadyside. A new entrant on the local physical fitness scene, it will offer Pecman's standard aerobic fitness course in both morning and evening classes, Monday through Thursday. For further information contact Pecman at either x2345 or 662-5402.

— Gretchen Elm

George Grossman — *"Don't be a Bum"*

Arturo Toscanini, Leonard Bernstein, Leopold Stokowski — what was it like to work with these men, three of the greatest conductors of this century?

In a privately printed book, *I Don't Want You to Be a Bum: Some Incoherent Recollections of a Musician's Life,* George Grossman, a CMU music professor from 1962-77 who is now retired, recalls his encounters with all three conductors, among others, during his professional career as a violinist and violist.

The focus of Grossman's book is on the people who influenced his musical and his private lives, relationships to his parents, teachers, and fellow musicians.

The title, Grossman says, comes from his mother, who made him start violin lessons when he was ten, in 1921, because "it was necessary to keep up with the other Jewish families in Portsmouth [New Hampshire]," but who never wished him to make it his occupation.

"At 15, I announced to my parents that I'd decided the violin would be my profession," Grossman remembers in the book. "They were not overjoyed. My mother said, 'Oh no, I don't want you to be a bum.' And that's what she kept saying to me for years, 'Go to school. Learn something. Be a teacher.'

"Years later, after I did become a professor, she came to visit me and my wife in Pittsburgh and started in as though she had never left off. I told her I was a teacher, a teacher of music. She said, 'Oh, I don't mean that. I mean a real teacher.' So that was the end of that and, as far as she was concerned, I was still a bum."

One of the first "professional," i.e., paying, jobs Grossman had was playing violin in the summers with a small dance orchestra at the Crawford House Hotel in the White Mountains, where he was introduced to homemade speakeasy gin and Jazz Age frivolity — the orchestra once tethered a not-too-fastidious burro in his room to greet him at the end of the night.

He ushered in the '30s at the Juilliard Institute of Musical Art. "I came to New York at the height of the Great Depression," Grossman says. "It was most disturbing to see hundreds of shanties made out of cardboard and tin — where poor and destitute people were living as best as they could. It was an all too common sight."

At the same time though, the student quartet Grossman was in at Juilliard was often invited to play in the homes of wealthy, though non-paying, people. "It is interesting to note," he comments in the book, "that the more affluent the home in which we played, the skimpier the people were. I learned to detest watercress sandwiches. We only accepted the invitations because we loved to play chamber music."

Sidney Harth, Terry Harth, Theo Salzman, and George Grossman — the Carnegie-Mellon String Quartet, circa 1970.

Chamber music became an obsession that was fueled by his teacher Sascha Jacobson, who "when it came to chamber music, knew all the literature inside and out." Grossman remembers, "I spent a lot of time with my teacher working on chamber music and its problems. To this day I live by what I learned from Sascha Jacobson."

Later, while working for such pop band leaders as Gene Krupa, Tommy Dorsey, Artie Shaw and Harry James, Grossman expanded his repertoire of classical works by devotedly keeping active with chamber music. The devotion finally paid off in 1955 when he made his Carnegie Hall debut with a viola recital, and appeared there again the following year.

During the '50s Grossman also played in the pit for several musicals, including *Brigadoon* and *Oklahoma*! and had the opportunity to work with the great conductors — Toscanini, Bernstein, and Stokowski. The last made the biggest impression on his musical life. "I was in great awe of this man whose best friends hated him. He was a man of many talents, combined with a certain amount of charlatanism," Grossman says. "His ideas worked very well in terms of pure sound; one of his tricks was to have musicians drop out one by one when ending a piece in pianissimo."

As Grossman's reputation grew, he began to receive invitations to leave New York and teach or play in an orchestra. Finally, "in 1961, I accepted an offer from Sidney Harth, whom I had worked with about 15 years before at Indian Hill summer camp in Stockbridge, Massachusetts. He offered me a teaching position at CMU and the chance to play in a quartet."

Grossman taught at CMU for 15 years before mandatory retirement at 65 in 1977, and although he has had no official status at the university since then, each year he has still taught one or two students. In addition, he privately instructs about six violin and viola students.

His retirement has been plagued by several operations for cancer, and two years ago, a heart attack. During the months of recovery he found comfort writing the 64-page book *I Don't Want You to Be a Bum* with Eleanor, his wife of 47 years. He wants his family to know that "my life has turned out well. I have done things that were rather important."

Only two of the 150 copies originally printed remain on the shelves of Stone Wall Bookstore in Shadyside, the only store which has been selling the book; however, an additional printing will soon be ready.

To those young musicians whose parents are like his mother, Grossman says, "Don't worry about being a bum. There was a time when certain professions were precarious, but today there are many more opportunities for talented young people in the arts. If you want to go into a certain field, go ahead. It will be hard, but if you get ulcers it should be in a field you like."

— *Gregg Bossler*

Raj Reddy Responds to President François Mitterrand

The following paragraphs are the text of Reddy's remarks in accepting the Legion of Honor award from Mitterrand on March 27, 1984.

I am overwhelmed by this unexpected honor. Of all the awards that one might receive the idea behind this one pleases me most. It is encouraging that a leader of the world has chosen to make a major policy statement about the potential impact of the new scientific revolution that is engulfing us and has the courage to ask not merely "how can it help the economy" but rather "how can it help people." It is also natural that the leader with this vision is the leader of the country which is the birthplace of other humanistic concepts, such as *"Liberty, Equality, and Fraternity."* It is this vision and compassion of President Francois Mitterrand and my friend, Jean-Jacques Servan-Schreiber, that attracted me to France.

Here at Carnegie-Mellon University we are engaged in the creation and communication of knowledge but rarely pause to ask how this knowledge can help people. A few years ago we heard reports of the so-called North-South dialogue between the rich and poor countries of the world and demands for transfer of wealth and technology. However well-intentioned, many of us felt that these ideas were hollow, impractical and unlikely to succeed.

When I received an invitation from President Mitterrand to attend the formal establishment of the World Center for Computer Science and Human Resource in Paris, I was more hopeful. After many discussions with Jean-Jacques Servan-Schreiber and other colleagues, I came to understand the full spectrum of possibilities. The foundations of all these discussions were the two powerful ideas put forward by President Mitterrand: first, the concept of technology in the service of human resource, and second, the concept of knowledge sharing.

Knowledge has an important property. When you give it, you have not lost it. Sharing of knowledge is the first and most important step in the uplifting of developing countries. This is best understood by the example of Japan. Here is a nation with no other resource than the human resource and yet it dominates the industrial scene today. One cannot but speculate whether other nations languishing in poverty today, in spite of their immense natural resources, do so because of the lack of the essential ingredients of knowledge, know-how and literacy.

The current technological revolution provides a new hope and a new understanding. The computer and communication technologies make it possible for rapid and inexpensive sharing of knowledge. This technological progress will make the global electronic village possible by the end of this decade.

The work of the World Center is focused to take advantage of these technologies. We have identified that *education* and *training, health* and *hygiene,* and *food* and *agriculture* are the basic areas for helping the poor and the disadvantaged of the world. These choices were forged through the active participation and approval of the President of France. This is what makes the whole enterprise a fountain of hope for the future and I am happy to be part of it.

Most of us can only achieve what our environment permits. It has been my good fortune to be part of a supportive environment.

The Computer Science Department and the Robotics Institute provide such an environment with brilliant colleagues and students, especially Allen Newell, who has always encouraged me to think the impossible.

I am fortunate to be a part of a university with the visionary leadership of President Cyert, whose approval has made it possible for me to undertake this project in France.

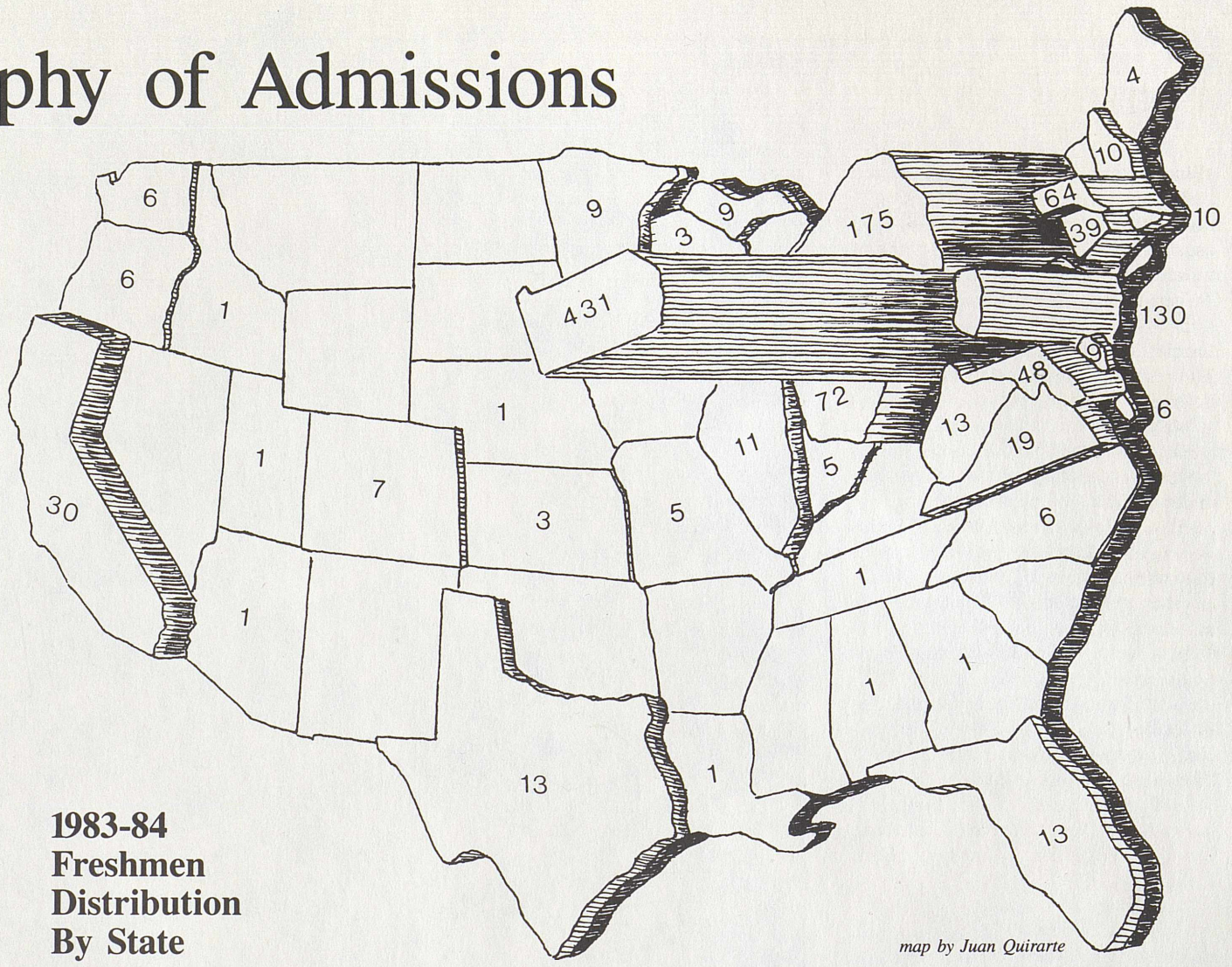
I am grateful to my adopted country, a nation of immigrants which provides the freedom to think and the opportunity to excel.

