

Almanac

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Pullout: May at Penn

West Philadelphia Day

Senior Vice President Marna Whittington invites all staff and members of the University family to attend the West Philadelphia Day on campus, April 25, noon to 7 p.m. Administrators are encouraged to permit flexibility in staffing needs to permit attendance. Supervisors are responsible for ensuring that all staff who wish to participate in the West Philadelphia Day may do so providing that scheduling and operational considerations permit. All offices should remain open during normal business hours with necessary staff to handle phone calls, critical services and emergencies.

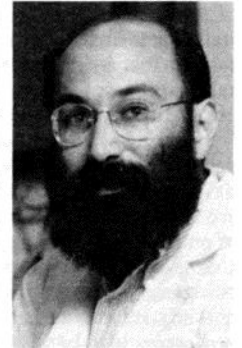
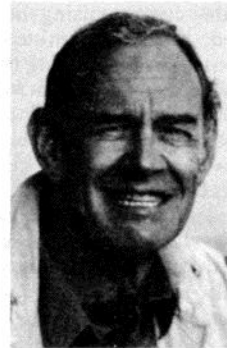
Any employee who attends the West Philadelphia Day should not have vacation or personal time charged for such participation.

In the event of rain, the fair will be held in the Annenberg Center lobby, with somewhat abbreviated hours: noon-5 p.m. Otherwise it will stretch from the Annenberg Plaza to Locust Walk down toward College Green with live entertainment near the Peace Symbol. There will be a free raffle, with drawings throughout the day. An information table on the Plaza will have a site map showing where the various groups can be found.

A-1 Assembly: May 1 Elections

The annual spring meeting of the A-1 Assembly, to be held from noon to 1:45 p.m. Wednesday, May 1, in Room 17 Logan Hall, features a discussion with Senior Vice President Marna Whittington on "The Impact of Budget Cuts on A-1 Staff."

The Assembly will also elect officers for 1992. The meeting is open to all A-1s (administrative and professional staff including research A-1s). Nominees for chair-elect are Jane Combrinck-Graham of Risk Management and Dennis Mahoney of Benefits; the rest of the slate will be published in *Almanac* April 30.



Left to Right: Dr. Attie, Dr. Escoll, Dr. Henretig, and Dr. Spitalnik.

PennMed Teaching Awards

At the May 21 Medical School Commencement exercises, the school will present awards to 10 faculty members for teaching and related contributions.

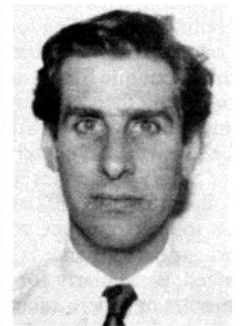
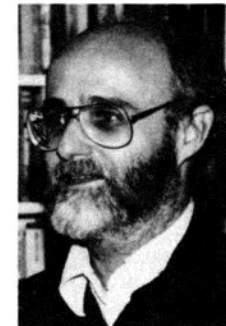
The Leonard Berwick Memorial Teaching Award will go to Dr. Maurice Attie, associate professor of medicine.

Dr. Philip Escoll, clinical professor of psychiatry is this year's recipient of the Robert Dunning Dripps Memorial Award for Excellence in Graduate Medical Education.

This year's winner of the Blockley-Osler Award for excellence in the teaching of modern clinical bedside medicine is Dr. Fred M. Henretig, associate professor of pediatrics.

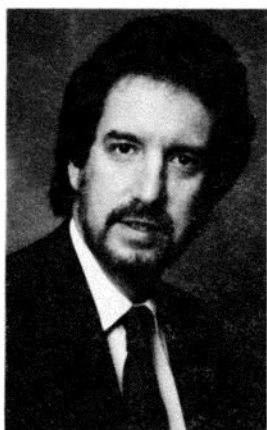
The four winners of the Dean's Award for Excellence in Basic Science teaching are Dr. Robert H. Cox, professor of physiology; Dr. Ronna Lodato, assistant professor of pathology and laboratory medicine; Dr. Steven Spitalnik, assistant professor of pathology and laboratory medicine; and Dr. John W. Weisel, associate professor of anatomy.

Honored this year with the Dean's Award



Dr. Weisel, left, and Dr. Berger. Photos were not available of Dr. Cox, Dr. Lodato, Dr. Nicholson, or Dr. Tiruchelvam.

for Excellence in Clinical Teaching are Dr. Mark Berger, assistant professor of medicine at the Pennsylvania Hospital, Dr. Susan Nicholson, assistant professor of anesthesia at the Children's Hospital of Philadelphia, and Dr. Vasudevan Tiruchelvam of the department of surgery at York Hospital.



Barry Stupine

Acting VP Human Resources: Barry Stupine

Barry Stupine, associate dean for administration of the School of Veterinary Medicine and director of its Hospital, has been named acting vice president for human resources. He will take on the new duties gradually as Dr. Barbara Butterfield prepares to leave for Stanford by June, and will serve until a permanent replacement is found.

In his 12 years at the Vet School Mr. Stupine has carried human resources responsibilities at the School and Hospital, at the same time serving on campus-wide human resource committees such as the Human Resources Council, Personnel Benefits Committee, Compensation Advisory Group, and the Human Resources Policy and Planning Oversight Committee. He came to the Vet School from the Medical College and Hospital of Pennsylvania where, as associate administrator, he had oversight of human resources and other departments. Earlier he had been assistant executive director at HUP, overseeing patient food services and the cafeteria.

Hospitality services (which includes the Faculty Club, Dining Service and Travel) as well as four personnel-related divisions report to the Vice President for Human Resources. As Mr. Stupine takes office the directors of the four HR divisions—Recruiting/Retention's Rogers Davis, Total Compensation's Adrienne Riley, Information Management's Gary Truhlar, and Training/Organization's Susanne Iannece—will continue to manage their units independently while collaborating with Mr. Stupine as a human resources "cabinet" on issues that require integration, Dr. Butterfield said. Some of the major projects scheduled to continue are an employee handbook, employment system, response to the *Report of the President's Committee on University Life* (*Almanac* October 16, 1990) continuation of the equity study (*Almanac* January 23, 1990) and follow-through on several benefits-related proposals. The search for vice president is being conducted by Diversified Search of Philadelphia, with an advisory committee from Penn.

On Salary Guidelines for 1991-92

The budget planning process for fiscal year 1992 has been extraordinarily difficult. Governor Casey's proposal to cut our appropriation by 49 percent—a possible loss of \$18.6 million—has created enormous uncertainty as to the actual amount we can eventually expect to receive from the Commonwealth as well as increased concern that our entire appropriation is at risk over the next few years. Thus while our goal is to obtain the full restoration of our appropriation, our fiscal plan must be one that we are willing to follow should we actually lose the money.

The principle guiding our salary planning for fiscal year 1992 is to protect the academic quality of the University to the greatest extent possible, neither compromising the work of the faculty and staff nor losing the momentum we have established. We are committed to maintaining faculty salaries that are competitive with our peer institutions and to continuing the emphasis on strategic salary increases for classified staff whose salaries fall below the current market. Within the limits of our financial constraints we have tried to provide as large a salary increment as possible.

Although individual salary decisions are made at the school level, with deans issuing to department chairs guidelines reflecting relevant resource constraints, certain uniform standards have been established that apply to all the schools. As before, salary increases to continuing faculty are to be based on general merit—extraordinary academic performance including the recognition of outstanding teaching, scholarship, research, and service. Because the proposed reduction in the Commonwealth appropriation has eliminated the Provost's Faculty Salary Reserve, the deans are being urged as well to provide salary increases that also recognize promotions, market adjustments and adjustments of salary inequities. Finally, the minimum academic base salary for assistant professors is to be \$33,000.

With the concurrence of the Senate Committee on the Economic Status of the Faculty, we are maintaining the policy established two years ago of not establishing a minimum base increment for continuing standing faculty. We shall continue to monitor faculty salary increases that fall below two percent and to report on the reasons for such low salary increases to the Senate Committee on the Economic Status of the Faculty. Faculty and staff of course have the right to appeal decisions regarding their salaries; for faculty the appeal may be directed to the department chair, the dean, and the Provost; for staff the appeal may be directed through the appropriate line of supervision, i.e., supervisor, center director, dean, or vice president.

Salary guidelines for regular monthly and weekly paid classified staff (A-1, A-3, part-time and full-time) for FY 92 also will continue to emphasize merit, with increases being based primarily on job performance with some concern for internal equity; no increase is to go to an employee whose performance is less than satisfactory. Strategic salary increases will continue to be emphasized, particularly for individuals in job titles that are in high demand within the regional labor market or where salary equity issues exist. The Compensation Office of Human Resources is available to help with this planning.

This has been a difficult year, and next year may be no easier. Yet we are in many respects in better shape to meet these difficulties than are our peers. By working together, we are confident that we can maintain financial health and also remain a strong and flourishing academic institution.

Sheldon Hackney
President

Michael Aiken
Provost

Marna Whittington
Senior Vice President

Corrected Data on New Faculty Hiring

Ed Note:
In last week's report of the Senate Committee on the Faculty, there were spacing errors and typos in the table on hiring of men and women in relation to pools. Errors occurred in the figures for new hires in Linguistics and Bioengineering. Corrected numbers are in italics at right.

Department	School	Standing Faculty (1990)		New Hires (1982-90)		Pool * (1981-8)
		M	F	M	F	
Classical Studies	SAS	10	1	4	1	38%
English	SAS	26	14	15	9	55%
Linguistics	SAS	7	2	6	0	50%
Music	SAS	14	1	5	1	32%
Philosophy	SAS	10	1	7	1	22%
Economics	SAS	36	2	35	1	16%
Biology	SAS	27	4	10	1	31%
Chemistry	SAS	26	2	9	1	18%
Mathematics	SAS	29	0	17	0	15%
Psychology	SAS	21	4	7	4	48%
Nursing	NURS	0	47	0	41	4% ^b
Accounting	WH	15	0	17	0	26%
Finance	WH	33	1	25	0	13%
Statistics	WH	15	0	6	1	19%
Bioengineering	SEAS	12	0	4	0	14%
School of Soc.Wk.	SSW	11	7	5	3	58%
Basic Sciences	DENT	16	1	2	0	34%
Basic Sciences	MED	76	16	32	8	32%

a) Women b) Men

Guidelines for the Faculty/Staff Salary Increase Program FY92

I. Funding Parameters

The salary base and the salary increase for FY92 for continuing faculty and staff are to be funded from each school, center, or administrative budget. Specific funding instructions will be communicated directly to school deans and appropriate center directors.

II. Faculty Guidelines

A. The minimum academic base salary for assistant professors will be \$33,000.

B. This year there again will be no minimum base increment for the individual members of the standing faculty. Deans will exercise their judgment concerning low salary increases without the Provost's prior approval. As before, we shall continue to monitor after the fact those increases that fall below two percent.

