Notre Dame

REPORT

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Opening Mass

The Mass to celebrate the formal opening of the 1993-94 academic year will be held Sunday, September 12, at 10 a.m. in the Basilica of the Sacred Heart. The presiding celebrant will be Rev. Edward A. Malloy, C.S.C., University president, and the homilist will be Provost Timothy O'Meara.

President's Brunch for New Faculty

The president will host a brunch for new faculty members in the North Dining Hall immediately following the Opening Mass, at approximately 11:30 a.m.

Keck Foundation Gives Grant to Chemistry Laboratories

Notre Dame has received a $500,000 grant from the W.M. Keck Foundation of Los Angeles for renovation and equipment of chemistry laboratories in Nieuwland Science Hall.

The Keck gift completes a two-year effort which has raised more than $6.5 million for the renovation of facilities in Nieuwland. The laboratories will be ready for use in time for the next academic year.

NCAA Graduation Rates Reported

Notre Dame graduates students at a rate bettered only by four Ivy League schools according to the National Collegiate Athletic Association Graduation-Rates Report. The study looked at the six-year graduation rates for all undergraduates who enrolled between 1983 and 1986 at all Division I institutions.

With an overall student graduation rate of 93 percent Notre Dame trailed only Harvard University at 96 percent, and Yale and Princeton Universities and Dartmouth College all at 95 percent. Brown and Duke Universities joined Notre Dame at 93 percent. The national average graduation rate for all students at NCAA Division I colleges and universities is 54 percent.

The University ranks first in Division I-A colleges and universities in the graduation rates of its African-American student-athletes and African-American football players. African-American student-athletes graduated at a cumulative rate of 86 percent for those students who entered school in 1986. Duke University ranked second at 84 percent while the national average is 44 percent.

Among African-American football players, Notre Dame ranks first at 90 percent, followed again by Duke at 86 percent. The national four-year average is 37 percent.

Faculty Notes

Honors

Lawrence S. Cunningham, chair and professor of theology, has won the 1993 Thomas Merton Award for his book *Thomas Merton: Spiritual Master* given by the International Thomas Merton Society "to an individual who has written and published in the period between the General Meetings a work on Merton and his concerns which has brought provocative insight and fresh direction to Merton studies."

John E. Renaud, Clark assistant professor of aerospace and mechanical engineering, has been appointed to the AIAA Multidisciplinary Design Optimization Technical Committee for a three year term.

Activities

Supriyo Bandyopadhyay, associate professor of electrical engineering, presented an invited seminar titled "Supercomputing with Spin Polarized Single Electrons" at the School of Electrical Engineering at Purdue University in West Lafayette, Ind., March 17. Bandyopadyay co-authored with **Biswajit Das**, assistant professor of electrical engineering, M. Cahay and S. Chaudhuri a paper titled "Low Temperature Conduction in Ultranarrow Wires: Quantum Transport and Weak Electromigration Causing 1/f Noise" presented at the 183rd meeting of the Electrochemical Society held in Honolulu, Hawaii, May 16. In that conference he co-authored the paper "Influence of Phonons on Electrotromigration in Ultranarrow Wires" with N. Telang.

Katharina J. Blackstead, associate librarian, coordinated and chaired the session "PR Implications of Staff Awards Programs" at the annual meeting of the American Library Association in New Orleans, La., June 28.

Krzysztof Bobrowski, associate professional specialist in the Radiation Laboratory, presented the paper "Reactivity of the Hydroxyl Radical Adduct at Sulfur in Substituted Organic Sulfides" at the third international conference on Chemical Kinetics in Gaithersburg, Md., July 12-16.

Ian C. Carmichael, associate professional specialist in the Radiation Laboratory, presented the paper "Ab initio Quadratic Interaction Calculation of Nuclear Spin-Spin Coupling Constants" ^{13}C-^{13}C Interactions in Ethylene Glycol Conformers" at the eighth American conference on Theoretical Chemistry in Rochester, N.Y., June 28-July 2.

Daniel M. Chipman, professional specialist in the Radiation Laboratory, presented the paper "Interpretation of the Resonance Raman Spectrum of Pheonoxyl Radical" at the eighth American conference on Theoretical Chemistry in Rochester, N.Y., June 28-July 2.

Leonard F. Chrobot, adjunct professor of sociology, was selected to be part of a 15-member delegation to accompany Vice President Al Gore to Warsaw, Poland, for the 50th anniversary commemoration of the Warsaw Ghetto Uprising, April 17-20. He delivered a paper titled "The Future of the Polish American Parish: A Proposal for Study" at the fourth annual national convention of the Polish American Priests Association in Southfield, Mich., April 28. He collaborated with the University of Notre Dame Institute for Pastoral and Social Ministry in the production of a video designed for parish councils titled "The Dynamic Parish, Cultural Diversity: Enriching Human Community."

Daniel J. Costello Jr., chair and professor of electrical engineering, presented a seminar titled "Sequential Decoding of Trellis Codes" at Yokohama National University in Japan, June 2. He presented a talk titled "Some Results on Real Trellis Codes" at the IEEE Information Theory Workshop in Susono-shi, Japan, June 4.

Michael J. Crowe, professor in the Program of Liberal Studies and graduate program in History and Philosophy of Science, served as local arrangements chair for the first bi-annual History of Astronomy Workshop sponsored by the History of Astronomy Special Interest Group of the History of Science Society and Notre Dame's History and Philosophy of Science Program held at the University of Notre Dame, Notre Dame, Ind., June 24-27. He presented a paper titled "A New Text on the History of Stellar Astronomy" at that conference, June 25.

Fabio B. Dasilva, professor of sociology, organized and chaired a session on "Power, Conflict and Justice" for the 100th anniversary of the International Institute of Sociology held at the Sorbonne, Paris, June 24.

Alan Dowty, professor of government and international studies, presented a paper on "Iraq and the Limits of International Enforcement" at the conference on the Impact of Global Political Change on the Middle East at the University of Haifa in Haifa, Israel, May 3. He presented a lecture on "The Structure of Israeli Public Opinion on the Occupied Territories" to the Department of Political Science at the University of Haifa in Haifa, Israel, June 10.

William G. Dwyer, professor of mathematics, was a plenary speaker who gave a lecture titled "Homotopy Theories" at the Cech Centennial Homotopy Theory Conference held at Northwestern University in Boston, Mass., June 22-26.

Mohamed Gad-el-Hak, professor of aerospace and mechanical engineering, was a member of the organizing committee for the third AIAA Shear Flow Control Meeting in Orlando, Fla., July 6-9. He chaired the session where the keynote lecture of the meeting was presented and delivered the talk titled "Innovative Control of Turbulent Flows."

Faculty Notes

Robert A. Howland, associate professor of aerospace and mechanical engineering, gave an invited address titled "From Geometry to Analysis and Back Again" to the Celestial Mechanics session of the workshop on the History of Astronomy held at the University of Notre Dame, Notre Dame, Ind., June 24-27.

Nicos Makris, assistant professor of civil engineering and geological sciences, presented the paper "Complex Parameter Viscoelastic Models and the Imaginary Counterpart of Records" at the 1993 SIAM annual meeting in Philadelphia, Pa., July 12.

Larry Patterson, faculty fellow and assistant director in the Radiation Laboratory, presented the paper "The Behavior of NBD and Coumarin Dye Indicators in Lipid Monolayers. A Study of Interfacial Effects on Polarity and pH at the Gas-Water Interface" at the sixth international conference on Organized Molecular Films in Trois-Riveires, Quebec, Canada, July 4-9.