I am proud of my Indian legacy. Little did I know when I learned the alphabet by tracing the letters in sand that one day I would be working with a dream-like technology which will revolutionize the concept of learning and literacy.

It is a pleasure to live in the city of Pittsburgh with my wife and children. Their love and understanding have given me the strength to pursue my work.

Thank you.

The Geography of Admissions



1983-84 Freshmen Distribution By State

map by Juan Quirarte

During the last seven years, CMU's Admissions Office has been recruiting extensively outside of Pennsylvania, including the West Coast. Of this year's 1184 freshman, 36 percent — 431 students — were PA residents, compared to 57 percent in 1976. The second largest group, 175, were New York residents. Thirty freshman came from California, seven from Colorado, and 13 from Texas.

In September, Bill Elliott, Vice President for Enrollment, along with representatives of six other colleges — Tufts, Carleton, Union, Washington & Lee, Middlebury, and Lake Forest — spends two weeks recruiting up and down the West Coast. "When you mention 'West Coast' most easterners think of California. However, we've done very well in the Pacific northwest, particularly Seattle and Portland. For time invested, Seattle and Portland have brought about greater returns than California." Thirty 1983-84 freshman came from California, six from Washington, and six from Oregon.

Elliott believes that as a group the seven schools that work the West Coast together have more leverage to bring counselors and students together to talk about the college scene on the East Coast than if they recruited on their own. "The schools involved have little in common as far as their academic programs or quality are concerned. In fact, if anything, the group's diversification is the big drawing card."

During the West Coast trip in September '83, approximately 5,700 people attended the presentations. Of that number, 20 percent spoke individually to CMU while Tufts saw about 25 percent.

A similar strategy is used in Denver. For one week, CMU, along with Amherst, Harvard-Radcliffe, Princeton, Stanford and many other colleges and universities, participates in the "Out-of-State College Program." Sponsored by the Rocky Mountain Guidance Counselors, the event is attended by students from the entire city school system, in addition to outlying suburban school districts. Colleges from Colorado are excluded in order to give students and out-of-state colleges an opportunity to "become acquainted."

Many of the other recruiting trips are handled by the admissions staff. Debbie Mall, a CMU graduate who joined the staff upon graduation, does "the Mississippi trip" that begins in Minneapolis/St. Paul and moves down the river to Chicago and finally St. Louis. In one week, Mall visits selected area high schools, particularly in the Chicago-Evanston area — the "Mt. Lebanon" of Chicago.

Mike Steidel, another CMU alumnus, handles other areas of the Midwest, recruiting in Indianapolis, Des Moines, Omaha, and Kansas City.

Texas according to Elliott is an anomaly. "When you're trying to recruit students, you're speaking of Houston. Dallas is very Texan and as a result not as receptive to out-of-state schools. Texas is on our list for improvement in 1985."

In addition to these fairly new recruiting drives, Admissions continues its "traditional recruiting visits" — the "Eastern Swing" to Boston, Hartford, Long Island, Westchester County, New Jersey, Baltimore, Philadelphia, and smaller towns in PA.

During the last decade, there has been a precipitous drop in the number of 18-year-olds due to the steadily decreasing birth rate and emigration to the sunbelt. Allegheny County has experienced a sharper decline in the number of 18-year-olds than any other PA county.

— *Gretchen Elm*

Plans For Campus Construction?

With the University Computation Center building done — or at least officially opened to the public — what new construction projects are underway, or contemplated by the administration?

In fact — unbeknownst to most of the campus — major renovations in Mellon Institute are already in process. The Fluorescence Center, a biological research facility, will be completed by mid-summer, at a cost (according to Doug Philp, director of design and construction) of $1.7 million.

Other renovations are currently being studied to improve the biology and chemistry facilities at Mellon Institute. According to Pat Keating, director of university planning, "Substandard labs need to be reconstructed, and the electrical, air-conditioning, and water systems need to be upgraded." Keating says the estimated cost for these renovations, which would take several years, is $14 million, but that "the university is still investigating whether or not it is a wise investment."

To expedite other campus construction projects the administration is planning a five-seven year $100 million capital campaign starting this fall. Final priorities have not been set, and the decisions will impact each other like dominoes, but some of the plans being talked about include:

Bureau of Mines

CMU is still negotiating with the Department of Labor and the Mine Safety and Health Administration over the Bureau of Mines property. According to Keating, "We will hopefully acquire the property by 1985."

Fred Rogers, VP for business affairs, says, "In the long run, we might demolish all of the buildings except A (main building) and B (service building). That will make the property more valuable. The other buildings are obsolete."

According to Pat Crecine, the Bureau of Mines property will be used primarily for research and academic work in engineering and possibly robotics.

Athletic Building

Recognizing the "need for better recreational facilities," the administration continues to think about building a new gym. In the one plan drawn to date, according to Keating, "the building would be just off the Cut on the Bureau of Mines property."

Crecine and Rogers are both happy with the plan but not with the cost — an estimated $20 million. According to Crecine, the proposed building would have an "ambiance of an athletic club for students and faculty and in some sense could double as a student center with social lounges and places to meet."

Rogers says that "if a new gym turns out to be too expensive, we might decide on a smaller building to house facilities such as a swimming pool and racquet courts and upgrade the existing gym for other recreational use."

CFA Consolidated?

According to Crecine, "When a new athletic and recreational facility is built, the old gym will almost certainly be used to consolidate CFA. This is an issue of concern, since CFA is now spread out in Baker Hall, Porter Hall, Doherty Hall, and Margaret Morrison.

"The space freed up from consolidating CFA could then be used for the expansion of other programs."

In this scenario —

- Psychology could move into the design studios on the third floor of Baker Hall
- H&SS and EPP could move into the design studios on the first floor of Baker
- H&SS and Civil Engineering could move into the space freed up in Porter
- CIT could move into the architecture space in Doherty Hall.

In addition, CFA's current space in Doherty Hall might be used for classrooms and/or one or two lecture halls.

Skibo

Crecine suggests that "Skibo may be expanded and renovated to make more room for student organizations."

Classrooms and Lecture Halls

Money raised from the capital campaign will also be used to improve classrooms and to build one or two large lecture halls complete with modern AV equipment and electronic capabilities. A group of eight Ryan Award winners, chaired by Jim Hoburg and moderated by Ted Fenton, will make recommendations on upgrading existing lecture halls, maintaining classrooms, and providing the capability for one or two large lecture halls somewhere on campus. According to Fenton,"These would be common facilities, shared by more than one department."

PC Clusters

In other space renovations, Doug Van Houweling, vice provost of computing and planning, notes that two or three new PC clusters will be installed by next fall. Forty machines will be put in both the Hunt library's multipurpose room and in the UCC building, and a cluster of machines may be put in the "cave" on the fifth floor of Wean Hall.

— *Steve Adler*

Black Alumni Conference Scheduled

Actor Roger Brown (CFA '72), currently with the soap opera "Days of Our Lives," will be one of several speakers featured at an on-campus conference June 15th, 16th, and 17th by CMU's Black Alumni Association. Designed "to reunite black alumni to exchange expertise with each other and current students," the event will be open to the campus community.

Franklin Duck, CMU graduate ('74) and conference organizer, hopes "it will create a permanent link between the campus and alumni. Alumni have a lot to offer students. They provide role models, career advice, and emotional support. Working with students benefits alumni too by keeping them in touch with education."

The conference will begin with an opening address by President Cyert. Participants will hold caucus sessions to elect class representatives.

Then six workshops will be conducted by alumni and staff: Norman Johnson, SUPA professor and former director of C-Map, on networking; Sanford Rivers, associate director of CMU Admissions, on alumni public relations; Robert Sorrell (SUPA '72), on building support systems for the future; Mary Louise Haugh, associate director of Career Services and Placement, on career planning; Phillip Jeffries, investment broker, on investment planning. Keith McDonald of C-Map, with current students, will hold a panel discussion on "Student Evolution: The Changing Times." Reports on conference proceedings will be given on the last day.

The conference steering committee includes SUPA graduate Tom Mclamore, June Blair Wormesly (H&SS '82), and Veleter Mazyck (H&SS '79).

Six hundred questionnaires were sent out to alumni and 150 responses have been received. Forty-five alumni have preregistered. Interested alumni should contact the C-Map office.