C. Funds will be available through schools to provide salary increases to faculty based on general merit. A significant share of these funds should be allocated to faculty members for outstanding teaching.

D. Because there is no Provost's Faculty Salary Reserve this year, Deans should make every effort to provide from school resources salary increases that also recognize promotions, market adjustments, and adjustments of salary inequities.

E. Individual salary decisions will be made by schools, which will issue their own salary guidelines to department chairmen.

— Michael Aiken, Provost

III. For Nonacademic Staff

A. Annual salary increases for weekly and monthly paid staff are to be based primarily on job performance with some consideration for internal equity. No increase is to be given to an employee whose performance is less than satisfactory. Salary increases may begin at 2% for satisfactory performance and increase with higher levels of performance within the limits of available budget dollars. Increases of less than 2% and over 6% must be documented. If job performance is the reason for giving an increase of less than 2%, it is important to document this through performance review.

B. Salary increase funds available for weekly paid staff (A-3) are to be utilized solely for weekly paid staff and may not be merged with salary increase funds available for monthly paid staff (A-1).

C. Employees' salaries must be at or above the minimum of the appropriate salary grade effective July 1, 1991, before the application of any merit increase. Detailed guidelines will be distributed to schools/units.

— Marna C. Whittington,
Senior Vice President

**See Page 6 for the FY1992
Nonacademic (A-1/A-3) Salary Scales**

The Status of the Faculty and the State of the University

The Chair's Report to the Annual Meeting of the Faculty Senate Wednesday, April 17, 1991

I want to thank Bob Davies, the Past Chair, and Louise Shoemaker, the Chair-elect, for their support through the past year. Effecting leadership of the Faculty Senate through a trio of chairs rather than by a single officer is most important. I want also to thank Gary Hatfield for his outstanding work as Secretary—and not incidentally to congratulate him on his well-deserved promotion to full rank. Carolyn Burdon, the Executive Assistant for the Faculty Senate, provides extraordinary service to the Faculty Senate. We are all indebted to her.

I am pleased to announce officially that David Hildebrand has been elected Chair-elect of the Faculty Senate and Peter Dodson has been elected Secretary-elect. They take office on May 1 and we look forward to their service.

The year has been a busy one. You have seen some committee reports. Others will be discussed today. Yet others will be presented to the Senate Executive Committee and will be published in *Almanac* shortly. It is impossible for me to emphasize adequately the importance of the work of Senate committees this year. The full scope of that work is not apparent from the reports and my remarks here cannot entirely remedy that fact. I do want to add a bit, however. The Committee on the Economic Status of the Faculty has forged important new relationships with the administration. While all of the information to which the committee ought to have access may not yet be freely available, the committee has had opportunities to study and use data that until this year were denied to it. The committee participated with a group appointed by the Provost in an important study of faculty salaries. Further analyses of other aspects of faculty salaries and salary policies are necessary. This year's work lays important foundations for the studies to come. Our thanks are due to Henry Teune and to the members of the committee.

We will hear from Solomon Pollack about the endeavors of the Committee on the Administration shortly. It is my hope that, beginning today, members of the Faculty Senate and of the administration can engage in meaningful and productive discussions relating to administrative costs and the control of those costs. While some in the administration have been attempting for some time to bring this problem into focus, their efforts have for the most part not been apparent to those of us on the faculty. To the contrary, many members of the faculty have the impression that administrative costs have gotten quite out of control. The faculty is asking for—and I believe the administration will provide—a detailed analysis of the growth in administrative costs and of the means being implemented to control those costs.

In addition to the study of administrative costs, the Committee on Administration has addressed other important aspects of University governance and policy regarding confidentiality. Again, our thanks.

The Senate Committee on the Faculty, chaired by Morris Mendelson, has worked on other important matters. These include, but are not limited to the monitoring of affirmative action, revision of just cause procedures, Senate involvement in University policies affecting the Faculty Club, uncapping of retirement, and billing procedures of the clinical practices of the Hospital of the University of Pennsylvania. A forthcoming issue of *Almanac* will carry the full report of this committee.

The Senate Committee on Academic Freedom and Responsibility has dealt with a series of difficult cases over the past few years. This year was no exception. The same thing is true of the Senate Committee on Conduct and the Faculty Grievance Commission. Peter Kuriloff, Chair of SCAFR, and Kenneth George, Chair of the Grievance Commission and of the Committee on Conduct, will lead a discussion on these important matters later in today's meeting.

Following suggestions made by the Faculty Senate last year, the Provost has created a Provost's Committee on Undergraduate Admissions. Simultaneously, the faculty committees charged with overseeing admissions policies in each of the four undergraduate schools have been asked to be certain that the policies appropriate to their respective schools are being properly administered. The Senate Committee on Students and Educational Policy has been monitoring these changes. It has as well looked into other student-related issues referred to it by SEC. Stephen Gale, the chair, and others on the committee have served us well.

Among the most important—but at the same time, among the least noticed—activities of the chairs of the Faculty Senate are the regular consultative meetings held by the chairs with the President and the Provost. I am not alone in asserting that these meetings go far in guiding both the faculty and the administration in ways that avoid unnecessary

confrontations and in laying out for both a base of information that is much broader than would otherwise exist. At the same time, there has to this point been no apparent cooptation of the faculty by the administration, and certainly none of the administration by the faculty. The consultative discussions, while cordial, have not lacked moments of heated disagreement.

An interesting outgrowth of the consultative meetings has been the introduction of invitations to the President and Provost for open discussions at alternate SEC meetings. This experiment began with the January meeting and it is not yet clear whether it is working well. The President has found it possible to attend none of the scheduled meetings; the Provost, only one. Both have been invited to the May 1st meeting.

What, then, is the state of the Faculty Senate and of the faculty more generally considered? How are we faring? What is the outlook? I wish it were possible for me to be sanguine—to tell you that all is well and that there are few ominous signs that anything will occur to disrupt this bliss. But that just is not the case, and nearly everyone of you knows it.

Academic salaries and salary-related benefits now amount to less than 20% of the total University budget, excluding health services. One can properly note the increase in other expenses that have brought about this startlingly low number. Viewed slightly differently, however, this number really says that the activities of the University comprise a host of things other than the instruction of undergraduate, graduate and professional students. Teaching itself has become a relatively small part of the total activities of the overall organization.

I doubt that anyone ever planned it this way. It just happened. Through the years, there has been a response to one apparent problem and then a response to another. Gradually, the character of the University has changed—and changed fundamentally. We may want the faculty to be *the* University, but the faculty is not the University anymore. In fact, it is difficult to tell just where the directions of the University really come from. And, it is even more difficult to know where one goes to understand and influence these directions.

There is mounting danger to the faculty from these developments. There will be pressures on University budgets for some time to come. While it is true that faculty salaries comprise but a small part of the total budget, we can be certain that efforts will be made to hold down this element of costs. One consequence of these efforts is likely to be yet greater disparity between the salaries of those on the faculty with market alternatives and those whose chief claim for being on the faculty is that they teach well. One of the conclusions of the study done by the Provost's group and the Senate Committee on the Economic Status of the Faculty is that, at a minimum, the partial effect of coming to Penn as a full professor is to increase one's salary by 20% over those who attained full rank through internal promotion. Further increases of this sort are likely to lead to alienation, if not outright protests, on the part of those in the lower salary tier.

Another likely consequence of budget pressures is that means will be found to "bypass" the use of more expensive tenure-track faculty. That is, at the same time a relatively small number of "stars" are being handsomely paid, existing devices for employing non-tenure track instructors will be exploited more extensively and new devices to accomplish the same end are likely to be proposed. In the long run, this will be beneficial to neither the tenure-track faculty nor to the University. But financial exigencies and good long-term planning are seldom seen together.

Does this mean that the faculty ought now dig in its heels and resist all proposals for cost control measures that affect the faculty? I think not. In fact, I think that blindly resisting all such proposals would not only exacerbate the problems of the University but would as well strengthen the threats to the well-being of the faculty itself. There are things the faculty can and should do for its own long-term benefit, even when it may at first seem that at least some aspects of the changes might be contrary to the faculty's immediate best interests. Items that come to mind include:

- a. Participating with the administration in a study of the academic calendar. The academic facilities of the University are now vacant for a significant part of the year. It is possible that calendar changes would obviate the need for additions to at least some of these facilities and, more importantly, might provide opportunities for increasing annual tuition income without commensurate increases in costs. If, for example, there were three full 14-week terms per year rather than two, significant gains in

net income might be realized—and the University would be in a better position to pay its faculty appropriately.

b. Carefully reviewing teaching loads at the department and school level. Some of the differences between the actual hours and the officially established minima may not be justified. A small increase in the number of hours taught by the tenured faculty can have an enormous effect on the cost per student contact hour of utilizing members of the tenured faculty—and the University would be in a better position to pay its faculty appropriately.

c. Carefully reviewing, again at the department and school level, the organization of the educational presentations. Some classes and seminars may be susceptible to less frequent offerings or to consolidation. Some classes or seminars now taught by two or more members of the faculty or with the use of visitors could perhaps be taught by one member of the faculty without grave loss in content—and the University would be in a better position to pay its faculty appropriately.

d. Carefully considering suggestions for reductions in academic as well as non-academic administrative costs. The faculty may be surprised to discover how much of the growth in administrative costs has come from their own departments rather than from College Hall or the Franklin Building. Control of these costs is also necessary for the University to be in a position to pay its faculty appropriately.

Why, you may be asking, would the Chair of the Faculty Senate be making such suggestions? I am making them because, in my view, it is inevitable that matters such as those I have mentioned will be considered. The faculty should be involved in their consideration from the outset. The suggestions are made, too, because the vital interests of the faculty are in large measure congruent with the vital interests of the University, despite the erosion in the share of the budget accounted for by the faculty. We have to work together on what are in fact common problems. Finally, I am suggesting them because, unless the faculty finds ways to improve its

productivity and, hence, to lower instructional costs, the University will be unable to pay the salaries that we would all like to receive.

Be assured that I am not suggesting that this faculty "roll over and play dead." The faculty of this university has never done that and it is not apt to begin doing that now. And the University is the stronger because of the interventions of the faculty. Still, the faculty has to be willing to consider means for increasing its own productivity and that of the capital facilities used in the educational activities of the institution. Indeed, in my view, the faculty ought to lead the way in suggesting means to do this. We will not get far if all we do is cast stones at those we feel may be responsible for the rising costs of administration.

These last weeks of the 1990-91 school year mark the end of my full participation as a member of this faculty. I am proud to have been a member of this faculty and honored to have been permitted to serve you. Be proud. You are among the best in the world.

—Almarin Phillips

A Tribute to the Chair

First I wish to congratulate Almarin Phillips for bringing together a bigger quorum than last year for the annual plenary session of the Faculty Senate. This was helped partly by the fact that he had arranged for the past, present and future chairs of Senate separately or together to attend meetings of the faculties of most of the schools of the University, and encourage them to attend.