Robert P. Schmuhl, associate professor of American studies, presented an invited talk "Governing or a Permanent Campaign? Leadership in the Media Age" at the National Association of Campus Activities Student Government Workshop at the University of Notre Dame, Notre Dame, Ind., July 12.

James H. Seckinger, director of the National Institute for Trial Advocacy and professor of law, served as program coordinator and a faculty member for the NITA/Clifford Chance Law Firm Trial Advocacy Program in London, England, June 6-12, 1993. He gave a lecture to the faculty on Effective Teaching Techniques. He was the program coordinator and a faculty member for the NITA/Osgoode Hall and University of Toronto Law Schools Teacher Training Program in Toronto, Canada, June 19. He served as program coordinator and a faculty member for the NITA Teacher Training Program at the University of Notre Dame Law School, Notre Dame, Ind., June 24-26. He gave a series of lectures to the faculty and participants on Effective Teaching Techniques.

Steven B. Skaar, associate professor of aerospace and mechanical engineering, presented an invited seminar titled "Camera-Space Manipulation for Robust and Precise Vision-Based Manipulation" in the lecture series on automation and control to the Department of Systems, Control, and Information Engineering at the Polytechnic University of Catalonia in Barcelona, Spain, June 22.

J. Eric Smithburn, professor of law, made an invited presentation titled "The Challenge of Child Abuse" attended by British judges, magistrates, barristers, solicitors child protection officers, social workers and medical doctors at the British Juvenile and Family Courts Society Conference in London, England, June 30.

Billie F. Spencer Jr., associate professor of civil engineering and geological sciences, co-authored a paper titled "Acceleration Feedback Control Strategies for Aseismic Protection" presented at the 1993 American Control Conference in San Francisco, Calif., June 2-4. He presented an overview of structural control research at the University of Notre Dame under NSF Grant No. 90-06781 with **Michael K. Sain,** Freimann professor of electrical engineering, at the NSF Structural Control Research Coordination Meeting in Ann Arbor, Mich., June 4-5. He presented a paper titled "Analysis of Structural Control Robustness: Reliability Methods" at the international union of Theoretical and Applied Mechanics Symposium on Probabilistic Structural Mechanics: Advanced in Structural Reliability Methods in San Antonio, Tex., June 7-10.

Laurence Taylor, chair and professor of mathematics, gave the talk "On the Second Steifel-Whitney class of a Four Manifold" at the Berkeley Topology Seminar at the University of California in Berkeley, Calif., July 14.

Marian E. Taylor, assistant professional specialist in the arts and letters core course, delivered a paper titled "G.K. Chesterton and the 'Sublime and Special Romance' of *Pride and Prejudice*" at the conference on the Moral Imagination held at Seattle Pacific University in Seattle, Wash., June 23-26.

Flint O. Thomas, associate professor of aerospace and mechanical engineering, presented a paper titled "The Mechanism of Unsteady Shock Oscillation in Shock Wave/Turbulent Boundary Layer Interactions" at the symposium on Transitional and Turbulent Compressible Flows in Washington, D.C., June 22-23.

John J. Uhran Jr., associate chair and professor of computer science and engineering and professor of electrical engineering, and **Eugene W. Henry,** professor of computer science and engineering and professor of electrical engineering, presented a paper titled "Real Labs vs. Simulation" at the American Society for Engineering Education Annual Conference in Urbana-Champaign, Ill., June 20-24.

Yi-Ming-Wang, research associate in the Radiation Laboratory, presented the paper "Behavior of C_{60} and C_{70} in Pure and Mixed Lipid Systems Set at the Gas-Water Interface. A Spectroscopic Study" co-authored by **Prashant V. Kamat,** professional specialist in the Radiation Laboratory, and **Larry Patterson,** faculty fellow and assistant director in the Radiation Laboratory, at the sixth international conference on Organized Molecular Films in Trois-Rivieres, Quebec, Canada, July 4-9.

Addendum to the Faculty Roster

Fall 1992 Faculty

The following faculty member came to the University during the 1992 fall semester and was not included in *Notre Dame Report* #4.

GEORGE M. MARSDEN, *Francis A. McAnaney Professor of History.* B.A., Haverford College, 1959; B.D., Westminster Theological Seminary, 1963; M.A., Yale Univ., 1965; Ph.D., ibid., 1965. (1992)

Spring 1993 Faculty

The following faculty members came to the University during the 1993 spring semester and were not included in *Notre Dame Report* #4.

PAULA N. AUBURN, *Adjunct Instructor in Management.* B.A., Macalester College, 1971; M.A.I.R., Univ. of Minnesota, 1974. (1993)

SR. KATHLEEN BEATTY, S.S.F., *Adjunct Instructor in the Freshman Writing Program.* B.S., Chestnut Hill College, 1978; M.A., Univ. of Notre Dame, 1983. (1993)

RICHARD S. BULLENE, C.S.C., *Adjunct Assistant Professor of Architecture.* B.Arch., Univ. of Notre Dame, 1976; M.Div., ibid., 1981. (1993)

JOSEPH J. CHAMBERS, *Visiting Assistant Professor of Architecture.* B.E.D., Miami Univ. of Ohio, 1983; M.Arch., Yale Univ., 1986. (1993)

F. RICHARD CICCONE, *Visiting W. Harold and Martha Welch Professor of American Studies.* B.A., Univ. of Notre Dame, 1961. (1993)

LOUISE E. CRASCALL, *Visiting Assistant Professor of Chemistry and Biochemistry.* B.S., Univ. of Bristol, 1987; M.S., Univ. of Salford, 1989; Ph.D., ibid., 1991. (1993)

ROBERT A. DREVS, *Adjunct Associate Professor of Marketing.* B.B.A., Univ. of Notre Dame, 1966; M.B.A., Northwestern Univ., 1967. (1993)

MICHAEL T. DUCEY, *Adjunct Assistant Professor of History.* B.A., Univ. of Colorado, 1983; M.A., Univ. of Chicago, 1985. (1993)

MOHAMMAD H. FADEL, *Adjunct Instructor in Classical and Oriental Languages and Literatures.* B.A., Univ. of Virginia, 1988; A.B.D., Univ. of Chicago., 1992. (1993)

JEFFREY L. FEDER, *Assistant Professor of Biological Sciences.* B.A., Pomona College, 1980; Ph.D., Michigan State Univ., 1989; Postdoc, Princeton Univ., 1991. (1993)

MARIANNE GILES, *Adjunct Associate Professor in the London Law Program.* LL.B., London School of Economics, 1976; B.C.L., Hartford College, Oxford Univ., 1977. (1993)

GARRY B. GRICE, *Adjunct Instructor in Music.* B.A., Univ. of Dayton, 1964. (1993)

GUY M. HALEY, *Assistant Professional Specialist in Civil Engineering and Geological Sciences.* B.S., Oswego, 1975; M.S., Purdue Univ., 1978; Ph.D., ibid., 1987. (1993)

STUART N. HAMPSHIRE, *Adjunct Professor in the London Arts and Letters Program.* M.A., Balliol College, Oxford Univ., 1936. (1993)

KEITH A. HANLEY, *Adjunct Assistant Professor of English.* B.Litt., Oxford Univ.; M.A., ibid.; Ph.D., Lancaster Univ. (1993)

KAREN C. HEISLER, *Adjunct Instructor in Communication and Theatre.* B.A., Purdue Univ., 1976; M.A., ibid., 1978. (1993)

ROBERT HETT, *Visiting Assistant Professor of Chemistry and Biochemistry.* Dipl., RWTH, Aachen, 1988; Ph.D., ibid., 1991. (1993)