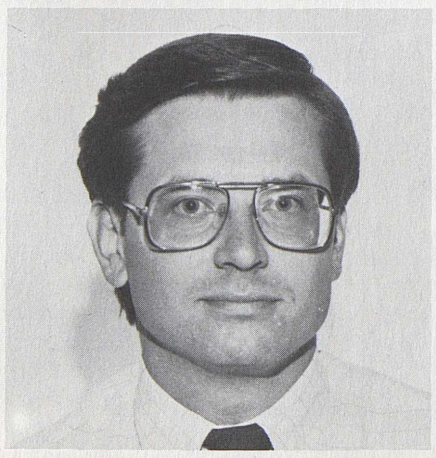
— *Kelly Doyle*

Lansing Taylor: *Flourescing Cells*

"Fluorescence" — as the term is used by biologists and chemists — is the principle that when a molecule absorbs light it will usually emit that light either at the same wavelength or at a longer wavelength. "When the latter occurs, the molecule is said to be 'fluorescent,'" explains D. Lansing Taylor, director of the Center for Fluorescence Research in Biomedical Sciences, which will open officially next fall at Mellon Institute.

Fluorescence is a phenomenon familiar in nature in certain kinds of rocks, which under a black light appear brilliantly colored. A number of organic molecules — fluorescein, rhodamine, and eosin — also exhibit this behavior. In the laboratory, they can be inserted into cells to facilitate microscopic study.

As a tool, "fluorescent probes" help biologists understand the molecular structure and function of living cells. According to Taylor, "Fluorescence spectroscopy is faster, safer, and a potentially more sensitive and versatile method of observing cells than



other procedures now being used." Ultimately, this method will help scientists identify diseased cells and monitor their treatment.

Many parts of a cell are visible through a microscope — the nucleus, which contains the genetic information; the cell membrane, which separates the cell from the rest of the environment; and the mitochondria, which produce energy for the cell's functions. Fluorescent probes literally highlight such elements through interaction.

In order to establish physiochemical norms, fluorescent probes are first analyzed *in vitro* — outside a living organism and in an artificial environment whose physical and chemical properties are known. Measurements through a microscope then establish the wavelength of the light given off, the intensity of the light, and the length of time that the fluorescent probe emits that light.

According to Taylor, "There are now several methods for inserting fluorescently labeled molecules — the probes themselves or probes coupled with the element of interest — into cells, including direct microinjection with electrodes. Some fluorescent probes, however, diffuse naturally into the cell and associate with the target cell structure."

After the norms of the probe reactions are established for such cell variables as pH, calcium concentration, or charge density, the same probe or fluorescently labeled molecule can be injected into a living cell.

At this stage in their development, fluorescent probes are applied particularly to the study of blood cells. According to Taylor, "Two complementary methods can be used — the first to supply information about the cells as a population, the second to give specifics about particular regions within a cell."

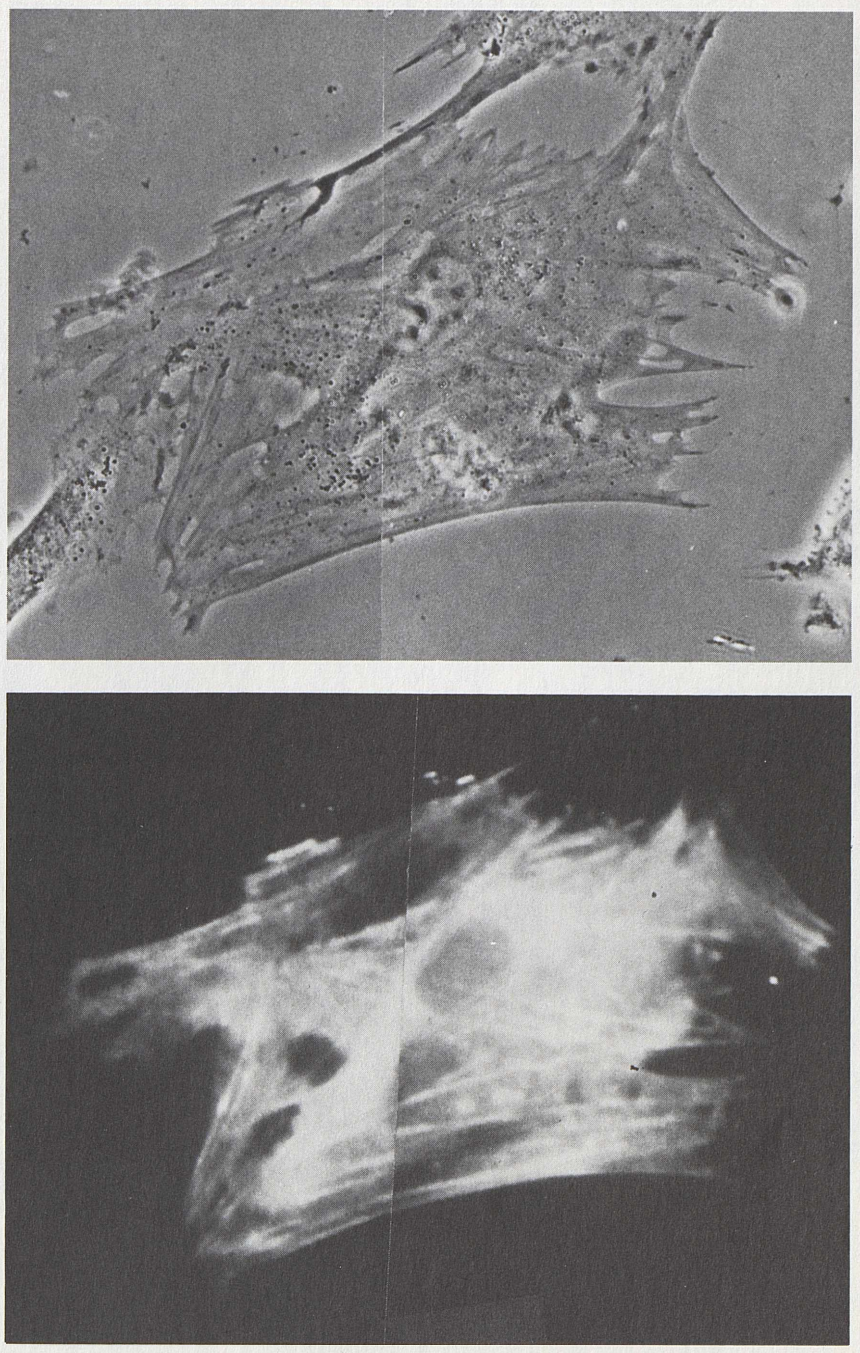
In the first method, using the flow cytometer, the researcher can examine, for example, a one milliliter sample of blood containing about one million cells and can identify the number of different types of cells present in the sample. By combining a variety of fluorescent probes, a number of blood cell diseases can be identified. "Flow cytometry allows for rapid analysis of cells, one million cells at a rate of about 5,000 per second, by passing them through laser beams," says Taylor. In due course, such tests will also be able to monitor the effectiveness of new drugs.

The researcher can also use the complementary method of "quantitative fluorescence microscopy" to look at specific parts of individual cells. Here, the sample is reduced to the size of a drop, prepared on a slide for the microscope, and specific cells chosen and examined from the many that are on the slide. This technique is important since it is now known that certain specific parts of the cell are affected by different diseases.

Although still in the stages of investigation, the application of fluorescent probes is promising for the diagnosis of diseases. According to Taylor, "Taking a commercial step in the production of probes and using them for analytical procedures is only two to three years away."

The Center for Fluorescence Research is presently collaborating with the Pittsburgh Blood Bank — the Blood Bank supplies the Center with blood. In return, the Center plans to develop fluorescent techniques that the Blood Bank can apply to blood related diseases, such as AIDS.

Says Taylor, "One of the current projects involves white blood cells (called macrophages), which remove bacteria and viruses from the body and are also involved in the response of the body against tumor growth. Fluorescent probes are being used to examine the 'signals' that cause these cells to migrate to sites of infection or tumor growth."



a) cell culture from a mouse (fiberblast) as seen through a microscope.

b) the same cell culture after a specific protein, acten, has been fluorescently labeled.

The Center for Fluorescence Research in Biomedical Sciences to be opened next fall consists of seven components: 1) an organic chemistry lab for the development of the fluorescent probes; 2) a biochemistry lab for characterizing properties found in molecules and cells which have been labeled by a probe; 3) a flow cytometry lab for analyzing fluorescence signals from large numbers of cells; 4) a microscopy lab for quantifying fluorescence signals from specific organelles; 5) an instrument engineering lab for developing new instruments; 6) a computer lab for storing and analyzing large amounts of data; and 7) a cell culture lab for growing mammalian tissue culture cells and blood cells. (Approximately 10,000 square feet.)

The Center is an integration of many disciplines. "It is the only one of its kind in the world," says Taylor. "Others are making individual efforts but the integration of all the necessary technologies is critical. It is through merging the studies of several different disciplines that we are going to be able to make quantum leaps."

Taylor himself is a cell biologist and quantitative light microscopist recently from Harvard University. Others making up the initial core of the Center include Alan S. Waggoner, a biophysical chemist recently from Amherst; Robert F. Murphy an expert in computer science, flow cytometry and data analysis recently from Columbia; and Fred Lanni, a biophysicist recently from Syracuse. Joining them in July will be Robert Birge, the Chemistry Department's new head from University of California.

The research is being funded by the National Institute of Health and the National Science Foundation as well as other private foundations.

— Judy Nutz

The Sehenswurdigkeit of it All

The emerging multinational economy and research environment in science and technology is urging students to break from the parochialism of most American university training. CMU is responding with a new round of opportunity to live and study abroad.

Students may look to a summer in Europe to learn a language for credit, meet university counterparts in a new culture, or to simply change the typical four year study cycle. Above all, they are lured by what Assistant Professor of German Christian Hallstein calls Europe's "Sehenswurdigkeit — its worthiness of being seen."