Almarin Phillips has been unflappable in office, cheerful, wise and good-tempered. He has stood firmly for the faculty, and has served us well. As past chair of the Faculty Senate, I thank him for his vision, his efforts and his performance.

—Dr. Robert E. Davies at the April 17 Meeting

President at Senate: On the Senate Committee Report on Administrative Costs

This academic year has been a good one, full of significant accomplishments and continued progress. Even our usual quota of campus controversies has been faced with an unusually high degree of civility and demonstrated regard for the common good. On the other hand, when one surveys the horizon beyond our own ivied walls, one finds an unprecedented number of menacing developments: the Governor's budget message, the indirect cost recovery scandal and inquisition, the Justice Department's investigation of "collusion" in the awarding of student financial aid, highly publicized cases of misconduct in academic research, public displeasure at the high cost of college, and the *kulturkampf* that should be known as the "PC" war.

With so many indications that higher education in the public's eyes has lost whatever halo it once wore, and with the probability that the environment for higher education in the next few years will not be as favorable as it has been in recent years, it is not surprising that some of us should begin to worry about whether we have our priorities right. I therefore wish to comment here on the report of the Senate Committee on Administration, chaired by Professor Sol Pollack, published recently in *Almanac* [March 19].

The study is a serious and interesting attempt to get at some underlying trends. It points to the need to understand better the growth of the academic support staff and some areas of administrative growth. It also focuses the spotlight on the tremendous growth of University funds, especially unrestricted funds, going to *financial aid*. We will be pursuing all those matters. I see the Committee study as being intended to open a conversation and to suggest some things to worry about rather than to provide definitive answers.

Having said that, I must emphasize that I do not think that the data in the Committee on Administration's report will sustain the inferences drawn, however tentatively, by Professor Pollack and his Committee, or perhaps less tentatively, by the campus press. I will mention here only three of the major flaws that negate the *suggestion* that the faculty and its functions have been frozen in place during the 1980's while the administration has grown like a cancer.

1. In devising the numbers for their measures of faculty salaries versus administrative costs, the Committee on Administration excluded a part of the standing faculty, the Clinician Educators, on the theory I suppose that they were not the faculty the Committee is really interested in. The Committee is certainly free to exclude for the sake of analysis any part of the faculty it wishes, even the part that grew the most. On the other hand, if the salaries of the clinician educators are excluded from the faculty side of the equation, the expenses associated with them (space, O & M, secretaries, etc.) should also be excluded. They were not.

2. Second, much of what is categorized as administration in the Committee's analysis is what few of us mean by "administration" when we use the term: e.g., the library, which has grown more rapidly than

faculty salaries (and for good reason); and academic support staff, meaning various kinds of teachers who are not on the standing faculty, a category that grew significantly through the 80's.

3. Most important—most fundamental—you simply cannot understand what is happening in the University by looking at *unrestricted* revenue only. Not only did restricted revenue grow more than unrestricted in the 80's, we have consciously tried to preserve unrestricted funds when there were restricted funds available. It is also true that very little of our endowment is unrestricted. Furthermore, we have actively and successfully been spending unrestricted dollars to raise restricted dollars. This is good for the faculty, most of whom probably don't care whether they are paid from restricted or unrestricted dollars—as long as they are paid. (It is worth noting that we were able to fulfill our strategic plan of increasing the real salary of faculty in each year of the 80's. We now rank number 5 in overall average faculty salaries among the top 40 research universities, and number 8 for full professors.)

When you use both restricted and unrestricted funds in the analysis, and the salaries paid in the Medical School by the clinical practices, the "Academic" portion of the budget *rises* from 57.1% to 61.7% during the decade! Even if you play the odd game of taking salaries paid by CPUP out of the analysis while leaving in the analysis of the administrative expenses generated by a growing clinical faculty, the "Academic" portion of the budget drops a mere 2.4 percentage points, from 56% of the total to 53.6%. *No runaway administration lurking there!*

Most revealing, comparing the funds available to schools from restricted and unrestricted sources in 1980 with those available in 1990, one finds them an absolutely constant proportion of the total budget (58.7% vs. 58.6%).

Even more interesting, however, is the discovery that the administrative service centers of the central administration shrank from 15.4% of the budget in 1980 to 13.6% of the budget in 1990.

How can this be possible during a decade in which we made very conscious decisions to invest much more heavily in several non-faculty areas: the library, computing, security, toxic waste disposal, radiation/fire/occupational safety, intellectual property protection and commercialization in the Office of Research Administration, and the care of laboratory animals?

I believe the answer to that question is that Penn is a well-managed university. We have planned carefully and followed our plans, thus minimizing inertial growth. We have grown less fast in administration than other universities nationally.

We have avoided large paroxysms of cost-cutting not only by planning, and the incentives provided by our responsibility center budget system, but by using familiar budgeting techniques to force managers to achieve savings. For instance, in next year's budget, even before the crisis precipitated by the Governor's budget message, we provided

managers in the central administration with expense budgets 1.5% below what they would need to fund ongoing operations given inflation and the wage and salary increases. Managers then must achieve efficiencies. This is not an elegant technique and should not be used too often; it is an indication of our determination to keep costs down.

I am proud of the fact that our fundraising efforts are not only running a bit ahead of the ambitious track that we have plotted toward our goal of \$1 billion over five years, but that Rick Nahm and his organization are doing that at a cost of 7 cents per dollar raised, against a national average for universities of 11 cents.

We have had a cost containment program in place for some time, and it has achieved significant savings. I will give you only a few examples so that you have some flavor of what can be done and has been done, and some evidence of our effort to make sure that managers and supervisors understand that a large part of their task is to minimize expense and maximize revenue. Examples:

- We reorganized the Publications Office and were able to slim down the staffing level, saving \$240,000, a 44% reduction in personnel costs.

- In December 1989, we renegotiated and reconfigured our long-distance telephone service, saving users \$375,000 per year.

- This fiscal year, we reorganized our real estate department, saving \$100,000 per year in personnel costs.

- We installed new electrical equipment, cutting energy use and peak load through greater efficiency and saving \$250,000 per year.

- The replacement and installation of electrical capacitors at substations, buildings and large rotating equipment has significantly increased the University's power factor, as measured by PECO for billing purposes, resulting in savings of \$400,000 per year.

- We won a NACUBO award for cost-saving ideas by shifting to reusable jacket insulation covers for various sections of steam lines instead of conventional rigid insulation covers, reducing line maintenance

and energy costs, saving a little over \$40,000 per year. We also won a NACUBO award for changing from conventional exit light bulbs in buildings to a decorative lamp that has a longer life and uses less energy, saving \$15,000 per year. A third NACUBO award was won for a new technique of assessing the conditions of roofs, spotting the infiltration of moisture early in the process and allowing more precisely designed repairs and preserving roof life, saving \$125,000-plus per year.

There are many other items I could point to, but I don't want you to think that we have found all the cost-saving or cost-avoiding actions that are possible. There is more to do and we will continue to be aggressive in managing ourselves.

Our next initiative is a major one and is already underway. A working group of associate deans and a central manager or two under the leadership of Marna Whittington is at work on the task of analyzing each major function or type of transaction (e.g., hiring people and other personnel actions, buying supplies, providing building security, receiving gifts, controlling budgets) with the question of whether that function can be reengineered so that it is more efficient and that there is as little layering as possible. This will provide us with the first comprehensive, function-by-function answer to the constant question of what degree of centralization or decentralization is appropriate at Penn.

Though I do not think Penn is yet perfect administratively, I am pleased with what we have accomplished over the past decade. We are headed into a new decade in which revenues will grow at a slower pace than in the 80's, and in which strong external forces will be hindering us, so we will need to manage ourselves actively and imaginatively. I have every confidence that we can do that (our budget planning in response to the crisis of the governor's budget message is an example), and I am eager to work with the Senate leadership as we seek together to strengthen Penn.

— Sheldon Hackney

OF RECORD

At Exam Time, A Reminder

Dear Colleagues:

As we approach the period of final examinations, I want to underscore the meaning and importance of academic integrity for all members of the University community and the responsibilities and obligations that it imposes on us all. Upholding academic integrity is among the most important obligations we as members of the University community bear.

The effort to gain and transmit knowledge and understanding, whether among scholars or between students and teachers, rests on a singular premise: honesty. Academic life, at every level, assumes that honest effort and honest reporting of results will lead us collectively towards the truth. On the other hand, misrepresenting data, stealing the work of others, and dealing falsely with our peers, mentors or students, subverts the academic process quickly and completely.

Students at Penn, particularly the Student Committee on Undergraduate Education (SCUE), have called forcefully for greater emphasis on the centrality of "academic integrity" in the classroom and laboratory. Though the University's Code of Academic Integrity (published in the *Handbook for Faculty and Academic Administrators* and in *Policies and Procedures*) is currently undergoing revision, it remains binding upon all students and faculty members.

The following actions are among the violations of this Code and should be fully prosecuted under its procedures:

- Plagiarism
- Use or Performance of Another Person's Work
- Cheating During an Examination
- Prior Possession of a Current Examination
- Falsifying Data
- Submission Without Permission of Work Previously Used
- Falsification of Transcripts or Grades

These and similar actions may result in serious consequences, including transcript notations, suspension and/or expulsion from the University.

It is important that all students and faculty recognize the importance of academic integrity in their own actions and the behavior of others. No form of discipline or sanction is more effective than the opinions and reactions of peers when the behavioral standards of a community are breached. In the final analysis, every member of this community is responsible, through acts of omissions or commission, for the academic integrity of campus life. The Code of Academic Integrity defines those standards at Penn, and I urge you to help students, faculty and administrators make them a living and vital component of the academic experience.

I particularly encourage you to see that all examinations are actively proctored and that students fully understand the notions of plagiarism, falsification of data or authorship, and proper identification of sources. Students should also be encouraged to sign the academic integrity statement inside their examination booklet.

You should feel free to contact SCUE, faculty members, your undergraduate dean's office, the Judicial Inquiry Officer, or the office of the Vice Provost for University Life, if you have questions or comments regarding academic integrity, the Code, or instances of its possible infraction.

With best wishes for a successful semester and an enjoyable summer,

— Michael Aiken

Rules Governing Final Examinations

The rules governing final examinations are as follows:

1. No student may be required to take more than two final examinations on any one calendar day.

2. No instructor may hold a final examination except during the period in which final examinations are scheduled and, when necessary, during the period of postponed examinations. No final examinations may be scheduled during the last week of classes or on reading days.

3. Postponed examinations may be held only during the official periods: the first week of the spring and fall semesters. Students must obtain permission from their dean's office to take a postponed exam. Instructors in all courses must be ready to offer a make-up examination to all students who were excused from the final examination.

4. No instructor may change the time or date of a final exam.

5. No instructor may increase the time allowed for a final exam beyond the scheduled two hours without permission from the appropriate dean or the Vice Provost for University Life.