SIYKA K. KOVACHEVA, *Visiting Assistant Faculty Fellow in the Joan B. Kroc Institute for International Peace Studies.* M.A., Sofia Univ., 1981; Ph.D., ibid., 1989. (1993)

WARREN N. KUBITSCHEK, *Adjunct Instructor in Sociology.* B.A., Grinnell College, 1976; M.A., Univ. of Akron, 1980. (1993)

GEORGE C. LANPHERE, *Adjunct Instructor in the Computer Applications Program.* B.S., Univ. of Wyoming, 1957; M.B.A., Northeastern Univ., 1977. (1993)

RUBEN M. LoVUOLO, *Faculty Fellow in the Helen Kellogg Institute for International Studies.* Natl. Public Accountant, National Univ. of Litoral, Santa Fe, Argentina, 1981; M.A., Univ. of Pittsburgh, 1986. (1993)

DENIS J. MADDEN, *Director of the Jerusalem Program and Visiting Associate Professor of Psychology.* A.B., St. Benedict's College, 1963; M.Ed., Teachers College, Columbia Univ., 1969; Ph.D., Univ. of Notre Dame, 1973. (1993)

SCOTT C. MALPASS, *Concurrent Assistant Professor of Finance and Business Economics.* B.S., Univ. of Notre Dame, 1984; M.B.A., ibid., 1986. (1993)

ADELINE M. MASQUELIER, *Visiting Instructor in Anthropology.* B.A., Univ. of North Carolina, Chapel Hill, 1980; Southern Illinois Univ., Carbondale, 1984. (1993)

THOMAS McCARTHY, *Visiting Professor of Philosophy.* B.S., Holy Cross College, 1961; M.A., Univ. of Notre Dame, 1963; Ph.D., ibid., 1968. (1993)

BARBARA P. McCREA, *Adjunct Assistant Professor of Government and International Studies.* B.A., Ohio State Univ., 1957; M.A., Western Michigan Univ., 1969; Ph.D., Univ. of Notre Dame, 1992. (1993)

THOMAS J. MULLEN, *Visiting Instructor in Naval Science.* B.A., Univ. of Notre Dame, 1992. (1993)

LIAM J. O'CONNOR, *Visiting Assistant Professor of Architecture.* B.A., Polytechnic of Central London, 1984; Dipl. in Arch., ibid., 1988. (1993)

GEORGE P. PALACKAPILLY, *Visiting Professor of Economics.* Intermediate, Sacred Heart College, Tirupattur, 1954; B.A., Loyola College, Madras, 1960; Ph.D., M.S. Univ., Baroda, 1982. (1993)

DONNA PERREAULT, *Adjunct Assistant Professor of English.* B.A., Saint Mary's College, 1983; Ph.D., Louisiana State Univ., 1991. (1993)

MELINDA P. REESE-ANTSAKLIS, *Adjunct Instructor in German and Russian Languages and Literatures.* A.B., Smith College, 1972; A.M., Brown Univ., 1973; Ph.D., ibid., 1977. (1993)

J. JEFFERY REINKE, *Adjunct Instructor in Management.* B.S., Brown Univ., 1971; M.B.A., Univ. of Michigan, 1973. (1993)

MAOYU SHANG, *Adjunct Faculty Fellow in Chemistry and Biochemistry.* B.S., Beijing Univ., 1968; M.S., Fuzhou Univ., 1981; Ph.D., Fujian Institute of Research, Chinese Academy of Sciences, Fuzhou, China, 1985. (1993)

ANNAMARIA SIMONAZZI, *Visiting Professor of Economics.* Laurea, Univ. of Modena, 1973; Dipl., SGPiS (National School of Stat. and Planning), Warsaw, 1974. (1993)

REV. MARK B. THESING, C.S.C., *Adjunct Instructor in Management.* B.S., Univ. of Notre Dame, 1981; M.Div., ibid., 1985; M.B.A., ibid., 1992. (1993)

MARY ELLEN E. TURPEL, *Visiting Assistant Professor of Law.* B.A., Carleton Univ., 1982; B.Law, Osgoode Hall Law School, 1985; M.Intl.Law, Univ. of Cambridge, 1988. (1993)

DAVID E. WEEKS, *Concurrent Assistant Professor of Chemistry and Biochemistry.* B.A., Colgate Univ., 1983; M.S., Georgia Institute of Technology, 1985; Ph.D., Univ. of Arkansas, 1989. (1993)

SHANG HENG XIN, *Associate Professional Specialist in Physics.* B.S., Univ. of Electronic Science and Technology, Chengtu, China, 1966; Ph.D., Columbia Univ., 1991. (1993)

CHENGGANG ZHU, *Adjunct Assistant Professor of Sociology.* B.A., Xiamen Univ., 1982; M.A., Univ. of Toledo, 1989; Ph.D., Univ. of Notre Dame, 1992. (1993)

Board of Trustees Executive Summary
May 7, 1993

Rev. David T. Tyson, C.S.C., president of the University of Portland and former vice president for student affairs at Notre Dame, was elected a fellow and trustee of the University, replacing Rev. Thomas E. Blantz, C.S.C., associate professor of history, who stepped down from these positions. The retirement of Anthony F. Early, a trustee since 1980, was announced, and Roger E. Birk, who has served on the board since 1981, chose not to stand for reelection. Father Blantz and Messrs. Early and Birk were all elected life trustees.

Virtually all of the meeting was devoted to a discussion of the Final Colloquy Report, with Father Malloy taking the board through it, section-by-section, and soliciting comment. The most extensive discussion took place on the mission statement, and it was evident that the emphasis therein on the importance of the Catholic character of the faculty had the support of the board.

The board approved an Investment Policy Statement, which was described by the chairman of the Investment and Finance Committee, Robert K. Wilmouth, as containing no substantive changes but rather formalizing the use of some of the institution's newer approaches in asset allocation, such as global equities.

The board heard a report on the Alumni Association from its president, Trustee Joseph I. O'Neill III, who noted that the association for the second year in a row had received the top national award from the Council for the Advancement and Support of Education, with special praise for continuing education and community service programming.

Annual Report of the Provost to the Faculty on University Finances
June 30, 1993

To All Members of the Faculty

Dear Colleagues,

I am writing this letter in continuation of an initiative taken a year ago to give the faculty a greater role in the governance of the University. Specifically, this is the second annual letter by the provost[1] to the faculty concerning the financial condition of the University. In order to make the presentation complete and cohesive, I will repeat the format of the first letter, updating and editing the material where necessary.

I. Requests and Expenditures

Once again, let me begin with a description of the budget process itself. I will assume that the primary budget units in question are the departments and colleges, although similar descriptions would apply to other academic units such as University institutes, the library, computing, the press and so on. In starting the budget process for a coming year, chairs are responsible for articulating the needs of their departments to the dean. The dean in turn prioritizes these needs as well as those of the college as a whole and then presents them to the provost. After all the requests of the academic units have been received by the provost, and following a lengthy and tedious process which I will describe in a moment, a budget allocation for the college is finally arrived at and given to the dean who in turn makes allocations to the departments. (College councils are expected to play a consultative role in determining the priorities of the dean and should have access to financial information on a need-to-know basis.) As might be expected, budget allocations are invariably smaller than budget requests. Nevertheless it is the responsibility of the dean and hence of the chairs to live within their allocations.

Returning to the flow of requests from the academic units to the provost, the provost takes the requests to the budget committee of the University. This committee, which is chaired by the executive vice president, consists of:

Timothy O'Meara, *Kenna Professor of Mathematics and Provost;*
E. William Beauchamp, C.S.C., *Executive Vice President;*
Roger Schmitz, *Keating-Crawford Professor of Chemical Engineering and Vice President and Associate Provost;*
Patricia O'Hara, *Professor of Law and Vice President for Student Affairs;*
Thomas Mason, *Vice President for Business Affairs;*
William Sexton, *Professor of Management and Vice President for University Relations;*
Nathan Hatch, *Professor of History and Vice President for Graduate Studies and Research.*
The comptroller, Fred Baumer, also participates in the meetings.