CMU will again sponsor three formal study programs this year in cooperation with universities in France, Germany and Switzerland. The Undergraduate Exchange Program with Ecole Polytechnique Federale de Lausanne in Switzerland (EPFL) offers students in engineering or applied science a credited, full junior year of training. This year — the program's ninth — will see a new group of second-semester CMU freshmen selected as candidates to spend their junior year in Switzerland, while nine or ten Swiss exchange students arrive in September for a year of study at CMU. According to Professor of Metallurgy and Materials Science, Lloyd Bauer, who continues to head the undergraduate program, the exchange last year involved 16 students from CMU and eight from Switzerland. Tuition for the study in Europe is the cost of a year at CMU, and EPFL subsidizes student housing there.

Carnegie-Mellon also sponsors two programs for summer study abroad. "CMU in Germany," an intense seven weeks of German language and cultural study, begins on this campus with a three week concentration on linguistic skills during 40 hours of classroom work per week. Last year's seven participants then enrolled in the month-long language/cultural study course at the Goethe Institute in Luneburg. There, 24 lessons of 45 minutes in length are taught Monday through Friday. Classwork in both sessions earns the student credit for language requirements.

Hallstein, who accompanied last year's entourage, will again be responsible for the sessions at CMU (June 11 to the 29th); he will also escort the group to West Germany, this time to the Goethe Institute in Rothenburg (July 9 to August 3). The students will be housed in German homes during their stay.

The summer program in Paris also features three weeks of intensive language instruction at CMU, and then four weeks continued study at the Institut Catholique in France. Like the German program, last year's curriculum in Paris included weekly excursions for the nine CMU students there, plus free afternoons and weekends to see what they wished of the city. Room and board for the students is arranged in private homes or dormitories recommended by the Institut. The history department's Dan Resnick, who has led the Paris segment of the program for the past two years, stresses the importance of "getting to know Paris on one's own, despite the relatively short stay there."

This summer, French professor Juris Silenieks will, for his second year also, be responsible for instruction at CMU (June 5 to 25). Historian Katherine Lynch will escort the group abroad (July 2-31).

Fees for each of the programs in Germany and France run at $2000 for the total seven weeks, $1200 for those who attend only the segment in Europe. Included in the full fee are tuition for on-campus and overseas instruction, room and board during the four weeks in Europe, and selected excursions during that time. Students are responsible for transportation to Europe and back, and for room and evening meals at CMU during the first three weeks.

In each of the three programs, the initial levels of language proficiency vary a great deal, as do the students' familiarity with the respective countries. Professional interests within the German and Paris programs have varied too, ranging in past years from economics and business to the arts.

Those interested in study in Paris or West Germany this year should contact the program coordinators, or the European Studies Program office in Baker Hall 240. Linda Brzeczko at ext. 2676 has information on the exchange with Switzerland.

— Susan Englert

A Report on Educational Quality and Faculty Morale in the College of Fine Arts

At its meeting on 5 April 1984, the Faculty Senate approved a resolution endorsing, with one amendment, the recommendations of the Report of the Educational Affairs Council on Educational Quality and Faculty Morale in the College of Fine Arts. The following paragraphs are the text of the report, including the amended recommendations.

Supporting documents and appendices to both the EAC report and Midani's response are on file in the Senate office.

In the fall of 1983, the Faculty Senate requested that the Educational Affairs Council look into issues raised by Rob Roy Kelly regarding the educational process in the College of Fine Arts. Kelly, formerly an Associate Professor of Design at CMU, stated his charges in an article in the September 1983 issue of *Focus*. In brief, Kelly attempted to demonstrate that the administrators of the College and the University have taken a number of decisions in the last decade which have altered the College in such a way that both the quality of education and faculty morale have deteriorated.

During the last few months the EAC has attempted to determine if there is merit in Kelly's allegations. In the course of our study we have made use of material available from the following sources:

1. The College of Fine Arts Strategic Plan and other information from the University Planning Office;
2. The "Report of the Committee to Evaluate Akram Midani as Dean of the College of Fine Arts," (June 1982) [This information was made available on a restricted basis.];
3. The Faculty Course Evaluations for the last six semesters
4. The responses to an EAC questionnaire on "Educational Quality and Faculty Morale in the College of Fine Arts"
5. Information supplied by departments regarding their size, teaching loads and faculty rank distributions
6. A number of personal interviews with faculty and students.

Educational Quality

In the CFA as in any other college, effectiveness in education depends on many interacting parts. Among them are excellent students, adequate physical facilities, well-trained faculty members who are both active participants in their professions and conscientious instructors, and carefully developed courses of instruction. Many of these ingredients must be present in the CFA in order to account for the significant progress which the college has made during the last decade.

According to tangible measures of educational health, the educational situation in the CFA presents a positive picture. The Evaluation Committee (source 2) reports that over the last ten years the CFA has grown in both size and quality. Enrollment has increased from 870 to over 1000 highly qualified students, and the E & GO budget of the College has doubled to over $4 million per year. Physical facilities and faculty salaries have correspondingly improved. Results from the Faculty Course Evaluation (source 3) for the past six semesters indicate that from the students' point of view the courses in each of the departments of CFA are of good quality. And, while there is no direct way to compare the ratings in CFA to those in other colleges, it is probably fair to conclude that course quality is as high in the CFA as in the other colleges.

Apparently, the CFA faculty concur with the student evaluations of course content. The Evaluation Committee Report (source 2) contains a number of favorable remarks on the intellectual merit and innovative nature of the various programs in the CFA. A questionnaire circulated by that Committee, to which 60 faculty responded, elicited a positive response to questions regarding leadership in education, the quality of undergraduate and graduate education, support for excellence in teaching, and the choice of educational goals for the College. There was also general recognition of the difficulty of unifying such intellectual diversity as exists in the CFA.

In addition, evaluators from outside CMU rate educational programs in the CFA highly. The 1982 edition of the *Gourman Report*, which rated undergraduate programs in 1845 colleges and universities, ranked Architecture third (out of 90 departments surveyed), Drama tenth (out of 1001 departments), and Art twelfth (out of 841 departments). Based on all the above, we find no reason to believe that the quality of education in the College of Fine Arts has deteriorated during the last decade.

Faculty Morale

However, it became apparent very early in our study that low morale is a serious issue and a continuing problem for many CFA faculty members. It is obvious that the way the faculty feel about their professional activity and their chances for professional success directly affects the intellectual climate and spirit of the institution. The spirit of the University is clearly an important part of the educational environment, and to the extent it suffers, the educational and professional enterprise will be undermined. For reasons to be discussed below, the EAC feels that this issue deserves serious discussion in the CFA and at the highest levels of the University Administration.

In its effort to determine whether or not the charges raised by Rob Roy Kelly were valid, the EAC surveyed the CFA faculty via a questionnaire aimed directly at several of the issues Kelly raised. In minor detail some of Kelly's information was in error; the corrections appeared in the questionnaire. The 41 responses obtained represent 30 percent of the full CFA faculty, 48 percent of the tenure-line members, and about nine percent of the part-time and adjunct faculty. We have, of course, no way of knowing whether the survey results are also representative of the views of those CFA faculty who did not respond to the questionnaire. However, the responses we did receive are, of themselves, cause for concern.

The EAC survey supports the following conclusions: while the respondents feel that educational quality has neither declined nor improved, nearly two-thirds of them feel that both their personal morale and that of the faculty as a whole has declined. The survey identified five problem areas which contribute to poor morale.

1. Possibility for Permanent Tenure

As Kelly claimed, the number of tenure lines in the CFA has decreased over the period 1972-1983 from 98 to 73. Correspondingly, the number of adjunct, visiting and part-time faculty has increased to its present level of 63. During this same period, eight persons received tenure; two of these were conditional to hiring. This number is significantly below the average of the other colleges. Of the tenure-line faculty, 47 percent are tenured, about average for the University. Because of the reduced number of tenure lines, and the low tenure rate, many young faculty have concluded that the chance for tenure is slim. This situation is a leading cause of low morale.

2. Procedures for Promotion and Tenure

On March 30, 1983 an official document describing procedures and criteria for reappointment, promotion and tenure was released by Dean Midani. This document replaces its predecessor, which was prepared in 1971. This document was the end product of many years of effort by members of the faculty and administration, who attempted to bring reappointment, promotion and tenure policy and procedures into line with the University rules given in the *Faculty Handbook*. However, some members of the faculty and administration, including Dean Midani and Vice-President Crecine, have expressed dissatisfaction with certain aspects of the document*. Some faculty members responding to our questionnaire claim that they are still confused about procedures and standards for promotion and tenure.

In part, the confusion may have arisen because during the previous decade substantial discrepancies existed between the criteria for promotion and tenure as stated in the 1971 document and the *Faculty Handbook*. Thus, for many years there was no College promotions document which described correctly the new emphasis being placed on professional and artistic activities, national reputation, and so on. Perhaps for this reason, some faculty complain of arbitrary procedures, mixed signals, changing rules and a general lack of clear communication with the administration. Additional pressure has been created by the decision to reduce the number of tenure lines in the College in favor of an increase in visiting fine arts faculty. In the last two years, the Faculty Review Committee has heard 12 cases; of these, 6 originated in the CFA.

3. Communication

Respondents to both the Evaluation Committee and the EAC survey complain repeatedly about the lack of communication between the Dean and his faculty. The CFA College Council, consisting essentially of the department heads and the Dean, meets infrequently and then only to consider student academic actions. There are many complaints of the Dean's unwillingness to delegate responsibility or to consult with the faculty when making important decisions. However, the Dean has stated that he meets often with faculty (usually individually) to discuss matters with them. We can only report that there are widespread feelings of disenfranchisement among the respondents to our survey. Since there seem to be genuine differences between a substantial segment of the CFA faculty and the administration about long-range goals for the college, effective communication assumes added importance.

4. Teaching Loads

Faculty members in the CFA have a much larger number of contact hours than their colleagues in other CMU colleges. The situation is most serious in the departments of Art and Design where faculty members in these departments average 17 and 16 hours a week, respectively; a few faculty in these departments have been assigned 20 or more hours. Many of these hours are spent in studio classes which demand less preparation and paper grading than lecture or discussion courses, but since colleagues in other colleges usually have graders, the main difference in time demand is in preparation.