6. No classes (covering new material) may be held during the reading period. Review sessions may be held.

7. All students must be allowed to see their final examination. Access to graded finals should be ensured for a period of one semester after the exam has been given.

In all matters relating to final exams, students with questions should first consult with their dean's offices. We encourage professors to be as flexible as possible in accommodating students with conflicting schedules. Finally, at the request of the Council of Undergraduate Deans and SCUE, I particularly encourage instructors to see that all examinations are actively proctored.

— Michael Aiken, Provost

To the University Community: You Can Help

Members of the faculty and staff have offered to be helpful in efforts to convince the Pennsylvania General Assembly to restore the \$18.6 million in University funding recommended to be cut by Governor Casey. We welcome such help in the form of letters or telephone calls to your State Senators and Representatives.

The message to be conveyed in any contacts should include a discussion of the impact of a cut of this magnitude. The University recently has announced a series of measures in response to the proposed cut. These include: (1) the elimination of at least 300 academic and non-academic positions; (2) postponement and re-evaluation of all planned new construction and renovation; (3) reduction in the growth of the financial aid budget for the 1992-93 academic year; (4) a tuition and fee increase for next year which is higher than originally planned; and (5) a planned deficit of \$6.7 million in FY 92, the first unbalanced budget in 15 years.

In addition to these immediate effects, the potential damage to the University in the long run should be stressed. Our capacity to attract and educate men and women in a variety of professions would be diminished (currently there are over 52,000 alumni living in Pennsylvania). In particular, the cuts recommended for the Veterinary School could lead to the eventual closing of the School, the only such School in the State. The many services provided by the University could be affected, including the availability of health care services, community outreach programs and cultural activities. Finally, the cuts could weaken an enterprise that is critical to the financial health of the metropolitan Philadelphia area.

Penn is the largest private employer in southeastern Pennsylvania and the fifth largest in the Commonwealth. The University employs 19,700 people with a payroll of over \$575 million. Employees pay over \$34 million in City and State wage taxes.

If you are writing to a legislator, we offer the following suggestions:

- Identify yourself as a constituent of the legislative district.
- Use your own personal stationery.
- In a concise fashion, state why the restoration of the funds is important.
- Write as though you are communicating to a friend. (The Legislature has approved Penn's appropriation for 88 consecutive years.)
- Ask for their support through their vote and through their intervention with other members and leaders.
- In the mailing address, the correct form is The Honorable (name) followed by the address. The salutation should read "Dear Senator (name)" or "Dear Representative (name)."

If you do not know the name, address, or telephone number of your State Senator and Representative, call the following number in your area:

Bucks County Election Board	348-6154
Chester County Voter Services	344-6380
Delaware County Election Bureau	891-4120
Montgomery County Election Board	278-3275
Philadelphia County Board of Elections	686-3469

Since the Legislature will be making their decision on the budget in the next several months, now is the time to make contacts. I hope members of the University community will take a few minutes to make their feelings known on this important issue.

— Sheldon Hackney

OF RECORD

From the Office of Human Resources/Compensation

Salary Scales for Classified Staff Effective July 1, 1991

Monthly-Paid Salary Scale

Grade	Range Minimum		Hiring Maximum		Range Maximum	
	Annual	Monthly	Annual	Monthly	Annual	Monthly
P01	18,300	1,525.00	23,800	1,983.33	29,275	2,439.58
P02	20,125	1,677.08	26,175	2,181.25	32,200	2,683.33
P03	22,125	1,843.75	28,775	2,397.92	35,425	2,952.08
P04	24,350	2,029.17	31,650	2,637.50	38,950	3,245.83
P05	26,775	2,231.25	34,825	2,902.08	42,850	3,570.83
P06	29,475	2,456.25	37,550	3,129.17	47,150	3,929.17
P07	32,400	2,700.00	40,525	3,377.08	51,850	4,320.83
P08	35,650	2,970.83	44,575	3,714.58	57,925	4,827.08
P09	39,225	3,268.75	49,025	4,085.42	63,725	5,310.42
P10	43,925	3,660.42	54,925	4,577.08	71,375	5,947.92
P11	50,500	4,208.33	63,150	5,262.50	—	—
P12	59,025	4,918.75	71,975	5,997.92	—	—

Weekly-Paid Salary Scale (35 Hour Weekly Paid)

Grade	Range Minimum			Hiring Maximum			Range Maximum		
	Annual	Weekly	Hourly	Annual	Weekly	Hourly	Annual	Weekly	Hourly
G04	10,550	202.88	5.797	13,000	250.00	7.143	15,450	297.12	8.489
G05	11,500	221.15	6.319	14,175	272.60	7.788	16,850	324.04	9.258
G06	12,550	241.35	6.896	15,450	297.12	8.489	18,350	352.88	10.082
G07	13,500	259.62	7.418	16,750	322.12	9.203	20,000	384.62	10.989
G08	14,550	279.81	7.995	18,175	349.52	9.986	21,800	419.23	11.978
G09	15,850	304.81	8.709	19,825	381.25	10.893	23,775	457.21	13.063
G10	17,275	332.21	9.492	21,600	415.38	11.868	25,900	498.08	14.231
G11	18,450	354.81	10.137	23,425	450.48	12.871	28,375	545.67	15.591
G12	20,550	395.19	11.291	26,525	510.10	14.574	32,500	625.00	17.857
G13	22,600	434.62	12.418	29,150	560.58	16.016	37,200	715.38	20.440

Terms:

Salary Scale: A pay structure based upon pay grades. There are two salary scales: P (monthly-paid staff) and G (weekly-paid staff). **Pay Grade:** A level into which jobs with the same or similar classification evaluations are grouped for compensation purposes. There are 12 P pay grades and ten G pay grades. All jobs in a pay grade have the same salary range. **Work Week:** The standard work week at the University is five 7-hour workdays during the period beginning 12:01 a.m. Monday and ending 12 midnight Sunday. **Salary Range:** A set of figures which represents the upper and lower limits for salary decisions. All offers must be approved in advance by the Office of Human Resources. **Hiring Maximum:** Individuals are generally hired at rates which fall between the Salary Range Minimum and the Hiring Maximum. Salary offers above the Hiring Maximum require advance consultation with the Compensation Office.

And So Say the Librarians

The degree to which Penn's FY92 budget would suffer if the Governor's proposed cuts are indeed approved by the Legislature was clearly stated by the University administration (*Almanac* March 26). In an attempt to mitigate the devastating effects these cuts will have on both the Library and the University at large, the Executive Board of the Librarians Assembly urges all staff members to voice opposition to the Governor's proposed level of funding. Our legislators must be reminded of:

— the revenue provided to the state through wage, income, and other taxes paid by the thousands employed by Penn—the largest private employer in the region and the fifth largest private employer in Pennsylvania.

— the many and diverse services that Penn provides to the region, as well as the state, including an array of medical and dental services, special financial aid considerations to state residents, and community outreach programs.

— the benefits derived from the educational strengths of the University on the local, state and federal levels which will be severely limited if funding for scientific research, academic programs, financial aid, and teaching incentives is reduced.

— the significant contribution made by the University Libraries—the largest information resource in the state—which provide service to a great many patrons outside of the Penn community.

To facilitate a letter-writing effort, we have circulated to our members (in the March 28 issue of *The Orrery*, Volume 19, No. 6) the names and addresses of members of the Pennsylvania State Legislature for Bucks, Chester, Delaware, Montgomery and Philadelphia Counties.

Others in the University who wish to know the names of their representatives may call Van Pelt Reference at Ext. 8-7555.

— Marjorie Hassen, Chair,
Executive Board of the
Librarians Assembly

Indirect Research Costs: Questions and Answers

Costs associated with federally sponsored university research have recently become a focus of national attention. A congressional subcommittee has investigated the indirect cost practices at Stanford University and has indicated that it will expand its review to as many as 25 other institutions. The Department of Health and Human Services, the federal agency that negotiates Penn's indirect cost rate, is also reviewing research costs at a number of universities, including the University of Pennsylvania.

The following is provided as a guide to understanding what indirect costs are and how they are determined and to clarify questions that have been raised in recent newspaper articles. For further information, an article entitled "Penn and Indirect Cost," describes how indirect costs are calculated (Almanac January 29, 1991.) The Office of the Senior Vice President and the Vice Provost for Research will also present a series of open forums for members of the University community who are interested in learning more about issues related to the costs of sponsored research.

Q. What is the difference between direct costs and indirect costs of sponsored research?

The total cost of conducting university research involves two general categories of costs: the *direct* costs such as supplies, equipment, materials and the salaries of researchers and support staff which are directly attributable to a particular project; and the *indirect* costs which are associated with such costs as buildings and their maintenance, utilities, payroll and accounting services, administrative services and library services. These latter costs are not easily identified with a specific project and can only be assigned through methods of allocation designed to distribute the costs in proportion to that project's fair share of the actual costs. Although indirect costs cannot be attributed directly to any one project, they are nevertheless just as real and necessary for the conduct of research as direct costs.

Q. How are indirect costs determined?

All universities significantly involved in sponsored research are governed by basic principles for determining indirect costs set forth in Office of Management and Budget (OMB) Circular A-21. Since the amount and type of research performed at each university is different, as is its organization and administration, each institution's indirect costs are treated as a separate case. Indirect cost rates are negotiated individually by each institution with one of three federal agencies: the Department of Defense, the Department of Energy, or the Department of Health and Human Services (DHHS). Penn's rate is negotiated with DHHS.

Because it is not feasible to identify facilities and administrative costs associated with each research project, the OMB Circular A-21 sets out accounting rules that specify the types of costs allowable, the method by which they are allocated, and how rates are to be determined. In accordance with those cost principles, each institution prepares an indirect cost proposal based on its actual costs for a particular year, and submits it to its cognizant federal agency. The proposal is reviewed and a rate is subsequently negotiated with the university.

Q. How is Penn's current rate calculated?

In 1988 Penn submitted to DHHS an indirect cost proposal based on actual costs incurred for the previous fiscal year (FY 1987) to use as a basis for establishing rates for future years. The costs to be included in the indirect cost proposal were identified by the Comptroller's office from the University's audited financial statements and grouped into eight categories or pools: general administration, sponsored project administration, plant operation and maintenance, library, departmental administration, depreciation of buildings, depreciation of equipment, and student administration and services. After excluding certain unallowable costs such as entertainment and fund raising, the pools were allocated to research, instruction, other sponsored activities and other institutional activities. The total indirect costs allocated to research was divided by the modified total direct costs of research (which exclude equipment and some other types of costs) to arrive at a percentage. This percentage is the indirect cost rate. DHHS reviewed the proposal and rates were ultimately agreed upon by the government and the University through the negotiating process. Penn's current predetermined rate is 65 percent of modified total direct cost.