Here are the kinds of questions and requests that have to be considered: more faculty and staff positions; percentage increments for salaries and for non-salary costs; the high rate of inflation for library acquisitions (at least 8 percent for serials for next year); more and better stipends for graduate students; changing costs for foreign programs (due to enrollment shifts and changing exchange rates); a determination of the rate of inflation for medical insurance; new annual maintenance costs of buildings just completed; renovation plans for the residence halls and for academic buildings; annual remodeling plans for academic buildings; the capitalization costs of setting up labs for new faculty, especially in science and engineering; programs and equipment in non-academic units; the cost, for example, of a new telephone system; significant unexpected costs (such as the implementation[2] of new accounting standards concerning future retirement benefits); and other costs as well.

II. Revenue

Along with the consideration of needs, there is also a projection of anticipated revenue. In fact, in constructing a budget we aim for a dollar equation, which we hope will be realized in practice, of the form

$$E = R = nT + X$$

where

E = Total Expenditures
R = Total Revenues
n = Total Enrollment
T = Individual Tuition

and X is the sum of incomes from the following sources:

Short Term Investments,
Indirect Costs from Grants,
Unrestricted Endowments,
Auxiliary Enterprises, and
Miscellaneous Other Sources.

[1] with the cooperation of Bill Beauchamp, Roger Schmitz, Tom Mason, Fred Baumer and Ed Hums

[2] This is mandated by the Financial Accounting Standards Board. Very briefly, these changes require the University to record costs for future benefits in retirement of currently active employees in the year when they are earned rather than in a future year when they are paid.

Auxiliary Enterprises, which include room and board, athletics, and the bookstore, are budgeted independently from the process which I am describing but they do produce a net income which is factored into the quantity X above. All this being said, E will increase for next year by 6 percent; n by zero; T by 7.9 percent; and X not only will not grow but will actually decrease. The growth equation in fact reads

$$.06E = .079nT - .04X.$$

It is important to note that next year's budget has been highly influenced by two factors: the accounting for future post-retirement benefits, and the decline in X. In fact, one-sixth of the increase in E (i.e., .01E or $1.8 million) will go toward post-retirement benefits, while X will decrease by 4 percent (or $1 million). In the absence of these two phenomena, we could have had a growth equation

$$.05E = .05nT + .05X.$$

Thus the same growth in the substance (as distinct from the dollars) of our operation could have been achieved with a 5 percent increase in tuition if there had been a 5 percent growth in the sources of non-tuition revenue X and if there had been no need to account for post-retirement benefits in E.

There is a general concern at Notre Dame as well as in the rest of the country about the cost of a college education, and we are making a concerted effort to keep the percentage gap between increased tuition (7.9 percent) and inflation (3.5 percent) as small as possible. Reflecting concerns of the trustees, percentage increases should not exceed:

	Tuition	*Room and Board*	*Total*
1991-92	9.0%	6.0%	8.3%
1992-93	8.5%	6.0%	8.0%
1993-94	7.9%	6.0%	7.5%
1994-95	7.9%	6.0%	7.5%
1995-96	7.9%	6.0%	7.5%

It is clear from these illustrations how dependent we remain on tuition.

III. Final Authorization

The recommendations of the budget committee are taken to the president and then the trustees for consideration and approval.

IV. Other Kinds of Budgets

The main concern of this annual letter is with the progress of the basic University budget system from one year to the next. The budgets comprising this system are the so-called unrestricted accounts. Let me add a few words about other budget categories.

Sponsored Programs. These do not enter directly into the basic budget process. Generally speaking, they are generated by individual faculty or groups of faculty from external funding sources and come under the jurisdiction of the vice president for graduate studies and research.

Restricted Endowment Accounts. These are special accounts, for example, for chaired professors and institutes. The endowment themselves fluctuate according to market conditions, and so do the earnings. Until a few years ago, the earnings and the spending money were one and the same, resulting in uncertain budget forecasting by the users. A smoothing function was then introduced that resulted in a stable and predictable growth rate of 3.5 percent on spending money. This growth rate has been criticized as being too low, and serious efforts have been and continue to be under way to find more lucrative approaches of allocating spending money to the users. Indeed, starting with 1993-94 the annual growth rate on earnings will go from 3.5 percent to 4 percent.

Off-Budget Items. For many years certain specific items were unbudgeted with the full expectation that they would be paid for by an end-of-year surplus in the regular budget (thanks to enrollments and interest rates that used to be higher than anticipated, unfilled positions, and so on). They were the so-called surveys (remodeling of academic buildings); capitalization to set up new faculty in experimental areas; some of the development operations of the University; and cost sharing on research grants. These items have now been built into the regular budget system.

Soft Money. There are many facets to the use of the word "soft money." It can refer to salaries and non-salary costs coming from grants, foundations or individuals outside the University. For purposes of this discussion, it might include monies in the basic budget that have been released through unfilled positions or faculty going on leave (although this is not usually called soft money). There is a risk in funding ongoing operations through soft money because of the unpredictability of the source of revenue. For example, recently some external sources of revenue which appeared to be sure things were curtailed or eliminated because of difficult economic times — as a case in point, the entire income of $250,000 for one of our centers evaporated and the center in question has been closed. I think we would be selling ourselves short if we were to abandon totally the idea of soft money. But we will have to have a better handle on how it is used, on its predictability, and on the fallback position if it should dry up.

V. Completion of the Computing Plan

The development of the computing plan on campus is a good and perhaps first illustration of how to apply long-range planning to achieve a strategic need. There were two essential components to the plan — 1) increase the annual operating budget of University computing by $4.7 million, and 2) provide $13.8 million up-front for one-time capitalization for computing over a period of four years. Step 1 has just been accomplished through a repeated increase of 1 percent of tuition over five consecutive years. This is illustrated in the following table.

Computing Upgrade - Operations
Tuition Increases Committed to Plan

	Annual Add-Ons from Tuition	*Cumulative Add-Ons to Computing*
1988-89	800,000	800,000
1989-90	900,000	1,700,000
1990-91	900,000	2,600,000
1991-92	1,000,000	3,600,000
1992-93	1,100,000	4,700,000
1993-94 and on	0	4,700,000 per annum

Step 2 was accomplished by borrowing from unrestricted gifts and Sorin contributions over four years with a partial payback from tuition over seven years, as is illustrated by the following table.

Computing Upgrade - Capital
Unrestricted Gifts and Sorin Contributions

	Start-Up for Computing		*Loan (Repay)*		*Tuition*
1988-89	$4,800,000	←	$4,800,000		$ 0
1989-90	5,200,000	←	4,300,000	←	900,000
1990-91	3,100,000	←	2,150,000	←	950,000
1991-92	700,000	←	(300,000)	←	1,000,000
1992-93	0		(1,100,000)	←	1,100,000
1993-94	0		(1,200,000)	←	1,200,000
1994-95	0		(1,350,000)	←	1,350,000
Totals	$13,800,000		$7,300,000		$6,500,000

Thus funding for the computing plan is now totally in place. For the next two years existing tuition monies will continue to repay the loan as indicated in the second column of the second table above. Then a decision will have to be made on the destination of the future tuition monies that had been dedicated to the plan.