The issue is complex, and is discussed in the *Faculty Handbook* (see p. 26). For example, the typical faculty member in MCS or CIT has about four to six contact hours a week, but in addition, must guide the work of a number of graduate students. This guidance takes time which does not show in contact hours, but it also contributes to the research results which not only lead to professional growth and national reputation, but also which figure heavily in reappointment, promotion and tenure decisions.

Faculty members in Art and Design spend most of their time in studio courses. In Design, they lecture occasionally in these courses, but on most days they interact with students in the studio. In both Art and Design, the number of hours spent in preparation for studio courses varies widely; both faculty members and administrators report that some individuals do little or no preparation; others, however, consistently spend six or more hours weekly in preparation.

On balance, it seems that CFA faculty members, particularly in Art and Design, have significantly heavier teaching loads than their colleagues in other colleges at CMU. Many respondents to our questionnaire contended that their work loads made it extremely difficult to produce artistic works which would win them the national recognition necessary for a successful career at CMU. For these respondents, heavy teaching loads were a source of poor morale.

Because it is difficult to compare teaching loads across colleges, we recommend an in-depth study, perhaps next year, of inter-college teaching loads (including a comparison with other similarly-oriented institutions) to strengthen understanding of this issue.

5. Administration

This topic is closely related to items mentioned in (3) above. At present, the administration of the CFA is highly concentrated in the hands of the Dean, the five department heads, an Assistant Dean and two secretaries. Although there is an Associate Dean, he exercises very little responsibility; indeed, several of the respondents to the EAC survey did not know that the position existed. Others commented that the planning effort from CFA is weak and could be improved if the responsibility were more widely shared. Others felt that there is simply too much work for one person, and pointed to the potential usefulness of a strong Associate Dean and other administrators.

Summary

Our examination of the educational enterprise in the CFA reveals much to commend. An excellent faculty is teaching a committed student body in facilities that have substantially improved during the last decade. Many of our graduates go on to successful and rewarding careers in the arts. Their success is a source of pride for everyone at CMU.

In spite of this, deep currents of dissatisfaction run through the faculty ranks of the CFA. The College seemingly progresses, but respondents to our questionnaire report that morale has declined precipitously. This situation derives in part from basic, legitimate differences between faculty and administration as to desirable goals for the college. But many faculty members feel that they have had no influence in the decision-making process. They see the administration as an adversary rather than an equal partner with shared aspirations. It should be pointed out that this situation has a long history. It is hard to see how it could have other than a deleterious effect on the educational climate in the CFA.

Recommendations on next page

*For example, the Senior Vice President for Academic Affairs feels the current document places inadequate emphasis on professional and artistic activities as promotion and tenure criteria and should explicitly provide for direct involvement of department heads in the reappointment, promotion and tenure process as indicated in the *Faculty Handbook*.

Senate Recommendations

In order to improve the situation, we recommend the following actions:

1. Revise the existing Reappointment, Promotion and Tenure Policy so that the faculty, the department heads, the dean and the university administration all support it. The policy should accurately reflect current university standards and expectations to be met by a faculty member in order for tenure to be granted. In addition, the promotions and tenure process might be strengthened by involving the department heads directly in the evaluation process.

2. Improve communication between the Dean and the faculty via frequent meetings of the College Council, whose purpose would be to coordinate college activities and plan for the future. The department heads, who are members of the Council, would then have the responsibility to convey information between the Dean and the faculty, and vice versa. We support the Dean's practice of meeting regularly with each department at least once a year and of convening the entire college faculty at appropriate intervals; and urge the faculty to take advantage of these opportunities.

3. Broaden the administration of the CFA to include the staff necessary for effective leadership in curriculum development, communication, fund raising efforts, office management, and so on. (If appropriate, the position of Associate Dean could be strengthened; this model has been used successfully by the other colleges.) New monies should be allocated for this purpose, if necessary.

4. We believe there is a need for an in-depth study of teaching load comparisons between colleges. On the basis of our findings, however, we believe there may be a need to improve the creative climate by reducing the number of contact hours per faculty member in cases where it is excessive. This would allow those faculty members more time for the artistic activity necessary to establish the national reputation required for a successful career at CMU.

Akram Midani Responds

This memo, published here with Midani's approval in slightly emended form, was addressed to Juan Scheaffer, chairman of the Senate, on March 26 and distributed to the whole Senate for its April 5 meeting. Supporting backmatter is available at the Senate office.)

The first reading ot the report ot tne Educational Affairs Council brought to mind two questions which the Council has avoided, relative to the letter of Rob Roy Kelley.

- It is clear that the decision to deny tenure to two faculty members in Art and Design generated in one faculty member (i.e., Kelly), upon leaving the university, an understandable, but not justifiable critique aimed at inviting the rest of the faculty to identify with his grievance, to turn a specific problem into a general one, and to arouse emotions by proposing fictitious notions of a deteriorated condition in CFA.
- It is also clear that persistence on the part of the Dean to bring about an understanding by the faculty of the close inter-relation of teaching and the ability to project a position of leadership in the profession through artistic activities has produced an effect on traditional preceptions and assumptions — signifying for some faculty an acceleration of standards, hence a difficulty in attaining tenure.

In short, the EAC report refrains from examining the correlation between the progress which has taken place in CFA — its high ratings — and the morale of its faculty (20 percent responded as having a problem), or from understanding that its own findings may be in part the direct result of an agitated situation created by the Rob Roy Kelly case and his letter.

Tenure decisions as well as discussion of issues of quality can be expected to cause disquietude among certain faculty: an indication of normalcy in any institution aspiring for excellence. To become diverted by pouting and to seek "artificial positive" statistics by relaxing standards, relative to the other colleges, is to exchange lack of quality for contentment.

The question is whether the dynamics of positive change should be eliminated by relaxing the requirements as established in the CMU and CFA procedure and retiring to the level of dreams and illusions, or whether the quest to create a better College of Fine Arts should continue.

The EAC report decided to accept an unsubstantiated issue — "teaching loads" — without challenging it as the most commonly used excuse to justify absence of artistic and professional activities. The question should have been one of inter-college comparisons, whether or not CFA adheres to the *University Handbook*, which states (under "normal teaching loads" [p. 26]):

The university has always assumed that a faculty member not currently engaged in supported research (by either outside agencies or the university itself) should be engaged in full time in teaching. The normal teaching load has for a long time been defined, in the university's account process, as equivalent to 12 hours spent in classroom instruction plus 24 hours spent in work related to classes taught (preparation, work with students, grading) for a total of 36 hours (for full professors 9 hours instruction plus 18 hours of related work for a total of 27 hours), except for certain types of classes, for example, those which are being offered in the College of Fine Arts, where more contact hours with students are necessary for the training and education in the disciplines. In addition, faculty members have been expected to perform a customary amount of other activities such as advising students, serving on committees, and participating in professional activities or public service.

Tenure track faculty at CMU are contracted for 10 months. Their teaching loads are constructed on the basis of an academic calendar which only requires and allows 30 weeks of teaching activities.

Another assumption which the EAC report avoided discussing in depth for fear of refuting it is the effect of communication, or the lack of it, on the morale of the faculty. A leadership that poses questions and invites faculty to consider change is a healthy communication. An *ignorare* position, or a claim of not being aware of information as a reason for displeasure, is simply a way to avoid problems and a refusal to assist in solving them.

Yearly meetings are held by the Dean of the College for all the CFA faculty to discuss issues of great importance:

November 12, 1982	Discussion of the CFA Planning Document
April 25, 1983	Discussion of the new CFA Document on Reappointment, Promotion and Tenure
March 1, 1984	Discussion of Criteria for Artistic and Professional Activities

A review of the statistics supplied by the Dean (appendixed to the EAC report) indicates that ample communication has succeeded in inviting serious thinking which only now is being diverted by agitation into a morale issue.

I welcome the constructive suggestions of the EAC, for I am also eager to restore to CFA a rational consideration of serious issues at hand.

Curriculum Review and Planning in the Departments of Art and Design

As one of his exhibits supporting his response to the Senate, Midani submitted a memo detailing ongoing curriculum review. The following paragraphs are an excerpt.

Since the considerations of the issues raised by the Visiting Committee Report go as far back as the mid-seventies, I believe it is appropriate to establish a chronological summary as a background for today's discussion:

1. At the request of the Dean and in response to the observations made by representatives of NASA (National Association of the Schools of Art) faculty in Art and Design began to discuss ways of interaction between the two departments early in the fall semester of 1976. On November 8, 1976 the two department heads, Orville Winsand and Joe Ballay presented a progress report which proposed:

   a. Transfer procedures between the Departments of Art and Design.
   b. Photography
   c. Joint Pre-College program of Art and Design — Summer.
   d. Illustration.

The proposed actions were discussed by the faculty and, with the exception of Photography, went into effect spring semester 1977.

2. In late spring semester 1982 the Dean suggested to Orville Winsand and Joe Ballay that they review with the faculty of the Departments of Art and Design levels of interaction between the departments, especially in the Crafts area, with possible links between Industrial Design and Crafts. On September 13, 1982 they met with the Dean with suggestions such as workshops and seminars which involve faculty and students in Crafts and Industrial Design. The meeting resulted in a suggestion that the Dean discuss the issues of cooperation and their effect on curriculae changes with the faculty of both departments.

3. On March 3, 1983 the Dean gave a lecture in Tim Cunningham's *History and Theory of Design* in the Design Department. The lecture was entitled "The Designer as Artist."

4. On March 16, 1983 the Dean met with the faculty of the Art Department and discussed a working paper entitled "More precision in the establishment of departmental goals" in which he discussed:

   a. National presence of the faculty
   b. Compacting areas of specialization
   c. Strong curriculum which provides learning from other educational resources at CMU

5. On October 31, 1983 the Dean announced to the faculty members in the Departments of Art and Design and members of the Student Advisory Committee the invitation to a visiting advisory committee which would visit the two departments in November 1983 to discuss with administration, faculty and students curriculae and propose ideas for the education of fundamentals, and actions which would help to assist the students with a clearer sense of purpose in decisions to specialize in either Art or Design.