Q. What does Penn's pre-determined rate mean?

Since 1985 Penn has had a pre-determined indirect cost rate. This means the rate is not subject to further upward or downward adjustment. Unlike a fixed rate with roll-forward, a predetermined rate does not permit Penn to include under-recovered indirect costs from one fiscal year in a subsequent year's proposal. That is, if the rate is set too low and the University does not recover its full costs in a given year, it cannot recover the difference from the government in succeeding years.

Q. How does Penn protect against unallowable charges?

Penn has developed written financial policies and established internal accounting controls which, prospectively, are designed to reduce the risk of the inclusion of unallowable charges in the indirect cost pools allocated to federal awards. On an ongoing and retrospective basis, a system of rigorous internal audits is aimed at detecting and eliminating any unallowable or questionable costs before the indirect cost proposal is finalized.

Other preventative mechanisms include the on-going training of business administrators; written procedures which include the prescription of specific accounting subcodes to identify unallowable costs such as entertainment; and the strict adherence to the cost principles contained in OMB Circular A-21 when calculating the rate.

DHHS also plays a significant role in ensuring that indirect costs are reasonable and equitable, through the negotiations process and the establishment of pre-determined rates for multi-year periods. This approach also provides greater consistency in indirect cost rates from year to year, and permits the University to estimate and budget indirect cost recovery more accurately.

Q. Does the government provide Penn 65 cents for every \$1 of direct research support?

No, although this is a common misconception. In fact, certain direct costs of research must be deducted before the indirect cost rate is applied. The costs of patient care, subcontracts, project-specific equipment and graduate-research assistant tuition are deducted before the rate is applied. Hence, while it may sound as if the University recovers 65 cents from every direct research dollar expended, it is actually much lower. In fact, in FY'90 Penn's actual recovery rate was 48.4 percent of direct cost.

Q. Why is our rate different from other peer institutions?

The research institutions reflect a range of variables including the age and condition of buildings and facilities; the size of the research enterprise, and the regional costs for utilities and labor. The most important factor accounting for rate differences between private and state institutions and among private universities is the cost of physical plant and capital projects. Since the mid 1970's the federal government generally has not provided direct support for capital projects related to research. In the early 1980s the government began permitting institutions to recover the interest costs of money borrowed to renovate and construct research facilities through the indirect cost rate. Another major reason for the difference between state and private rates is that many states allow their public universities to keep only some percentage of their indirect cost reimbursements, with the remainder going to the state general fund. Thus, many public universities have less incentive to completely recover indirect costs.

Q. How much federal research goes on here?

In FY'90, Penn received a total of \$133 million in federally sponsored research grants and contracts. Of that amount, approximately \$90 million was for direct costs and \$43 million was for indirect costs.

Q. Are we reimbursed for all our indirect costs?

No. Penn's indirect cost rate proposal (last submitted in 1987) included all of the allowable indirect costs of research. However, as a result of the negotiation with DHHS, Penn is actually reimbursed at a rate lower than that reflected in its proposal. In addition, certain federal programs arbitrarily cap indirect cost recovery and rates well below Penn's negotiated rate. The University makes up the difference between actual costs and those paid by the government with other funds, such as endowment income and private donations.

Q. How long has Penn's rate been in effect?

Penn's indirect cost rate of 65 percent has been in effect since July 1, 1989. At the time of the last indirect cost negotiation with DHHS the rate was set at 64 percent for FY'89; and 65 percent for FYs '90, '91 and '92. Penn is scheduled to renegotiate its predetermined rate with DHHS in the Spring of 1992 for subsequent years.

[This document was prepared by the Office of News & Public Affairs at Penn, with materials supplied through the Office of the Senior Vice President and the Association of American Universities.]

Astrology at the University of Pennsylvania in 1990

R. E. Davies, Benjamin Franklin and University Professor Emeritus of Molecular Biology

R. H. Koch, Professor of Astronomy and Astrophysics

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**Fig. 1. Questionnaire of November 6, 1990
Annotated to Show Numbers of Responses**

Do You Believe in Astrology?

A Questionnaire for the Faculty, Staff and Students of the University

Dear Member of the University Family:

There are numerous concepts which fall outside the limits of conventional biological and physical science. One of these concepts is astrology—and about 20 years ago the then-President of the National Academy of Sciences noted that the U.S. supported at least 30 times as many astrologers as astronomers.

In the early 1970s a survey was taken at Penn to discover attitudes on several a-scientific beliefs such as astrology. This survey was based, however, on a selection of only undergraduate and graduate students. The present inquiry aims for a more detailed scrutiny of only one particular belief, but in all parts and at all levels of the University.

It is widely known that there have been and still are many different astrological concepts held all over the world, but we are not now concerned with the differences among these. Instead, we focus on the generalizations in astrological beliefs that the phenomena of selected celestial bodies associated with birth have significant impacts on human temperament, behavior, and fate. These regularities are associated with naked-eye planets, Sun, Moon, the assemblages of stars in the zodiacal constellations, and also the sporadic or regular apparitions of naked-eye comets or meteors.

We ask that you study the following five statements (S):

- | | |
|--|-----|
| S1 I have no belief or knowledge in favor of or against astrology. | 140 |
| S2 I believe that astrology is basically correct. | 38 |
| S3 I accept most claims in favor of the correctness of astrology. | 53 |
| S4 I accept most claims disproving the correctness of astrology. | 67 |
| S5 I believe that astrology is basically incorrect. | 264 |

Please write the single number which most closely corresponds to your own belief.

Now consider the following three statements:

- | | |
|--|-----|
| S6 I never make plans for the future on the basis of astrological interpretations. | 508 |
| S7 I sometimes make plans for the future on the basis of astrological interpretations. | 50 |
| S8 I always make plans for the future on the basis of astrological interpretations. | 4 |

Please write the number which most closely corresponds to your own planning.

The four final statements follow:

- | | |
|--|-----|
| S9 I never act on plans which I make on the basis of astrological interpretations. | 119 |
| S10 I sometimes act on the plans which I make on the basis of astrological interpretation. | 42 |
| S11 I always act on the plans which I make on the basis of astrological interpretation. | 4 |
| S12 My previous choices (1 or 5, and 6) are such that I cannot logically choose any of the three (9, 10, and 11) immediately preceding statements. | 396 |

Please write the number which most closely corresponds to your own activity.

In this section, please characterize yourself in the following categories.

Age (years)	less than 23	172	51-60	37
	23-30	167	61-70	21
	31-40	74	71 or more	12
	41-50	78		

Religion (if none, state "none") SEE (1) BELOW Ethnicity SEE (2) BELOW

Sex Male 272 Female 238

Academic Status

Undergraduate	165	Standing faculty	76
Grad student	24	Associated faculty	15
Professional student	134	Academic support staff	15
Post-doc	6	Emeritus faculty	15
A-1 personnel	79	A-3 personnel	32
		A-4 personnel	1

Primary University Affiliation by School or Administrative Unit

(Undergraduates who have not yet declared a major should still indicate their likely affiliation)

SAS Humanities	90	Annenberg	5	Medicine	123
SAS Social Sciences	44	Grad Fine Arts	3	Dental Medicine	5
SAS Biological Sciences	25	Grad Education	13	Vet Medicine	94
SAS Physical Sciences	19	Law	4	Nursing	5
Engineering	25	Wharton	42	Social Work	6
Other (please specify)	48				

Highest Degree or Diploma SEE (3) BELOW

(1) Religion (39 Types)	(2) Ethnicity (66)	(3) Highest Degree/Diploma (29)
Christian*	Europe	High School
Other**	Asia	Bachelor's
None	Africa	Master's
	Oceania	MD
		PhD

* Catholic 121; Protestant 140.

** Jewish, 104; Hindu, 9; Buddhist, 5; Muslim, 3; Hopi, 1; Universalist, 2.

Introduction

Attachment to astrological beliefs has persisted for millenia, not only in Western culture but globally as well. In this century widespread belief in the efficacy of astrology does not seem to have diminished.

Until recently, most scientists had been content to remark rather passively that astrological claims are "wrong". However, in the 1980s, there emerged among scientists an attitude that astrology should be confronted, attacked, and rebutted publicly at every opportunity. The foundation for this attitude rests in the assertion that astrological belief is dangerous: both its frivolous and serious adherents, whether public figures or private citizens, encourage superstitious and uncritical attitudes to human existence and to the significance of evidence.

A Bit of History

Not one of the many published scientific investigations has found a basis for astrological beliefs. The interested reader is referred to *Scientific Responses to Pseudoscience Related to Astronomy: An Annotated Bibliography* by A. Fraknoi (1990, Mercury 19, 144-147). In 1970, C. A. Salter and L. M. Routledge—then graduate students in Psychology and Molecular Biology, respectively, at Penn—summarized older studies concerning belief in astrology by undergraduates at Harvard and the University of Ghana. These same authors also conducted a poll of 98 male and female graduate students to examine their beliefs concerning a variety of non-scientific topics, including astrology. Their results were published as *Supernatural Beliefs among Graduate Students at the University of Pennsylvania* (1971, Nature 232, 278-279). Subsequently, Salter and Routledge examined a Penn undergraduate class at the beginning and end of its first academic year looking for possible correlations between astrological belief and gender, intelligence, and religious background. Their results were published as *Intelligence and Belief in the Supernatural* (1974, Psych.Rep. 34, 299-302).

An assessment of attitudes toward astrology on the national scale appears in The National Science Board's *Science and Engineering Indicators—1989*, wherein on p. 170 there are summaries of answers to two questions addressed to about 2,000 Americans. These responses indicated a population largely skeptical of astrological claims. The most recent national survey regarding astrology is that recorded in 1990, *Gallup Poll News Service* 55(13), 1-7. The cooperating respondents for this survey totaled 1,236 adults in June, 1990. Mr. J. Ludwig, the *Poll's* Vice-President and Chief Methodologist, and Dr. Rita O'Donnell of the Gallup organization described their procedure for us. In order to reach 1,236 respondents on a national scale, the *Poll* used 4,854 computer-generated "phone numbers". The *Poll* attained a 63% cooperation rate in responses from real numbers useful for its purposes. There are several factors which diminish the randomness of the sample. For instance, people without phones could not be reached, people of lower socioeconomic status were less cooperative, and further selection was imposed so as to keep the gender ratio at unity. For a sample of 1,200 answers, the 95%- confidence level attributable to statistical error in the survey is stated to be +/-3%.

The 1990 Penn Sample

As scientists and citizens, we are concerned in this matter for two reasons: (1) it is common knowledge that in recent times certain national leaders did act on the basis of astrological predictions, and (2) we wished to know whether beliefs at Penn had changed over 20 years. Accordingly, we decided to sample broadly-held beliefs about astrology among all groups at the University.