For illustrative purposes let me say, very simply and somewhat inaccurately, that the computing plan was put into effect through a total increase in tuition of 6 percent. Thus, if the computing plan had been financed in a single year, say 1993-94, instead of over seven years, tuition for 1993-94 would have gone up 13.9 percent instead of 7.9 percent.

Note that Step 2 is but one illustration of the constructive use of transfers. There are others. Two more examples follow in Section VI.

VI. Academic Building Renovation Program

Several years ago the University embarked on a residence hall renovation program which was funded by increasing the room and board fee. The increase was staged over a three-year period and at the present time amounts to $275 per student and generates $1.8 million per year. This program has been successful, and current plans are to continue the use of the funds to upgrade and maintain residence halls each summer.

More recently the University extended the program to the renovation of academic buildings. The idea here was an extra $100 fee for room and board staged in over five years which would generate $3.25 million per year by 1992-93. The cumulative effect of this funding was delayed because of tight budgetary conditions last year. But, with an increase of $50 per student fee in the coming year, this program will generate $2.9 million for 1993-94.

VII. Salary Philosophy

Twelve years ago the University set the following goal for faculty salaries: Achieve a Number 1 AAUP salary rating for each of the professorial ranks among all Category I universities. This goal was reached at each rank in 1984-85 and has been maintained ever since. A Number 1 rating means being in the top 20 percent of the approximately 190 reporting schools in Category I, i.e., it requires being placed among the 38 best paying universities in the country. In actual fact, for 1992-93 the University was placed among the top 23 schools at each of the three ranks. The University was also well placed overall for compensation, i.e., for salaries and benefits combined. The guiding policy is to remain comfortably placed among the top 38 schools in the salary part of the AAUP survey. Recent studies have shown that if cost of living were taken into account, faculty salaries at Notre Dame would be placed near the very top. Our history in salary and compensation is reflected in the following tables.

Average AAUP Salary—All Ranks

1992-93	*Place*	*Institution*
84,100	1	California Institute of Technology
79,000	2	Stanford University
74,800	3	Harvard University
72,700	4	Massachusetts Institute of Technology
72,500	5	University of Chicago
72,000	6	University of Pennsylvania
71,100	7	Princeton University
70,100	8	Claremont Graduate School
68,200	9	Duke University
68,000	10	Northwestern University
67,900	11	University of California (Berkeley)
67,900	11	Yale University
66,200	13	New York University
66,000	14	Columbia University
64,800	15	Carnegie-Mellon University
64,400	16	Rice University
63,400	17	Lehigh University
62,600	18	Rutgers University (New Brunswick)
62,100	19	University of California (Los Angeles)
61,500	20	UNIVERSITY OF NOTRE DAME
61,500	20	University of California (San Diego)
61,200	22	University of Southern California
60,900	23	University of Rochester
60,800	24	Cornell University Endowed Colleges
60,600	25	University of Connecticut
60,200	26	University of California (Irvine)
60,200	26	Georgetown University
60,100	28	University of California (Santa Barbara)
59,800	29	Princeton Theological Seminary
59,800	29	Brown University
59,400	31	Dartmouth College
58,700	32	Boston College
58,400	33	George Washington University
58,400	33	Vanderbilt University
58,300	35	Washington University
57,800	36	Tufts University
57,500	37	Emory University
57,500	37	University of Michigan (Ann Arbor)
57,300	39	Johns Hopkins University
57,200	40	University of Hawaii at Manoa
57,200	40	State University of New York at Buffalo
57,000	42	University of Iowa
56,800	43	University of California (Davis)
56,700	44	Temple University
56,500	45	Hofstra University

Summary of Average Salary
University of Notre Dame

	Professor		*Associate Professor*		*Assistant Professor*	
	Salary	*Place*	*Salary*	*Place*	*Salary*	*Place*
1992-93	77,400	22	54,400	23	45,600	19
1991-92	75,600	20	52,800	20	44,700	17
1990-91	72,400	23	50,500	28	42,600	20
1989-90	69,100	21	47,000	33	40,800	16
1988-89	65,700	20	44,500	27	38,300	16
1987-88	60,700	25	42,400	22	35,800	16
1986-87	56,000	32	40,600	23	33,700	23
1985-86	52,000	32	38,400	11	31,300	20
1984-85	48,000	35	36,400	11	29,500	16
1983-84	44,200	38	34,000	14	27,700	12
1982-83	40,700	53	31,300	21	25,100	18
1978-79	28,000	94	21,600	62	17,100	90

Summary of Average Compensation
(Salary plus Benefits)
University of Notre Dame

	Professor		*Associate Professor*		*Assistant Professor*	
	Salary + Benefits	*Place*	*Salary + Benefits*	*Place*	*Salary + Benefits*	*Place*
1992-93	95,800	24	68,200	26	55,500	26
1991-92	92,900	21	66,600	23	54,100	23
1990-91	89,000	24	62,900	27	51,500	25
1989-90	83,700	24	57,400	42	48,200	35
1988-89	79,600	23	54,900	32	45,800	30
1987-88	73,300	26	51,700	31	42,200	40
1986-87	68,400	35	49,800	26	40,100	35
1985-86	64,300	—	47,200	—	37,400	—
1984-85	59,400	—	44,800	—	35,200	—
1983-84	——	—	——	—	——	—
1982-83	50,100	—	37,900	—	29,400	—
1978-79	33,300	—	25,300	—	19,700	—

VIII. The Current Budget Year

In last year's letter, I referred to difficulties in living within a budget that had been encountered by certain academic units during 1991-92. In order to address these problems for the future, major additions of new monies starting in 1992-93 were made as follows:

1. $800,000 to arts and letters to normalize the budget;
2. Between $110,000 and $150,000 to each of the remaining colleges, to the law school and to the graduate school;

3. $175,000 for acquisitions in all the libraries including the law library;
4. $1,100,000 for the computing plan.

With the fiscal year 1992-93 about to end, it appears that the budgetary problems have been arrested except, perhaps, for the College of Business Administration.

As for the overall picture at the University for 1992-93, two financial difficulties of note had to be faced. As previously mentioned, the X factor in the equation $E = nT + X$ did not meet budgeted expectations in the area of short-term investments. In addition, a shortfall occurred in tuition revenues, i.e., n was smaller than anticipated. On the other hand X was larger than anticipated in one area, namely in indirect costs from grants. Furthermore E was smaller than anticipated due to economies in medical costs and in utilities. The net effect of all this is that the University will end 1992-93 in the black. Our goal, even at Notre Dame, is to be less dependent on providential economies and revenues.

IX. The Coming Year

In the format which follows, the column on the right refers to the percentage increase in tuition needed to cover a particular portion of the budget (not to the percentage increase in the underlying budget), while the numbers on the left (such as the 2 percent increase in non-salary costs) refer to the increase in that particular budget.

Salaries (4 percent) and Benefit Increases	3.5%
Non-Salary (2 percent) Increases	1.0%
Academic Enhancements	0.6%
Other Academic Enhancements	0.2%
Other Special Allocations	0.3%
Post-Retirement Benefits	1.5%
Countering the X factor of Section II	0.8%
New Buildings - Maintenance	0.0%
Tuition Increase	7.9%

The table then shows the distribution of new tuition revenues for the coming fiscal year 1993-94. Translating the percentages in the column into dollars and considering subsequent adjustments that were made, $1.127 million will go to academic add-ons. The following goals guided the distribution of new resources once they were allocated to the provost's office:

1. No cutbacks in college and other major budgets;
2. No cutbacks in substance (as distinct from dollars);
3. Honor firm commitments.

As for salary increments:

4. Adhere to the AAUP salary philosophy in Section VII;
5. Average raises should exceed cost of living increases (3.5 percent).