6. On November 14, 1983 the Dean met with the faculty and SAC members of the Art Department in a one-day conference at Hidden Valley to discuss the Visiting Committee and aspects contained in the working paper of March 16, 1983.

7. On November 23, 1983 the Dean met with faculty of the Department of Design to discuss the issues which he had raised with the Department of Art.

8. On November 28, 29, 30, 1983 the Visiting Committee made its visit to CMU and met with faculty, students and administration in Art and Design and with the Dean and the Senior Vice-President for Academic Affairs.

9. On March 7, 1984 the Dean forwarded the Visiting Committee report dated February 20, 1984 to the faculty of Art and Design and to members of the Student Advisory Committees and announced a plenary meeting on March 14, 1984 from 8:30 to 11:30 a.m. The purpose of the meeting is to have a general discussion and to consider suggestions for further action.

10. On March 14, the Dean created four faculty/student committees to study undergraduate and graduate curriculae in Art and Design and to report to him by the end of the semester.

Dean's Log of Meetings With —

	Dept. Heads Individually	Dept. Heads Collectively & With Faculty	Faculty Individually	Faculty Collectively College, Dept.	Dean's Participation in Educational Dept. Activities
1981-82					
September	11	4	16	1	4
October	11	11	10	1	4
November	17	12	6	1	4
December	16	3	9	2	3
January	10	7	15	2	1
February	11	4	8	1	1
March	10	1	13	1	7
April	12	3	12	0	5
May	17	7	10	0	0
June	4	1	10	0	0
	119	53	109	11	29
1982-83					
August	8	1	4	0	1
September	14	5	17	2	3
October	21	6	6	5	7
November	15	8	12	1	5
December	10	4	10	4	1
January	11	4	6	2	2
February	17	5	7	0	0
March	14	8	11	1	3
April	16	4	17	2	1
May	16	8	10	0	0
June	7	8	10	0	0
	149	61	110	17	23
1983-84					
August	7	1	5	2	1
September	14	6	10	2	1
October	18	4	5	0	6
November	13	3	10	1	3
December	11	2	5	2	1
January	12	6	7	1	4
February	12	7	12	1	4

Fred Carlson: The Illustration Man

"Most people think of advertising as a huge, subversive con game," says Fred Carlson, a part-time instructor in the design department's illustration program. "But it's not. Advertising, and particularly illustration, is a person-to-person communication or exchange. The whole idea is to communicate effectively, to make people stop and take a second look."

Carlson, a 1977 CMU graduate in graphic design, runs a free lance commercial illustration business he started in 1980. He has done work for Westinghouse, the Kissell Company of Springfield, Ohio, Brockway Glass, Gulf Oil, and has illustrated a novel by Pittsburgh writer Lee Gutkind called *God's Helicopter*, among other projects.

"Sometimes I take a project from the beginning and have total control of the visual design. Sometimes I simply fill in a space with an illustration they want," says Carlson. "When you're running your own business, it is important to establish a certain market segment in which you feel comfortable and qualified."

For the Kissell Company — one of the largest mortgage lending firms in the US — Carlson designed montages in basic grays and browns (reminiscent of the old tin-types) to illustrate a booklet celebrating the company's 100th anniversary. "My job was to work with the text and produce images describing Kissell's history in terms of the national atmosphere of various eras," says Carlson. "I had to find out how the mortgage lending business fit into the booming capital goods market all the way back to the 1880s." On the Kissell project, completed in 1983, Carlson collaborated with the Pittsburgh writing firm of McCullough Communications.

For the Brockway Glass and Container Corporation, Carlson produced the "division pages" — the illustration inserts — for their 75th annual report: predominantly black and white montages of such subjects as a nuclear family, suburban home and car for the 1950s; Jimi Hendrix, John F. Kennedy, and Martin Luther King for the 1960s; and Franklin Roosevelt for the 1940s. "Each montage summarizes a decade of Brockway's history. But not product-intensively. They were oriented to catching the national moods."

Carlson's illustrations for Dollar Bank have frequently been in the *Pittsburgh Press, Post-Gazette*, and even in *The Tartan*: cartoon-like versions of US currency images of various presidents, accompanied by a slogan associated with that president. "These were a lot of fun," says Carlson. "It's the only kind of cartoony sample that I show."

Finding work can be a problem for a self-employed illustrator. Carlson advertises in magazines distributed nationally to small firms and art directors — "the middle-men" between the large companies and the illustrators. Word of mouth also advertises his work. "An informal network of contacts in the business community keeps my name and work in circulation," he says.

Carlson believes that recent changes in the economy have strengthened the position of illustration in advertising. "There is a trend away from photography these days. In an environment in which everyone is selling services and capabilities rather than products, illustration can create a distinctive image. These days people are less interested in realistic representation."

At the present, Carlson's business responsibilities prevent him from actively pursuing purely artistic expression. "When I can be more selective, I'd like to devote more time to gallery shows," he admits. "For now, I hope my images work both as art and as advertising devices."

Meanwhile, for the past three years, Carlson has been teaching illustration at CMU. "It's imperative that people who teach for a living know what is going on in the real world. The most important thing that part-time instructors bring to the academic world is a current knowledge of their chosen field.

"CMU's illustration program has a good synthesis in myself, Fiedler, and Gaadt. Hopefully, the school will allow the program to grow and improve without a lot of bureaucratic red-tape restricting student course choices between art and design."

— *Chris Reigel*

Not for Staff Only

Where's the Beef?

This week it's in Wean Hall. Floors one through eight. If other people can see me from the neck down, why shouldn't I be given the same opportunity? As it is now, when I stand in front of the one mirror in any ladies room in WeH, I see my head and four feet of wall and ceiling. It gives one a sense of a vast open, empty space associated with one's extremities. I mean, what if I had a string hanging from my skirt or a wad of bubble gum stuck on my backside from sitting on the bus, or toilet paper stuck to my shoe?

Maybe the guys have the same problem. I know a guy, who is now a CMU student, who went two days during midterms with the entire back of his pants out and didn't know it. Will honest people tell you these things? NO.

SOLUTION: One full length, $9.98, K-Mart mirror installed in each restroom in WeH. I mean, I could conceivably gain 30 pounds and if I could still fit through the door, and no one told me (and no one would), I might never know. Seriously, we spend eight hours a day, five days a week in our workplace trying to project a pleasing image of ourselves to others. Please give us a hand. Or more precisely, a mirror.

Be Aware of Your Workplace. Send your beefs to Cathy Hill c/o FOCUS, BH 229-C, cjh@cmu-cs-c.

A more serious problem — Benefits — came to my attention recently in the form of a memo, which I pass along to you.

TO: Lisa Wiedman, Personnel Director
FROM: Fran Megahan, Physics Department
DATE: April 3, 1984
SUBJECT: Reimbursement for Unused Sick Days

I will be retiring in May 1984 from my job at Carnegie-Mellon's Physics Department after 15 1/2 years of service (starting date November 11, 1968). Before leaving I would like to bring to your attention the fact that I have 104 Unused Sick Leave Days.

For the past 6 or 7 years the Staff Council and other staff groups have urged the University to consider some compensation for those of us who have not used or abused our sick leave entitlement. It was suggested in various articles printed in the FOCUS and Tartan that this was about to be acted on. I attended one of the President's luncheons for staff members where this was discussed by Dr. Cyert. He suggested to you at that time that he considered this to be a good idea and that it should be checked into. The proposal was that those leaving CMU with 15 years of service be paid for one half of the unused days. I understand that this is already being done with one of the unionized groups. I also submitted a written question (dated 6/13/83) for Dr. Cyert's last meeting with the staff. The question was not answered.

I suggest to you that this benefit would be a good incentive for employees to refrain from taking days unnecessarily and could even save employee costs for the University. Also, a percentage of unused days could be paid on a sliding scale for those with fewer years of service with the Univesity. I have discussed this with Staff Council members but have not received any assurance that this has been presented to the Benefits Sections in a formal way.

Since I am retiring after a comparatively long period of service, I request that if this benefit is passed in the future that I be considered eligible and be paid retroactively for unused days at the rate I am presently earning.

cc: Juanita Russell
Tom Tragesser
Nick Stratigos

A retirement policy that compensates retiring employees for unused sick days is beneficial to everyone.

When I contacted Lisa Wiedman in mid-April, she agreed that the University loses money in terms of production when an employee is absent from work. And she stated that her office is taking a serious look at a benefits policy that would compensate retiring employees for unused sick days. Some of the criteria she stated that would be used include: what it would cost the University, who would benefit from this policy, and to what extent it would provide an incentive for employees to use their sick days minimally.

The benefits to the employee are easy to state. They would gain not only financially but in terms of incentive to maintain a consistent work schedule and in confidence that the University values their work enough to compensate them with extras and, in the long range, an additional retirement benefit. This will affect how employees feel about their workplace and the quality of work they are willing to produce. It is well known that the more flexibility you give people, the more personal control and the more satisfaction they have with their work.

I also spoke to a professor of statistics who suggested that we look at this potential benefit as a "raise in salary awarded differentially to people who are reliable as compared to people who are not."

Such a policy will directly benefit the retiring employee and the University, and indirectly benefit everyone in terms of making the workplace more satisfying.

Comments welcome. Please reply to C. Hill BH 229C or cjh@cmu-cs-c

Terry Gillespie, who has written NOT FOR STAFF ONLY in several issues this year, also invites comments and suggestions for topics to be considered in this space. She is best reached via computer mail at TGOR@CMCCTC.

New Trustees

Eight men and one woman have been elected to terms on the CMU Board of Trustees.

Robert Dickey III, retired chairman of the board of Dravo Corporation; Alvin Rogal, president of Rogal Company, Inc.; and L. Stanton Williams, chairman and chief executive officer of PPG Industries, Inc., were elected to life terms on the board.