To this end we composed a self-reporting inquiry. This was distributed to the first-year class of Veterinary School students. On the basis of 60 returns from among 72 students present in class, the questionnaire was amended for clarity and completeness. The amended questionnaire was published in *The Daily Pennsylvanian (DP)* of October 31, 1990, but this printing contained two significant errors and omissions. At our request the student newspaper reprinted the questionnaire on November 1, 1990, but the new version still contained one omission. To reach a wider and different audience *Almanac* published a correct questionnaire in its issue of November 6, 1990.

Copies of the *Almanac* questionnaire were distributed to the second-year class of the Medical School and to students in a General Honors course, Infectious Diseases, and in three introductory astronomy courses.

The Questionnaire and Its Returns

Fig. 1 shows the *Almanac* questionnaire with the summary of received tallies for each Statement and Category. Every response was numbered so as to create a convenient PC file. Over an interval of 75 days, 562 questionnaires were returned and all but one were assimilated into the data file. We have no reason to doubt that all these responses are single and honest although there may be the odd prankster among the respondents. A few questionnaires are still being received but these have not been incorporated into the results reported here.

Of the 561 usable responses, 307 had been requested in class and 254 were spontaneous ones. The requested responses represent about an 80% return from the attending members of the professional and undergraduate classes which were sampled. The spontaneous responses from the first and second *DP* and *Almanac* questionnaires are 19, 10, and 224, respectively. With the same algorithm used for the Gallup poll, the 95%-confidence level assigned for the statistical error in the entire Penn sample would be about $\pm 4\%$.

While most of the returns are from current local members of the University family, a small number was received from emeritus faculty now living elsewhere in the U.S. and Europe. Each response was scrutinized for completeness and several effects may be noted in Fig. 1. First, there was essentially 100% completeness for all self-characterizations except for Ethnicity (89% response) and Sex (91%). The omissions from the *DP* printings resulted in 29 respondents (5%) who were not asked to specify their genders. Stray omissions also occurred for nearly every category. For example, 12 respondents either didn't know or didn't care to note or simply ignored or overlooked their University Affiliations. None of these omissions was considered serious.

Each questionnaire was studied for logical inconsistency in responses to Statements (hereafter, S) 1 through 12 as, for example, choosing (S5, S6, S9). Because there were three choices to be made, it was possible to reconcile the inconsistencies in every case and to substitute the logically correct single Statement for the incorrect one. For instance, the example just given was recorded by us as (S5, S6, S12). The total number of these inconsistent results is 17 and they probably arise from careless reading.

In all, there were 39 different self-reported religious affiliations and 66 ethnic types. We condensed these to the smaller numbers of

characterizations summarized as footnotes in Fig. 1. There were also instances of inconsistency in the self-reporting Categories such as "WASP" for Ethnicity but "None" for Religion. We resolved this example by recording the individual as of European ethnicity with no religion.

A number of comments—including a couple that were sly or critical—accompanied some questionnaires. Additionally, some returns came with detailed and interesting personal letters.

Generalized Results Regarding Astrological Belief

First, our results find 17% at some level (S2, S3) of belief in astrology, 59% at some level (S4, S5) of disbelief, and 25% with "no belief or knowledge" (S1). The Penn sample shows somewhat less belief than the recent national Gallup poll, which found 25% believing, 54% not believing, and 22% unsure "that the position of the stars and planets can affect people's lives." Since people come to the University for different reasons and with a great variety of backgrounds, this near similarity is not surprising. Actually, there is more information in the Penn sample than is conveyed by just these three categories, and this will be examined below.

The Salter and Routledge study provides an epoch at Penn against which to judge part of the present sample. In 1971, 98 graduate students responded with a mean score of 4.16 on a scale of 0 (total disbelief) to 20 (total belief) when queried about their astrological beliefs. There are 24 graduate students in the present sample and 19 of them disclaim any belief in astrological efficacy. These results cut across religious beliefs, ethnicity, sex, and University affiliation. The five remaining students actually accept most claims disproving astrology, but one of them sometimes makes and acts on plans based on belief. Insofar as one may judge from these small and disparate samples, there seems no basis for asserting that beliefs among graduate students have changed significantly at the University in 20 years.

Age. It is commonly thought that age brings wisdom as a result of experience or disillusionment. This seems to be borne out by the present sample (Fig. 2), which shows not even one believer older than 50. It is clear that 32% of the respondents in the 31-40 age category share belief (S2, S3) in astrology and that these represent the largest percentage and absolute number

of respondents for S2. This percentage is about twice that of the other three groups younger than age 51. Clearly, the 31-40 age group, as for all other groups, cannot have formed its beliefs only in the present but has brought them in part from the past. If the group still adheres to its present beliefs 10 years from now, it could be reasonable to interpret the result as deriving from the culture of the late 1960s.

Religion. According to Dr. A. Matter, Christianity, Judaism, and Islam "officially" consider astrology a superstition. (One respondent sent us a copy of Isaiah 47:12-14 as an argument against astrology, but we understand the verses to refer to the Babylonian astrologers and not to any possible Jewish ones.) There are mystical sects within each of these religions which do adhere to astrological beliefs. In Buddhism and Hinduism some forms of astrology are integral religious practices. As Fig. 3 shows, religious belief or non-belief is represented among all levels of belief or non-belief in astrology. There are 14 Buddhist and Hindu believers among the respondents; of these four (29%) chose S2 or S3. One each of the three Moslem respondents chose S1, S2, or S3. For the Catholic (121) and Protestant (140) respondents, 24% and 19%, respectively, chose S2 or S3 indicating high levels of astrological belief. In sum, among the 261 responding Christians, about 22% report these levels of belief in favor of astrology, which value contrasts conspicuously with the smaller percentages for Jewish (6% of 104) and non-religious (11% of 159) believing respondents. It is clear that in this sample there is no simple correlation between religious and astrological belief and disbelief.

Ethnicity. Although there were 66 different self-reported ethnic Categories, we have reclassified these into just six different geographic origins of the ancestors of the respondents: Africa (6%), Asia (7%), Europe (87%), North America (0%), Oceania (0.2%), and South America (0%). Fig. 4 indicates that belief in astrology cuts across responding ethnic Categories but nearly half (46%) of the 28 African-American respondents believe in astrological thought at some level and only 11% of these respondents believe astrology to be basically incorrect. For European-origin respondents there exists only a small minority (14%) of believers in S2 and S3. The respondents of Asian origin fall between these extremes.

(continued next page)

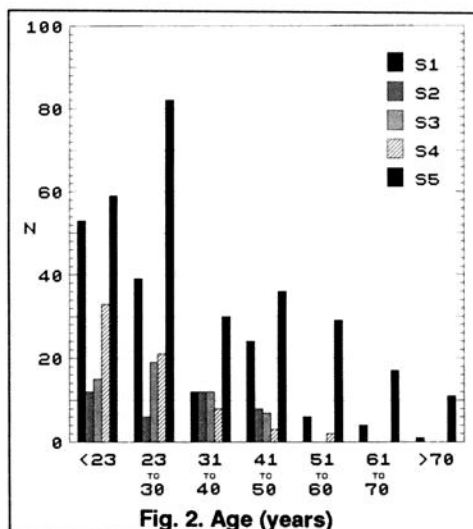


Fig. 2. Age (years)

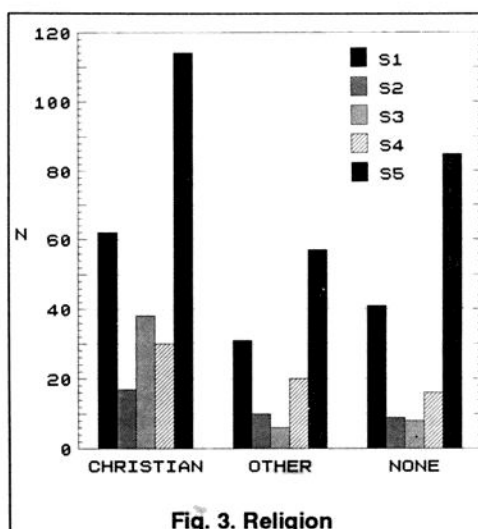


Fig. 3. Religion

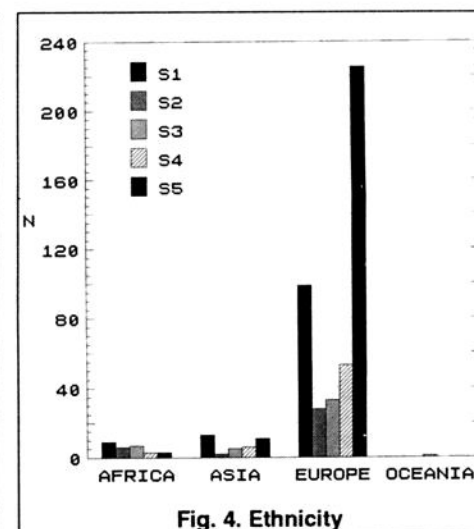


Fig. 4. Ethnicity

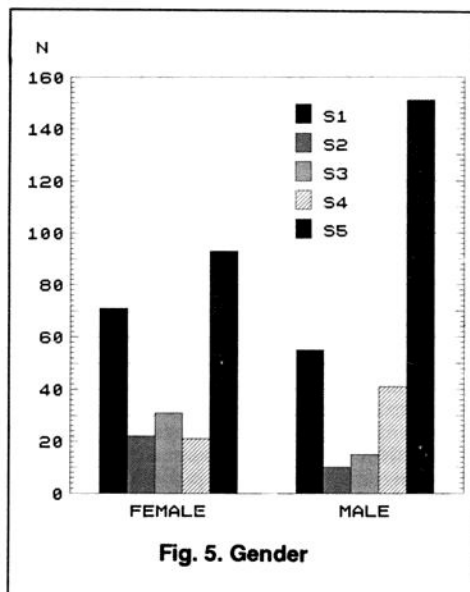


Fig. 5. Gender

Gender. Respondents were rather evenly balanced by gender: female (47%), male (53%). Important reasons for this are the nearly even balance by gender in the undergraduate class respondents and the predominantly female Veterinary professional students. From Fig. 5 it may be calculated that the normalized percentage of female believers (S2,S3) in astrology is more than three times (77% vs. 23%) that of male believers. Even so, these female believers are a minority (23%) of their gender. This bias has also appeared in past surveys.

Academic Status. There is a wide range of belief when respondents are sorted by this parameter. The largest percentages of believers (S2,S3) are found among the respondents from the Academic Support Staff (53%) and A3 personnel (38%), and there are no believers among the Emeritus Faculty, A4 personnel, Graduate Students, and Postdocs. Although the largest numbers of believers are found among responding Undergraduates and Professional Students, these are actually the largest groups in the sample and their believers have only middling (18%, 19%) percentage representation. A very similar percentage (15%) is associated with the smaller number of believers among A1 personnel. Still smaller percentages appear for the Standing (9%) and Associated (7%) Faculties. As can be calculated from Fig. 6, these percentages must have various statistical significances because the samples are of very different sizes.