In the end, major distributions of new monies (over and above across-the-board adjustments for raises, for the new telephone system, etc.) were made as follows:

Arts and Letters:	$0	
Business Administration:	$100,000	- soft money fix-up
Engineering:	$0	
Law School:	$78,000	- soft money fix-up
Science:	$120,000	- undergraduate enrollment surge
All Libraries:	$200,000	- market adjustment for library classified personnel; superinflation on serials
Admissions:	$50,000	- recruitment initiatives
Snite:	$25,000	- soft money fix-up
DeBartolo:	$111,000	- equipment maintenance
Foreign Programs:	$178,000	- extraordinary costs unrelated to currency or enrollment fluctuations
Miscellaneous:	$25,000	
Graduate/Research:	$240,000	- equipment matching money for faculty investigators; faculty research initiative fund
TOTAL	$1,127,000	

One might therefore characterize next year's budget as a problem-solving budget with no losses and no gains in substance (as distinct from dollars) to any of the units listed. Soft money fix-up only went to functions considered fundamental to the operation.

What about raises? The total available for raises was 4 percent. An initial allocation of 3 percent was made to the deans for general raises, the remaining 1 percent being held back for promotions and for special cases that could not have been handled without noticeably invading the general raise pool of a particular department or college. Any surplus that remained was then added to the 3 percent available to the deans. When all was said and done, the average for continuing faculty is 4.19 percent for salaries, 4.17 percent for total compensation, i.e., for salaries plus benefits. (For library faculty the salary increases average 4.67 percent.) Furthermore, 13.61 percent of faculty salary raises are 2.9 percent or below, 52.46 percent are between 3 and 3.9 percent, 17.71 percent are between 4 and 4.9 percent, and

16.23 percent are above 5 percent. Factors which enter into determining raises are these: the total amount available for a particular rank; merit as determined by the chair, reviewed by the dean and monitored by the provost; the relative size of a person's base pay as compared to others in the department; the absolute size of a person's base pay with individuals at the upper end likely to get smaller increases than those at the lower end. With these raises I am certain that we will maintain our Number 1 AAUP ratings. I am also hopeful that we will maintain our placement among the top 25 schools. If the situation at other schools is as tight as they say, then we will do so.

X. The Future

The future will obviously be determined largely by the basic budget for 1993-94. Considering the tuition distributions of Section IX, we see that the 1.5 percent figure for Post-Retirement Benefits will disappear, but the 0.0 percent figure will be replaced by approximately 0.7 percent for maintenance of the business building when it is completed. A similar figure will be needed for the performing arts center (whose construction is on hold, pending funding). On the revenue side of the equation $E = nT + X$, we must assume that the problems with the X factor will continue, that n will remain constant, and that there will be continuing arguments from several quarters to reduce the increase in tuition T below the figure of 7.9 percent.

My overall position is that we are in sound financial shape, which will certainly permit us to continue doing what we are doing and, perhaps, to move forward. (Actually, this is good when compared with the stagnation, cutbacks, even draconian cutbacks being imposed at a number of other institutions.) The principles for our growth during the decade have been established in the Colloquy for the Year 2000, and we must now translate these principles into specific financial plans and goals for the next fund-raising campaign.

The question then is not about our financial viability but rather about how best to reach our potential. The success of the University over the past 150 years has been a result of our own special blend of vision and common sense. My letter this year continues to err on the side of common sense. The fundamental question that remains is how to focus the vision of an energetic and talented faculty which is ready, willing, able and indeed restless to move forward.

Yours sincerely,

Timothy O'Meara
Provost

Academic Council Minutes
April 20, 1993

Members in Attendance: Edward A. Malloy, C.S.C., Timothy O'Meara, E. William Beauchamp, C.S.C., Roger Schmitz, Patricia O'Hara, Nathan Hatch, Harold Attridge, David Link, Eileen Kolman, Anthony Michel, Robert C. Miller, Richard Sheehan, Frank Bonello, Cornelius Delaney, Mark Pilkinton, John Roos, Thomas Werge, Mario Borelli, William Shephard, Arvind Varma, Bill McDonald, Carolyn Callahan, Maureen Gleason, Regina Coll, C.S.J., Kenneth DeBoer, Reynold Nesiba

Observers in Attendance: Douglass Hemphill, Dennis Moore and James O'Brien Jr.

1. Minutes. The minutes of the Academic Council meeting of March 17, 1993, were approved.

2. Proposed Revisions to the Faculty Handbook Regarding Institutes and Centers. Prof. Schmitz recalled for the council that Profs. Hatch, Werge and he were asked last year by the executive committee to address questions about the organization and structure of institutes and centers. A survey of the existing centers, institutes, laboratories and programs indicated that relatively few are established as major permanent entities, with continuing purpose and support and sustained interest to the University. The designation *"University Institute"* should be reserved for those with such characteristics. University institutes should be established with a written constitution and procedures for appointing directors, and with the recommendation of the Academic Council. Other entities are more transitory and require fewer formalities, he continued. They may be formed in response to opportunities for research support or fund raising, or to take advantage of the talents and special interests of a particular individual or of a few individuals. It appears unnecessary, even possibly counterproductive, to develop University-wide structures and procedures for such entities, since they often function entirely within academic departments or colleges, and they must have the flexibility to respond quickly to opportunity.

With this as introduction, Prof. Schmitz moved that the council adopt the proposed revisions to Academic Articles II and IV. (See the attachment.) The revisions to Article II recognize the various types of entities that exist and emphasize the distinguishing characteristics of University institutes. The revision to Article IV adds "Centers" to the Academic Organization of the Faculty. Prof. Schmitz indicated additional changes, not requiring council action, that will be made in the "Profile of the University of Notre Dame" section of the handbook to update the list of institutes and centers.

Prof. Roos expressed concern that departments should be given a role in the governance of those University institutes that include departmental faculty and graduate students, and that have a potential impact on departmental budgets. Provisions should be made, he said, for an advisory role in developing the direction to be followed by institutes and in the appointment of institute directors. Profs. Hatch and Schmitz said that the great differences among potential University institutes make it difficult to set forth specific provisions. Prof. O'Meara noted that the constitutions which establish governance for such institutes are required by Article II to be brought to the Academic Council for approval. Fr. Malloy observed that departmental resistance to what institutes consider their legitimate role and academic needs is also perceived by institutes to be a problem.

The motion to approve the amendments to Articles II and IV was called to a vote and passed.

3. The Academic Calendar and Possible Interspersion of Exam and Study Days. Prof. Schmitz returned to the question, carried over from a previous meeting, of whether study days should be grouped at the start of the final exam period or interspersed throughout the period. Both he and Prof. O'Hara reported that the input they received from faculty, students and rectors is nearly evenly split between the two alternatives. During the ensuing discussion, the point was made that grouping the four study days seems to have a few more advantages than the alternative: It creates a buffer that reduces student stress, it provides equal utility for all students regardless of how their exams are distributed, and it reduces the temptation to reschedule exam days onto study days. Dean Link moved that the council approve grouping all study days at the start of the exam period at this time and observe the results through upcoming semesters. For the one fall semester out of seven where only three study days are included and the exam period straddles a weekend, study days would be interspersed to make Sunday a study day. The motion was seconded and approved.

Prof. Schmitz moved that this feature of the new calendar, and all others approved at the February 16 meeting of the council, become effective with the spring semester of the 1994-95 academic year. The motion was approved.

4. Reports From Standing Committees.

a. Committee on Undergraduate Studies. Prof. Delaney said that this committee wished to present three items to the Academic Council.