Elected to two-year terms were Thomas F. Faught Jr., president and chief executive officer of Dravo Corporation, and M. Donald McClusky, vice chairman and director of the BFGoodrich Company.

Elected to three-year terms were Marshall L. Berkman, chairman and chief executive officer of Ampco-Pittsburgh Corporation; Charles L. Fuellgraf Jr., president of Fuellgraf Electric Company of Butler, Pa.; Carol R. Goldberg, executive vice president and chief operating officer of The Stop & Shop Companies of Boston, Mass.; and Justin M. Johnson, judge, Superior Court of Pennsylvania.

The trustees were elected at the board's April 16 meeting.

Salary Offers Increase for GSIA Grads

Salary offers for graduates of Graduate School of Industrial Administration (GSIA) increased seven percent over last year's offers.

Edward Mosier, director of placement at GSIA, reports that 1984 graduates are receiving offers of about $35,000.

"Salary offers ranged from $29,000 to $60,000," says Mosier. "We're delighted with the increase. There were more job offers per student this year and more companies competing for our graduates. Trends indicate that jobs are opening up in manufacturing and finance, with industries such as high tech and consulting remaining virtually stable."

Retail Sale of Used Computers Wins Award

Two CMU students who developed the concept of selling used computers in a retail setting are the joint winners of the "Entrepreneur of the Year Award."

Stephen Gold and Jeffrey Morris, second-year students at the Graduate School of Industrial Administration (GSIA), received the first dual award.

David Mitchell, president of the Smaller Manufacturers Council of Pittsburgh, gave the award to the winners at a luncheon in their honor.

The "Entrepreneur of the Year Award" is given annually to a member of GSIA's graduating class who successfully demonstrates the business savvy and managerial skills necessasry for an entrepreneurial career. Sponsored by the Smaller Manufacturers Council of Pittsburgh, the award was established seven years ago by Jack Thorne, who teaches entrepreneurship and small business at GSIA.

Earlier this year Gold and Morris won a prize for an entrepreneurial project done for Thorne's small business course. At a dinner celebrating their victory, they came up with the concept of their business, "ComputeRenaissance," which specializes in the sale of used personal computers on consignment to individuals and small business.

"Our business is unique in the Pittsburgh area," says Gold, "because we offer a 30-day warranty, user support, educational assistance and repair service."

Morris says, "We expect that 80 percent of sales will be to individuals looking for a used computer to meet their needs at a lower cost than a new one."

Gold and Morris say that "ComputeRenaissance" gives people the opportunity to trade for more sophisticated computers when they have technologically outgrown their existing computers.

"ComputeRenaissance" has been operating since February. Gold and Morris plan to open a retail store in the Pittsburgh area by June and expect franchises within two years.

Computer Privacy at CMU

In popular fantasy computers often play a Big Brother role — collecting and monitoring information on individuals, then dutifully reporting it to the "authorities."

Does CMU's mainframe system, in current practice, pose any threats to privacy of its users? Who has access to personal information, and why? What types of records are accumulated? What kinds of access are contemplated for the future?

General User Access: "Where" and "Information"

Current users of the mainframe are monitored in a variety of ways by Computation Center personnel. Some data about their computer usage can be also be examined by other public users.

The "Where" and "Information" commands allow users to casually access information about each other. If users leave their profile plan and directory protection settings on default, other users can determine —

- whether or not they are logged on
- where they are logged on
- if they have new, unread mail (but not who it's from)
- how much disc space they have in use
- if they have a job in queue to be printed and if so the job name
- what port group they are assigned to, and what computer accounts they have.

People can learn far more about their fellow computer users than they can about other people using the phone system. Is this record of a person's comings and goings an invasion of privacy?

According to Chuck Augustine, Assistant Director for User Services, even if such access does infringe upon privacy, "The usefulness of the information outweighs the risk." Presumably it's useful to know whether people have received mail, or where they are logged in if someone needs to reach them.

But shouldn't the default settings be programmed so individual users are given the choice about how much personal information, if any, should be made publicly accessible? The question came up last year when the profile defaults were set to flag when users last logged out and the user id of who last sent them mail.

According to Ray Scott, Director of Administrative Systems, "Many people saw that default as an invasion of their privacy. Various administrators complained that — as a hypothetical example — a staff member who went over his/ her supervisor's head by sending computer mail to someone higher up might more easily risk being found out." The Comp Center reprogrammed the profile default so it no longer displays the mail-sender.

At present users can delete from public display all information except their account numbers, port group designation, and printing jobs in queue.

General User Access: Print Output

Unless users rent lockers, all of their xerox output is racked in the public access output room. Operations manager, Carolyn Councill admits that "potentially this can be a problem. There have been isolated cases of stolen output."

A possible scenario: An instructor doesn't have a locker but decides to print an exam on the xerox printer. A student looks at the list of jobs waiting to be printed — via "Information Output" — and stumbles upon his instructor's user ID. Finding this interesting (it's the day before the final) he/she goes to the output room and intercepts a copy of the test. The instructor never notices that a copy is missing.

Councill says she "thinks this has never happened," but admits it's possible. When asked why everybody isn't assigned a locker, she replies, "Where would we put them?"

Privileged User Access: UCC Employees

According to Councill, "About ten UCC employees (mostly system programmers) have privileges allowing them to access any part of the system including a person's files. System programmers need these privileges to carry out their jobs."

Privileged users can look, for instance, at the queue and see when mail was sent, who sent it, and to whom it is going. According to Councill, "If a privileged systems programer feels people are tying up the system so that other users are prevented from receiving legitimate mail, he/she might decide to intercept the mail and send a message telling them, for example, to use Bboard instead."

Councill feels the privacy statement privileged users must sign "is specific in intent but leaves to the operators' discretion what information to treat as sensitive. It doesn't specifically say, for example, to shut your eyes if you see payroll reports." A portion of the statement says:

"I understand that, as a member of the Computation Center staff, I will at times have possession of or access to personal, confidential, or proprietary information, sensitive administrative materials, communications and programs. I understand that I am authorized to access this information only as required to perform my job; I agree to avoid any unnecessary access or exposure to such information . . .

"Abuse of these privileges to read, copy or process such information is a serious violation of privacy and confidentiality and is grounds for immediate dismissal."

Systems programmer Dave Mattis says although they "typically don't go on witch hunts," privileged users have on occasion accessed a person's files on suspicion that "he was maliciously abusing the system." He recalls an occasion when he looked into a student's directory on suspicion that he was playing games on the system.

Councill recalls an episode in the fall of 1982 in which a piece of non-computer hate mail was sent to a student threatening a bomb explosion. Because the mail label had been printed on a Comp Center printer, the federal authorities who were called in came to the Comp Center for information. "It was an emergency, and the Comp Center ran special programs to search through files to identify the sender.

"This incident marked a turning point in Comp Center policy. It forced us to think a lot more about personal privacy. Until then we probably would have given information to outside agencies if they requested it. We would not, however, do so now unless there was a subpoena."

In The Future: On-Line Address Directories?

Will extended computer record keeping threaten privacy in the future? It depends on what kinds of information are maintained, who is maintaining it, and who will have access to it.

For example, Scott says the ITC is thinking about initiating an on-line C-Book and Faculty/Staff Directory. Because these will be "machine readable," a potential threat is that outside organizations could transfer the electronic print into hardcopy. According to Scott, "That might invite junk mailing lists of all sorts."

Scott emphasizes that "these projects are very sensitive and will be carefully studied before being implemented."

Educational Monitoring?

The computer can already be a tool for monitoring certain measures of student performance.

For example, in order to monitor usage levels and to bill users, the Computation Center currently collects and evaluates data such as when users logged in and out, when they queued a file to be printed, and how much computer time and connect time they used.

Although this data is stored primarily for billing purposes, Doug Van Houweling — Vice Provost of Computing and Planning —points out that instructors can already ask "to see how often a student has logged onto his/her course account and how much of their computing and printing allocations they used." According to Chuck Augustine, "This information is made available to instructors by typing 'i acc/acc:account number.'"

In addition, Scott says that the ITC is thinking about maintaining for instructors a list of all the classes their students have taken, including their class rank.

Might information of this type bias an instructor's opinion of a student? Theoretically it could.

Other applications for educational monitoring are also being discussed. A year ago, the English department circulated for discussion a proposal to maintain a database of student writing throughout the length of their stay at CMU. According to the proposal written by Peggy Kantz, David Kaufer, and Christine Neuwirth, the writing history of a student, including comments from instructors, could be passed from teacher to teacher to help identify recurrent writing problems. This idea was later dropped.

Would records of this type give students a feeling that their lives are being monitored — that Big Brother is watching them?

Storage of Files

How about the privacy of magnetic tapes kept by the UCC?

The UCC is obligated to store all the files users leave behind on the mainframe at the end of every semester. According to Van Houweling, "The files are stored forever, and can include electronic mail if users fail to delete their mail.txt file."

Can these files be accessed by outside agencies? Can users come back later and delete the information if they so choose?

According to Van Houweling, "Users cannot delete files once they have been transferred onto UCC archive tapes. However, no one can access another person's stored information unless that person gives his/her consent, or the provost, senior vice president, and president agree there is sufficient cause — for example, if the information is subpoenaed."

Even then, Van Houweling emphasizes, "They would have to know exactly what they wanted. We can't be subpoenaed to make general searches through a person's files."

Van Houweling acknowledges that "currently there is no written policy, university wide, for computer privacy. However, we expect a policy to be out within the next six months."

Big Brother?

The PCs will insure a measure of privacy, since students working locally will be detached from the main system. Nonetheless, the ITC network will provide a means of oversight and campus communication that may still pose threats to privacy.

According to Van Houweling, "Monitoring might increase with the ITC network, especially in the beginning, to understand how the system is performing. We intend to keep more detailed usage records, such as how often users move and access files and where they are when they are logged in."

The proliferation of networked PCs into the dorms may have disturbing effects. According to social science professor, Lee Sproull, terminals in every dormroom could mean "an invasion of academic life into a student's own physical environment."