University Affiliation. Law, Fine Arts and Social Work respondents seemingly appear the most skeptical, with not one among the 13 respondents expressing any belief (S2,S3) in astrology. The larger percentage return from Annenberg shows the opposite situation with two of the five respondents indicating such belief. However, the small numbers for all these categories of respondents prevent valid generalization from them. The largest absolute numbers of astrological believers actually arose from the Veterinary School (25) with SAS Humanities (15), Medicine (10), and Wharton (7) following next in order. These numbers are large in part because students from these groups were solicited in class. When percentage representation is studied for these four affiliations, the Vet School (27%) is still the most believing and Medicine (8%) the least. How-

ever, the language for S3 and S4 on the questionnaire given to the Vet School class read "I accept some claims ...", which is not so forceful as "I accept most claims ..." which appeared on the amended final version (cf. Fig 1). The small-scale detail for most other affiliations can be seen by studying Fig. 7. The graphics package did not permit plotting more than 15 categories so we reluctantly left out the three respondents from the Graduate School of Fine Arts from this figure. The three respondents separately recorded S1, S4, S5.

Educational Level. Our respondents reported 29 different types of degrees or diplomas. We have classified these into a smaller number of types: High School Diplomas (200), Bachelor's Degrees (179), Master's Degrees (58), MDs [which also stands as a surrogate for DDMs, VMDs] (34), and PhDs (90). Essentially all levels of educational attainment are represented for each level of belief and disbelief. As Fig. 8 shows, for all levels of educational accomplishment, the greatest numbers and percentages of respondents believe that astrology is basically incorrect. The Salter and Routledge poll at Penn supported previous findings that educational experience had little effect upon belief in astrology for male undergraduates at Harvard and the University of Ghana. Each of these was limited to the few years of student experience at the universities. However, our results show in two ways that education does make a clear impact. First, astrological believers are dominated by respondents with Diplomas and Bachelor's degrees although they are still minorities of each of their populations. Secondly, there is a trend with educational level: the greatest fraction of believers in the basic correctness of astrology hold only Diplomas; the greatest fraction of those who accept most claims for the credibil-

ity of astrology have attained only Bachelor's degrees; and the greatest fractions of people totally skeptical about astrological beliefs are MDs and PhDs. The maximum fraction of respondents holding Master's as the highest degree appears in the category of accepting most claims disproving astrological correctness.

Multiple Correlations. Obviously, there is potentially much more information to be recovered from this sample than the ones developed explicitly above. We make a specific illustration of this matter by identifying in more detail the respondents of African ethnicity. As was remarked above, 46% of the 28 African-Americans report astrological belief. Of the 23 of these who recorded gender, 7 females and 3 males reported belief, 3 females and 2 males reported disbelief, and the remaining 4 females and 4 males were unsure. Of the female believers, there were two A3 respondents both of whom have Diplomas.

Despite this high level of reported astrological belief, not one of the 28 African Americans always made plans or always acted on their plans. Indeed, the only two persons reporting that they always made plans and always acted on these plans were of European ancestry. (See below under "Special Cases.")

We use these results to note the well-known cautionary matter that single correlation results require further analysis, particularly when dealing with small-number samples.

Generalized Results Regarding Planning and Acting Upon Plans

We are certain that mere assertion of belief is not a reasonable criterion for determining those who really believe in astrology. Accordingly, in S6 through S12 we pursued any such assertions by investigating whether plans were

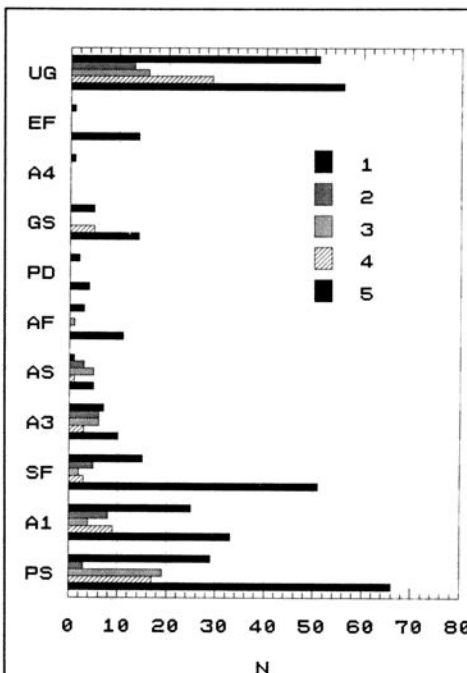


Fig. 6. Academic Status

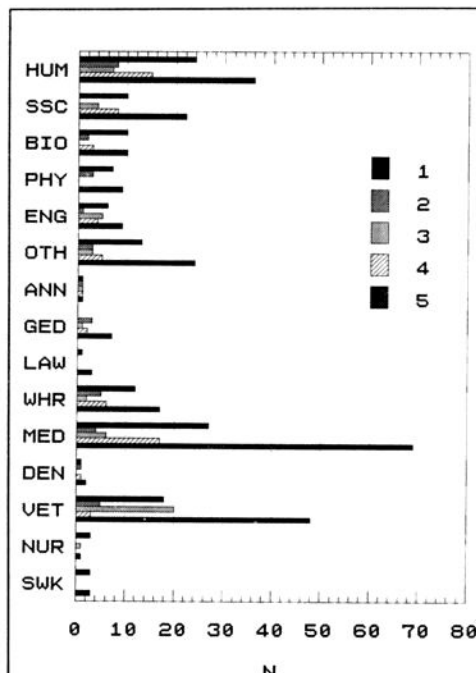


Fig. 7. University Affiliation

Abbreviations refer to categories in Fig. 1: UG = undergraduate, HUM = SAS Humanities, etc.

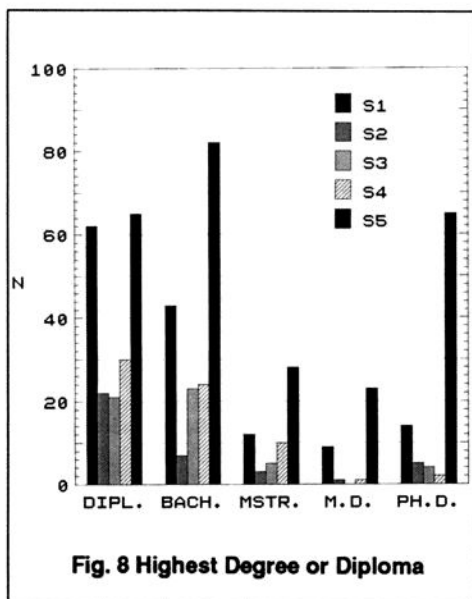


Fig. 8 Highest Degree or Diploma

actually made on the basis of beliefs and whether any such plans were ever implemented in actions. This amounts to several definitions. "True" believers always form plans and always act upon their beliefs. At the opposite pole are "non-functioning" believers, who neither plan nor act on their asserted beliefs. Between these limits are the "inconsistent" believer and planner, who only sometimes makes plans based upon beliefs, and the "inconsistent" believer and actor, who only sometimes translates beliefs and plans into actions.

This Penn survey is only the second one we know of to inquire about plans based upon asserted beliefs. S6, S7, and S8 in Fig. 1 represent the numbers of respondents who do or do not make plans based on their levels of beliefs. Another rendering of the same information appears in Fig. 9, which represents the correlations of beliefs and plans. Even for respondents who commit themselves to the basic correctness of astrology (S2), only two of them always make plans based on their beliefs. Curiously, the 50 respondents (9% of the sample) who chose S7 do sometimes make plans even though they are not totally committed to the basic correctness of astrological belief. In fact, eight of these 50 respondents who claim no belief or knowledge (S1) do assert that they sometimes make plans based on astrological interpretations. Of course, these could be plans for simple diversion or amusement.

This survey may be the first to inquire whether people actually act on reported astrological beliefs and plans. This may be examined in Fig. 10, which represents the correlation between beliefs and actions. Only two of the three respondents who indicated a total commitment to planning really act on these plans all the time while the single other committed planner acts on plans only sometimes. Additionally, one other respondent who plans only some of the time nevertheless acts on these plans all the time. Finally, there are 27 respondents who, while making plans some of the time, act on only some of these plans.

We summarize the characterizations in this way: within our sample, the percentage of "true" believers is only 0.4%; the percentage of "non-functioning" believers is about 12%; and the percentage of "inconsistent" planners and actors is only about 5%. Despite having ar-

rived at adulthood, as many as 25% of the respondents have no informed opinion regarding astrology. We suspect that, queried about any similar concept or body of belief, there would be a comparable percentage of people who would claim no knowledge or belief regarding the matter. Another point emerges emphatically: any efforts by scientists against astrology should actually be directed against the small percentage of the respondents who are "inconsistent" planners and/or actors and especially against the even smaller percentage of "true" believers, who consistently plan and act on their belief in astrology.

Special Cases

Among all respondents, there appeared only two "true believers": one is a male PhD between 31 and 40 years old, an SAS Standing Faculty member in Physical Sciences of European ethnicity and of no religious profession. The other did not record gender, has a Master's Degree, is between 31 and 40 years old, an A3 person in the Wharton School, of European ethnicity, and has no religion.

Among the "inconsistent" cases two cases are of interest. One "inconsistent" actor is an individual who only sometimes acts on plans while believing astrology to be basically correct and always making plans based on these beliefs. This respondent is a PhD between 40 and 50 years old, an SAS Standing Faculty member in Humanities of European origin and of Jewish religion. This respondent did not identify gender because of the omission in the DP questionnaire. Finally, there emerged an "inconsistent" planner who only sometimes makes plans but always carries out these plans based on the acceptance of most claims favoring the correctness of astrology. This respondent has a BA, is a member of the Academic Support Staff in the Medical School, is a 31-40 year old, Roman Catholic Hispanic and did not record gender.

After noting the high incidence of at least some astrological belief among Veterinary students, we learned from Profs. C. F. Reid and L. H. Evans of the School of Veterinary Medi-

cine that a variant of astrological belief pervades a part of large animal veterinary practice. Principally among older horse owners, there is a clear requirement that castration, other surgical procedures, breeding, and even weaning take place in conjunction with conventional astrological signs locked to the zodiacal location of Moon. The weekly journal *The Blood Horse* prints the recommended intervals of each month wherein particular "husbandry" practices are recommended for specific body parts of the animal. Not surprisingly, *The Old Farmer's Almanac* prints much the same lore. We do not know whether Veterinary student attitudes have been in any way influenced by those of horse owners and breeders.

Summary

In our sample there emerged the following: (1) above age 50 there are no believers but the 31-40 age group contains the largest percentage of believers; (2) those adhering to Judaism show a conspicuously low percentage of astrological believers, smaller even than those with no religious beliefs and much smaller than the Christians; (3) there is a high percentage of astrological believers among people of African ethnicity; (4) women are more likely than men to profess astrological belief; and (5) academic status and highest degree are, not surprisingly, related to each other and both show a generally diminishing level of astrological belief with hierarchical University position and academic attainment.