(1) Given the perceived relationship between the student-faculty ratio and the quality of undergraduate education, the committee requests that the provost report annually to the Academic Council on progress toward the goal, expressed in the Colloquy report, of increasing the faculty by

150 members and on the impact of this growth on undergraduate education. Prof. Delaney agreed with Prof. O'Meara that the committee's request is essentially for an annual report by the provost concerning the distribution of faculty resources, including rationale and ramifications for undergraduate studies. Fr. Malloy noted that a department's distribution of teaching responsibilities among its faculty is an essential factor.

(2) Prof. Delaney reported that the committee has begun to consider ways in which the undergraduate educational experience can be restructured in accordance with the aims of Notre Dame as a major university. Although not yet at the point of making a recommendation, the committee believes that the current University requirements, which bear solely on breadth of academic experience, can be accompanied by an equal emphasis on depth. As a move toward improving depth, there could be a requirement of a substantial senior thesis or research project in one of the following versions. Under the stronger version, every undergraduate would be required to complete such a thesis or project as a condition for graduation. Under the weaker, completion of such an effort would be a condition for graduation with honors. Acknowledging that preparing students to meet such a requirement would involve significant demands on faculty time, Prof. Delaney asked for council reaction to this concept.

Dean Michel acknowledged that something similar is already being done in some departments in the College of Engineering. Noting that law students who have experienced such requirements are much better prepared for professional education, Dean Link expressed confidence that the same would hold true for students entering graduate education. Prof. Shephard suggested a system which differentiated between graduation with distinction based on grade point average, and graduation with honors based on completion of a project or thesis. The very best students would be expected to graduate with both honors and distinction. Prof. Hatch thought that although the strong version might be a worthy goal to pursue, it would mean revamping the curriculum and increasing significantly the number of faculty. Encouraging the committee to explore the weaker version, he argued that it provides good students with an incentive to take challenging courses, and it has the advantage of being achievable. Prof. Varma concurred, noting that the availability of laboratory space is a resource constraint which must be considered. In response to a question from Prof. Werge, Prof. Delaney said that the senior thesis could be expected to replace two courses during the senior year. Prof. Roos said that the important question when considering such a requirement is whether it adds value to the undergraduate educational experience. Arguing that it clearly does, he asked why the stronger version could not be attempted. Prof. Hatch responded that when such a requirement existed in the history department in 1975, the value of the exercise was in fact diminished because many students were not prepared to handle it. Prof. Delaney urged the council to send any thoughts on either version to the Committee on Undergraduate Studies.

(3) Prof. Bonello introduced this item by noting that the committee had reviewed several faculty, student and Colloquy reports, all of which recommend the establishment of a teaching center at Notre Dame. Descriptions of existing teaching centers at various institutions, including Harvard, Stanford, Southern California, Vanderbilt, Syracuse, Michigan, Georgia, Texas, Massachusetts, Washington, Virginia were also reviewed. Finally, committee members Dean Kolman, Profs. Delaney and Bonello were joined by Profs. Schmitz and Hatch and Sr. Elaine DesRosiers on a visit to the Bok Teaching Center at Harvard.

Prof. Bonello stated that the committee expects to propose establishment of a teaching center to the Academic Council next fall as a means of improving both the quality of undergraduate education and the preparation of graduate students who will be moving on to academic careers. He presented the following issues or questions related to structure, functions and funding which must be resolved before a formal proposal can be completed.

- The teaching center must be designed and identified as a unit that facilitates and assists the academic departments, not as a unit which assumes or absolves the academic departments of their responsibilities for the quality of undergraduate education and the preparation of graduate students.
- It is necessary to define the relationship between a teaching center and the undergraduate learning center called for by many reports. Economies of both scale and scope would be generated by combining the two into one center.
- Regarding structure and organizations: Should the teaching center be part of the Graduate School or part of the Office of the Provost? How would the advisory or governing board for the center be constituted? Such a board might facilitate center-department interaction, counsel on center staffing and program development, and serve as a review mechanism.
- The head for the teaching center should be "a great teacher-scholar from our own community."
- How should the teaching center be organized to take advantage of the experience, expertise, programs and facilities of such existing units of the University as the Department of Educational Media, the Office of University Computing and the Center for Social Concerns?
- Funding for a teaching center should not come at the expense of faculty positions. The committee agrees with the Academic Life Committee of the Colloquy for the Year 2000 that the optimal funding arrangement is an endowed teaching center.

Prof. Delaney said that the committee had devoted a great deal of attention to the question of whether the leadership responsibilities for dealing with teaching issues and concerns should be "federal" or "local"; that is, whether they should be centralized in a teaching center or made the exclusive responsibility of individual academic departments. Prof. Bonello thought that an advisory or governing board would play an important part in helping a teaching center to take the lead diplomatically in improving the teaching of undergraduate students. Prof. Hatch saw the effectiveness of Harvard's Bok Center as its ability to exercise centralized leadership in a way that energizes academic departments to take teaching seriously. The faculty members of Harvard's physics department, for example, have agreed to videotape themselves in class in order to help judge the effectiveness of their teaching. The teaching center has the additional advantage, he said, of allowing junior faculty to get help without submitting their concerns about their shortcomings to departmental colleagues who may be their evaluators for reappointments and promotions.

Dean Kolman explained that although the Bok Center has seven full-time employees and an annual budget of $600,000, its beginnings in 1976 were much more modest and may serve as a useful model for our initial purposes. Approximately 80 percent of the efforts of the Bok Center are devoted to graduate students and 20 percent to undergraduates. This is largely the result of an initial decision to develop the Bok Center almost exclusively for graduate teaching fellows, a focus we were warned to avoid.

Fr. Malloy repeated two major concerns which should be treated in the presentation of the teaching center proposal. On one hand, the teaching center format is viewed by many as a bureaucratic solution which not only adds more staff, but also departs from the University's historical emphasis on departmental responsibility for teaching. Secondly, fund raising is complicated by the fact that a teaching center is of questionable attractiveness as a fund-raising goal. Endowment-based funding would require about $14 million to support an annual budget of $700,000. Funding through the regular budget process would mean competing against such budget priorities as salaries and benefits.

Prof. Bonello responded that the concern about bureaucratization might be mitigated somewhat by ensuring, as Harvard advised, that the directors of the teaching center have academic disciplines and are active teachers. Fr. Malloy questioned whether their responsibilities as administrators would require their teaching load to be reduced significantly. Dean Michel observed that if the directors were not tenured faculty, it would be difficult for them to command respect within the departments. He suggested that limiting a director's term might help to ensure that he or she maintained currency in research and teaching.

Prof. Callahan commented that the University of Massachusetts Teaching Center did not need a large budget to catalyze some significant gains in undergraduate education. By actively intervening in the early development of new faculty, this center demonstrated the university's commitment to teaching excellence. At the same time, the experience brought new faculty together in pursuit of common objectives and inspired efforts to improve both teaching and research within departments. Prof. Bonello added that the committee has information from several other university teaching centers which also focus on new faculty development. Dean Attridge commented that the College of Arts and Letters makes a similar attempt to link new faculty across disciplines through the Lilly Teaching Fellow program.

Conversation ensued regarding the status of teaching center staff. At Harvard, the center staff belong neither to the Education Department nor to the tenured teaching and research faculty, although they do have concurrent teaching appointments in academic departments. At Virginia, the center director is a tenured faculty member. Prof. Bonello said that he has been advised repeatedly to tailor the teaching center to the needs and culture of the institution. Prof. Roos argued that bringing in a recognized expert in the field of education to direct the center would virtually assure its failure. Although it may be appropriate to draw on such professional expertise for subordinate staffing, he said, Notre Dame's culture demands the involvement of highly respected teaching and research faculty on the advisory body and at the leadership of the center. Prof. Varma agreed that the leadership should be tenured departmental faculty, but emphasized that the focus of a teaching center is not so much on course content as on teaching technique, organization and presentation of material, appropriate use of audio-visual support and so forth.