Will students be penalized if they don't regularly turn on and tune in to be updated on the latest news flash, message, or piece of mail that appears on the screen?

Will dormroom computing usurp the rights of the student in his own home?

— *Steve Adler*

Gary Waller: "Impossible Futures, Indelible Pasts"

Gary Waller, head of CMU's English department and author of a recent book of poetry entitled "Impossible Futures, Indelible Pasts," was born in New Zealand and has degrees from the University of Auckland and Cambridge University in England. He arrived at CMU last summer after teaching for a decade at Dalhousie and Wilfrid Laurier universities in Canada.

Waller made the following comments about his poetry in a conversation with FOCUS writer Laura Fording.

"Poetry is a very intense sideline to the rest of my life. Professionally, I'd be considered a critic, scholar, and teacher. For me, poetry is a rigorous form of relaxation.

"During my undergraduate education I ran a student literature group and wrote steadily. Then for ten or 12 years, while I worked as a teacher and literary critic, I did no serious creative writing at all. But those years of working with language in other written forms made me more aware of language's poetic possibilities and gave me more ability to control and manipulate words. When I began to write poetry again, I found my experience contributed to my poetry. Poets and writers don't need intense experiences as much as they need intense involvement with and command of language.

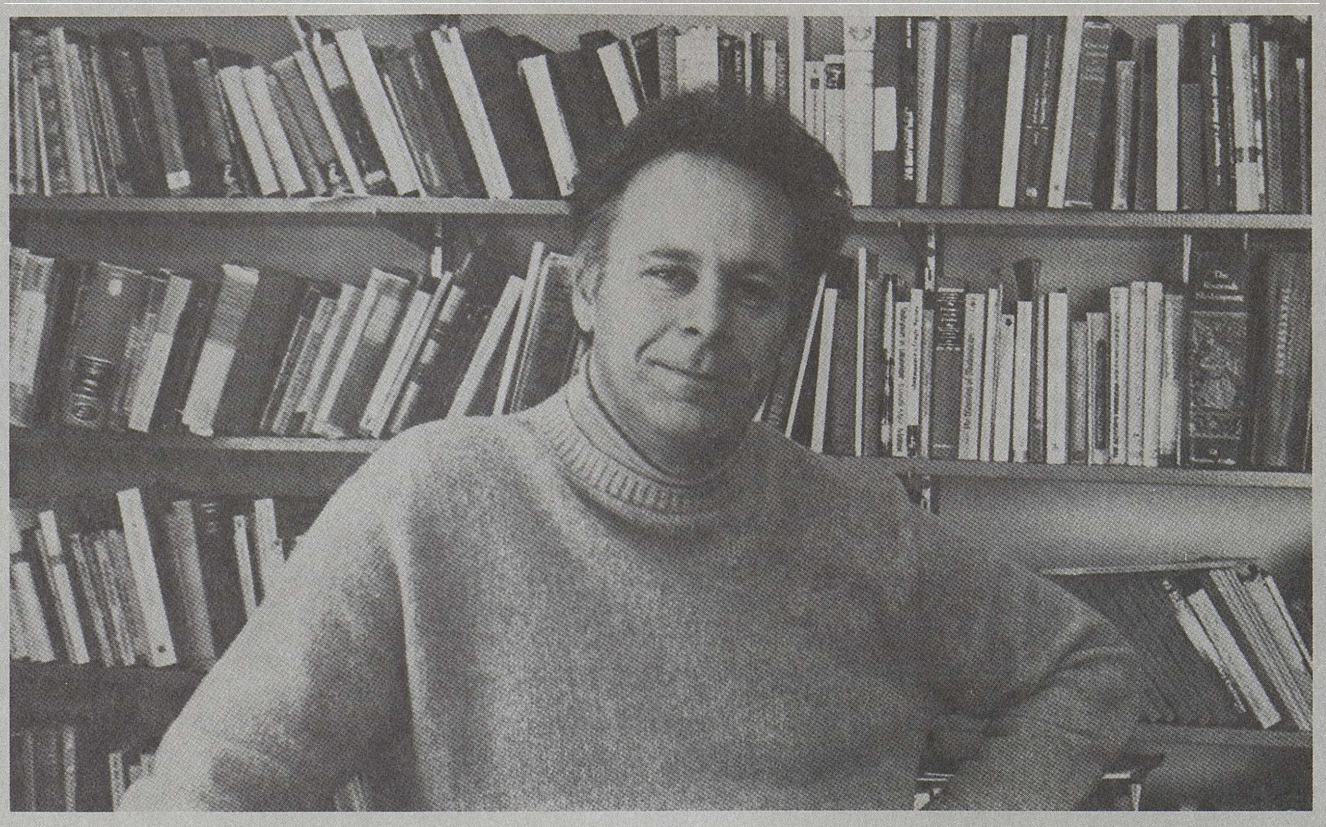
"A reviewer once said my poems have an authentic New York City voice. She was surprised to discover that I was not a New Yorker, nor even an American. If you can write authentically, you need not be authentic: poetry is drama, not autobiography.

"I listen carefully to people's talk and incorporate idioms I'm really struck by into my work. My favorite activity is eavesdropping in restaurants. I've spent many late nights and early mornings in New York City coffee shops taking detailed notes on the fascinating conversation.

"So sources are mixed — personal, literary, art objects, people. I pick and choose bits and pieces to create fiction. My personal experiences are integrated into the poems, but they rarely reflect an actual experience. I build upon and manipulate them to create fiction.

"Magritte, a famous modern artist, painted a picture of a pipe entitled 'Ceci n'est pas une pipe.' In fact, he was correct. It was not a pipe, but a painting of a pipe. My poem, 'Magritte: ceci n'est pas une pipe' is based on the same idea. All language is metaphorical — it's nothing but symbols of objects, feelings, and beings. Words do not create a presence — they point to an absence. That's why they are so fascinating and so frustrating."

— Laura Fording



Magritte: ceci n'est pas une pipe

I can't have, you say, your eyes even
for metaphors in this poem because frankly
you'd prefer to keep them in your head
they're your eyes not mine, right?
so take a look: see: no eyes so far, and
no chains no nets no roachmotels nothing
that might seize or savage you, not even
these spaces between the words, suspiciously
white as they seem, will try to molest you
they're blank for quite a different pur-
pose — you wouldn't want your secret lust
for latenite popcorn to be caught lurking
in my margins (and I promise no parenthesis
will ever let on what you do in my dreams)
if you read the-third-letter-of-every-word-
on-every-second-page you'll see (remember
you have the eyes) no sign of your smile
if this smudge looks like an erasure
it isn't, I swear, or at least
your name isn't under there someplace
my poems aren't magic writing pads with
wax undersheets for your indelible impressions

no metaphors no eyes no signs of you
satisfied?

ceci n'est pas une metaphore

vandalizing the modern (again)

quick now while the attendant looks bored
I'll whip out the spray can
I sneaked through the security check
and sketch your face on that Constable
hey! What fun to see those chaste unstartled fields
wink with your mocking brown eyes
and skies lit up by all that redtinted summer hair

now let's see what else needs a little touch up —
why doesn't this Braque get its act together?
even when I pat it and nibble its ear
it's just too angular to cuddle
it needs your nose your frown
even your giggle would improve it
I'll drape a blue scarf over it
put it in knee sox
toss a lemon sweater round its shoulders
come on come on I tell it
try a little harder won't you
dammit you gotta be hanging around
here someplace

Letter: *More About Women*

To: David Demarest and Laura Fording, FOCUS

From: Donna I. Fillo, Administrative Assistant, Engineering and Public Policy

Date: March 30, 1984

In the March 1984 issue of FOCUS an article appears written by Laura Fording entitled "Women in Engineering." Thank you for this interesting, informative, and timely article. But I do have one objection. The Department of Engineering and Public Policy is part of the Engineering School, CIT, and has been a department since 1976. We grant double major degrees with the other engineering departments for undergraduates and single or double major graduate degrees. Our track record has been particularly good and I would be happy to provide you with these statistics if you are interested in printing an addendum to this article for the next issue.

• We apologize for not including EPP among the other engineering statistics. Please note that inclusion of EPP does not change the absolute number and percentage of undergraduate women in CIT overall, since EPP women are also members of other engineering departments.

With that caveat, here are some more numbers:

EPP Women/Total EPP Enrollment, Percentage of Women

	1977-1978	1978-1979	1979-1980	1980-1981	1981-1982	1982-1983
undergrad	8/103 (7.8%)	9/67 (13.4%)	11/90 (12.2%)	14/92 (15.2%)	19/99 (19.2)	19/106 (17.9%)
graduate	1/8 (12.5%)	0/10 (0.0%)	5/16 (31.3%)	4/25 (16%)	4/30 (13.3%)	4/30 (13.3%)

Total Women In Engineering/Total Enrollment, Percentage of Women

	1977-1978	1978-1979	1979-1980	1980-1981	1981-1982	1982-1983
undergrad fall	161/821 (17.1%)	179/841 (21.3%)	192/881 (21.8%)	192/1050 (18.3%)	219/1084 (20.2%)	213/1090 (19.5%)
undergrad spring	208/1030 (20.2%)	253/1142 (22.2%)	260/1346 (19.3%)	257/1407 (18.3%)	255/1414 (18%)	258/1362 (18.9%)
graduate	26/292 (8.9%)	35/266 (13.2%)	35/297 (11.8%)	33/354 (9.3%)	33/375 (8.8%)	46/401 (11.5%)

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Editor:
David Demarest (Department of English)

Managing Editor: Laura Fording

Photography: C. Corkery

Research and Writing:
S. Adler, G. Bossler, C. Corkery, K. Doyle, G. Elm, S. Englert, L. Fording, J. Nutz, C. Reigel, P. Vara

Production:
Tim Basinski, Judy Bokulich, Noreen Brady, Barbara Clemens, Jim Dunkerley

Advisory Committee:
David Demarest, Gene Levy, Ron Bennett, Keith Moore, Dan Klein

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