We make no claim that all the above are novel findings. There is, however, one unexpected result: belief does not translate into plans or actions for a very large fraction of people who claim astrological belief. Thus, among a University-level population such as Penn's there is little point in wasting zealous emotion inveighing against a belief system which is so empty.

We are grateful to all the respondents and to our colleagues noted in the text for the information which they provided. We also particularly acknowledge the skillful assistance of R. J. Mitchell who created the graphics for us.

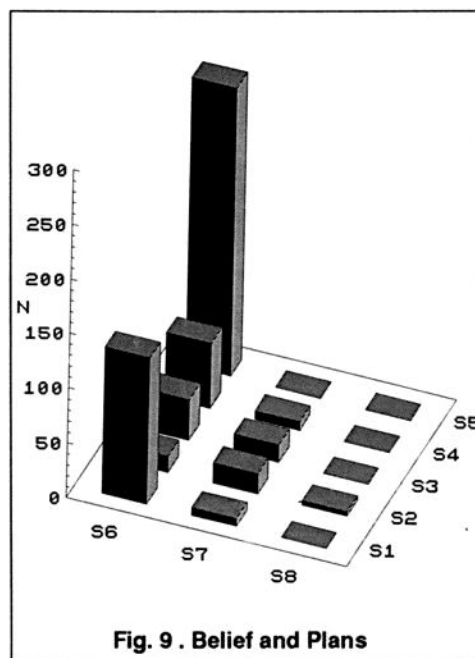


Fig. 9. Belief and Plans

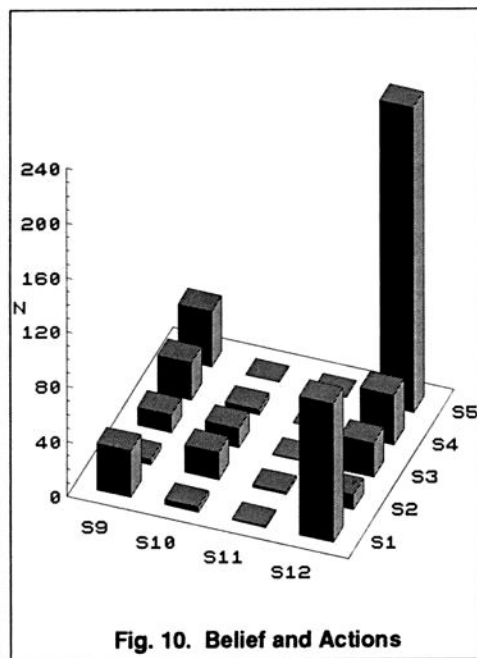


Fig. 10. Belief and Actions

S1, S2, S3, etc. = Statements in Fig. 1

More Displays at The Fair

In addition to the many groups and organizations listed last week there are still more that will also be represented at West Philadelphia Day: *Housing & Real Estate*—Hertzfeld Assoc.; *Student Volunteer Organizations*—Kite & Key, Student/Community Involvement Office; *Banks*—Penn Federal Credit Union; *West Philadelphia Vendors*—Penn Bookstore, Faculty Club, UCR at Penn, Emsco Scientific Enterprises, Rosenbluth Travel, Wilson and Associates; *Penn Entertainment, Goods & Education*—CGS Special Programs, GSFA, Law School, Purchasing, School of Medicine, School of Nursing, School of Veterinary Medicine, Community Relations Office at Dental School, University Museum; *University & West Philadelphia Not-for-Profit*—Academic Support Services, African American Resource Center, Christian Association, Community Relations Committee, Drug & Alcohol Resource Cen-

ter, Faculty/Staff Assistance Program, Fire & Occupational Safety, Employment, Volunteer Network/Penn Employees, Physical Plant—Christmas in April, 21st Century League, University of Pennsylvania Police Department, Walnut Hill Community Association, Wharton-West Philadelphia Project; *Child Care*—Child Care Resource Network, University City Montessori School.

Home-Buying Seminar

Under the University's Guaranteed Mortgage Program for full-time employees of Penn and HUP, Philadelphia Savings Fund Society and the Treasurer's Office will offer a seminar April 26 at noon in 720 Franklin Building. The seminar covers aspects of the mortgage process such as applying, qualifying, the importance of credit rating, settlement/closing, etc. Light refreshments are provided, and participants can bring lunch. Because of limited seating, confirmation is asked: Jean Crescenzo, 898-7256.

The University of Pennsylvania Police Department

This report contains tallies of part 1 crimes, a listing of part 1 crimes against persons, and summaries of part 1 crime in the five busiest sectors on campus where two or more incidents were reported between April 15, 1991 and April 21, 1991.

Totals: Crimes Against Persons—2, Thefts—36, Burglaries—2, Thefts of Auto—0, Attempt Thefts of Auto—0

Date	Time	Location	Incident
Crimes Against Persons:			
4/16/91	7:04 AM	3200 Block Walnut	Purse taken from complainant/minor injuries
4/18/91	11:25 PM	3900 Block Spruce	Attempted robbery/no injuries/suspect fled
34th to 36th; Spruce to Locust			
4/16/91	1:01 AM	Irvine Auditorium	Duffle bag & contents taken
4/16/91	11:19 AM	Houston Hall	Wallet taken/recovered less cash
4/16/91	9:40 PM	Furness Building	Cash taken from backpack/recovered
4/18/91	8:53 AM	Logan Hall	Answering machine & radio taken
4/21/91	6:55 PM	Furness Building	Secured bike taken from rail
37th to 38th; Spruce to Locust			
4/16/91	3:13 PM	McNeil Building	Cash and credit card taken
4/16/91	4:23 PM	Steinberg Center	Cash taken from unattended purse
4/19/91	6:31 PM	Steinberg Center	Secured bike taken from rack
4/20/91	3:56 PM	Kappa Sigma	Unsecured bike taken from basement
34th to 38th; Civic Center to Hamilton			
4/16/91	1:38 PM	Johnson Pavilion	Unattended bag taken from room
4/18/91	2:57 PM	Medical School	Unattended wet vac taken
4/18/91	4:23 PM	Leidy Lab	Secured bike taken from rack
4/18/91	5:10 PM	Blockley Hall	Unattended wallet taken
36th to 37th; Spruce to Locust			
4/16/91	3:00 PM	Steinberg/Dietrich	Unattended wallet & contents taken
4/16/91	6:35 PM	3600 Block Locust	Unattended wallet & contents taken
4/18/91	8:15 AM	Steinberg/Dietrich	Cash taken from locked desk drawer
36th to 37th; Locust to Walnut			
4/16/91	3:31 PM	Phi Gamma Delta	Secured bike taken/lock cut
4/17/91	2:08 AM	Christian Association	Basement break-in/suspect apprehended
4/20/91	10:06 PM	Delta Psi	Bike wheels taken

Safety Tip: If you are threatened don't resist if the attacker is only after your property or has a weapon. Try to get an accurate description of the attacker: color of eyes and hair, type of clothing, height and weight, race, sex, any unusual features such as scars. If a vehicle is involved get the license plate number. Call the University Police immediately after the incident at 511 or 898-7297.

18th District Crimes Against Persons Report

Schuylkill River to 49th Street, Market Street to Woodland Avenue

12:01 AM April 8, 1991 to 11:59 PM April 15, 1991

Totals: Incidents—11, Arrests—1

Date	Time	Location	Offense/Weapon	Arrest
4/08/91	9:15 AM	4700 Delancey	Robbery/strong-arm	No
4/08/91	10:52 PM	4300 Baltimore	Robbery/strong-arm	No
4/09/91	4:05 PM	4736 Spruce	Robbery/strong-arm	Yes
4/09/91	8:42 PM	4600 Locust	Robbery/strong-arm	No
4/10/91	12:45 AM	4040 Locust	Robbery/gun	No
4/10/91	4:10 PM	4409 Chestnut	Robbery/brick	No
4/11/91	5:33 AM	3900 Walnut	Aggravated Assault/gun	No
4/11/91	7:52 PM	4430 Ludlow	Robbery/strong-arm	No
4/12/91	9:35 PM	3921 Pine	Robbery/gun	No
4/14/91	5:00 AM	4400 Chestnut	Robbery/knife	No
4/14/91	9:56 PM	4600 Chestnut	Purse Snatch	No

Update

APRIL AT PENN

FILM

27 Turkey's Sephardim: 500 Years; a 75-minute documentary by Laurence Salzmann; 11:30 a.m. and 1:30 p.m., Harrison Auditorium, University Museum (University Museum).

SPECIAL EVENTS

27 New Voices in Turkish Women's Studies: A Symposium; Seven speakers on topics of diverse interest. 9 a.m.-6 p.m. Rainey Auditorium, University Museum; \$15 (students \$5), Ext. 8-6335. (Middle East Center).

TALKS

24 Small Cell Carcinoma of the Lung: Biology and Treatment; Martin Abeloff, Johns Hopkins, 11 a.m., Medical Alumni Hall, 1 Maloney (2nd Annual Willis Stetson Lecture, SGIM).

STAAR Workshop for Administration, Faculty and Staff; seminar led by STAAR Student Peer Educators, noon-1:30 p.m., Bowl Room, Houston Hall (Students Together Against Acquaintance Rape).

Preaching Artists and Painting Poets: Some Aspects of 17th Century Dutch Culture; Karen Porteman, Catholic University of Leuven, Belgium; 8 p.m., Vance Hall B-10 (Germanic Languages and Literatures, Dutch Studies).

The State of Mathematics in Nigeria: Problems, Prospects and Challenges for Sustainable Development; Olusola Akinyele, deputy vice-chancellor, University of Ibadan, 4 p.m., 200 CH (Office of International Programs).

25 Pattern of Pediatric Orthopedic Injuries in Suez Canal area of Egypt; Adel Haman, clinical epidemiology unit; 9 a.m., room 313, Nursing Education Building (SGIM).

GSFA Lecture Series; painter Mark Tansey will speak. 6:30 p.m., Meyerson Hall B-3.

26 The Festival of St. Rose of Lima; Luis Millones, anthropology, Princeton, 3-5 p.m., West Lounge, 4th floor, Williams Hall. Ext. 8-9919 (Latin American Cultures Program).

29 The Impact of Health Care Spending on the U.S. Economy; David Brailer, RJWF clinical scholar; noon, 2nd floor Ralston House (SGIM).

Conditioning, Sensitization, and Priming: is there a Relation?; Jane Stewart, psychology, Concordia University; 3:30 p.m., 3900 Chestnut (Center for Studies in Addiction).

Paired Box Genes and the Developing Vertebrate Nervous System; Martyn Goulding, Max Planck Institute; 4 p.m., Wistar Auditorium. (Wistar Institute).

Almanac

3601 Locust Walk Philadelphia, PA 19104-6224
(215) 898-5274 or 5275 FAX 898-9137
E-Mail ALMANAC@A1.QUAKER

EDITOR Karen C. Gaines
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