Noting that the discussion thus far had focused on centralizing the responsibility for improving teaching, Prof. Sheehan asked the committee what support they had heard for a local focus. In discussion within the Colloquy Committee for the Whole, faculty had expressed virtually unanimous support for a local emphasis. Prof. Delaney replied that although he went on the Harvard visit as a skeptic about centralizing, he had been impressed by the results a university teaching center could achieve. Such a center has the resources and the time to investigate problems and to communicate with other departments and schools, and a perspective that allows it to see other approaches and solutions that have been attempted to similar problems. At the same time, it avoids duplication of effort. Prof. Bonello added that this by no means absolves departments of a role and a responsibility in the preparation and development of their own staff, since they are most familiar with education in their own discipline.

Prof. O'Meara asked what the departmental faculty at Harvard seemed to think about the value of the Bok Center. Dean Kolman responded that although some individuals and academic units are completely uninvolved, it appears that the great majority of faculty and departments are open to the center in varying degrees.

Fr. Malloy urged the committee to seek extensive feedback from the academic departments as the proposal is developed in order to consider the arguments of faculty who are not convinced that a teaching center is necessary and to determine the scale to which such a center should be supported initially. He thought it interesting that the discussion had demonstrated so much skepticism about the possibility that those in the field of education might bring value to a center and to issues surrounding undergraduate education.

b. Committee on Graduate Studies. Prof. Roos noted that discussions in this committee have centered on the relationship between graduate students and the quality of undergraduate education. He recommended that the Committee on Undergraduate Studies make assistance to the departments in the training of graduate students a priority for any proposed teaching center. He added that future discussions within the Committee on Graduate Studies would include the question of increased funding to support stipends, health care and so forth.

Referring to the Goerner Committee Report on Teaching by Graduate Students, he said that the widespread impression that increased use of graduate student instructors has adversely affected undergraduate education makes emphasis on the adequate training, evaluation and monitoring of these graduate students imperative. Of importance also is Notre Dame's obligation to ensure that our graduate students are introduced into a tradition of first class teaching. Accordingly, the Committee on Graduate Studies plans to bring a recommendation to a future meeting of the Academic Council to regularize the process for appointment of graduate students as teachers. The following is a synopsis of the chief elements of the intended recommendation. Prof. Roos noted that the recommendation would apply only to cases where graduate students are given full control of a course. It would not apply, initially at least, to freshman writing courses. He explained that "full control" here means that the graduate student designs the syllabus, teaches the course, and is solely responsible for grading.

- Graduate students who have full control of a course should have completed their orals and had their dissertation proposals approved. Exceptions would require dean's approval.
- Appointments should be made either by the departmental appointments and promotions committee or by some other committee constituted by the department or program.
- The committee making the appointment should take responsibility for appointing persons who have been given sufficient training in teaching to provide for high quality instruction.
- That same committee should ensure regular review of the quality of teaching and make reappointment conditional upon adequate teaching quality.
- The Office of Institutional Research should provide, as part of normal TCE reports, a comparison of ratings for those courses under graduate student control with other courses in the department, college and University.

Dean Kolman thought that the recommendation should be applicable to the College of Science as well as the College of Arts and Letters. Specifically in the mathematics department, she said, graduate students have full control of certain courses. Prof. Borelli questioned using course design as part of the definition of full control. If a graduate student is given a designed syllabus and then allowed to operate freely, the potential for problems is just as great. Prof. Roos commented that the committee's objective was to define a situation in which a graduate student would be on his or her own. Prof. Varma asked whether it is ever appropriate to give a graduate student full control of a class without some accountability to a member of the regular teaching and research faculty. Acknowledging that full control was normally inappropriate, Prof. Roos argued that exceptions do exist in which fourth- or fifth-year graduate students are qualified. Prof. Delaney added that after practicing four semesters with an introductory philosophy course, a graduate student may be permitted to teach a section of that course independently. He argued that in the vast majority of cases, this practice adds value to the undergraduate experience and the preparation of future faculty.

Prof. Borelli thought it important that a formal structure be developed which would establish a line of accountability for the graduate student. Prof. Callahan wondered why an additional mechanism had to be created when adequate procedures should be in effect within departments already. Dean Kolman, referring to the federal versus local model, felt that there is a need for federal oversight to ensure the existence of mechanisms and procedures. She also spoke in favor of qualified graduate students eventually getting to teach their own course.

c. Committee on Faculty Affairs. Mr. DeBoer discussed a recommendation which will be proposed to the Academic Council for presentation to the Fellows of the University. Noting that several campus organizations have called for more library representation, the committee will propose that the Board of Trustees consider rewriting the Bylaws to include not only the library but all academic units on the Committee for Academic and Faculty Affairs.

In terms of future and continuing focus for this committee, he said the issue of faculty responsibilities and potential penalties under the Academic Code of Honor will be a subject of discussion, perhaps with departments and the colleges. Secondly, the Colloquy Committee on Mission, Opportunities and Challenges contained a subcommittee reference to the need for interaction, cooperation and collaboration among the various councils within the University: the College Councils, the Graduate Council, the Academic Council and the Faculty Senate. The Faculty Affairs Committee will pursue this issue with the objective of developing some means for interaction.

5. Father Malloy expressed appreciation to the committees for providing a sense of the substantial agenda the Academic Council will work with next year. The Colloquy recommendations, he said, will add significantly to that agenda and will make the Academic Council the center of a great deal of important activity. He thanked the members of the council for their efforts this year — a year during which a transition to a new method of operation began. He surmised that the workload next year would certainly require a regular schedule of committee meetings, and might well mean more meetings of the full group.

The meeting adjourned at 5:15 p.m.

Respectfully submitted,

Roger A. Schmitz
Secretary of the Academic Council

Attachment

Ammendments to Academic Articles II and IV

In the text below, additions are enclosed by [brackets] and deletions are indicated by ~~strike throughs~~.

Article II, Academic Officers
Section 8/Directors of ~~University~~ Institutes [and Centers]

[Institutes and Centers (and similar entities by other names such as Laboratories or Programs) are academic organizations devoted to research, scholarship, teaching, training, or service. Directors of such organizations, except those designated as *University Institutes,* described below in this section, are appointed by either the President or the Provost, or their designee, who determines the reporting responsibilities of the Director.]

The Director of a University Institute is appointed by the President. A University Institute is a major academic organization, ~~of the University not contained within a College~~, [with an ongoing and abiding purpose] and devoted to advanced study, ~~and~~ teaching, and ~~to~~ research [in areas of sustained and decided interest to the University.] Such an Institute is governed by special statutes approved by the President upon recommendation of the Academic Council.

Within the framework of University policies and procedures, the Director of a University Institute has responsibility, under the Provost and in cooperation with other appropriate academic officers, for the administration, well-being and development of the Institute, its faculty, staff, programs, and diverse activities.

Article IV, Organization of the Faculty
Section 1/Academic Organization

The faculty is organized into Colleges, Schools, Departments, Institutes [and Centers], and the Library.

Current Publications and Other Scholarly Works

Current publications should be mailed to the Office of Research of the Graduate School, Room 312, Main Building.

COLLEGE OF ARTS AND LETTERS

Economics

Dutt, Amitava K.
A.K. Dutt. 1992. Review of The Economic Theory of Structure and Change, M. Baranzini and R. Scazzieri, eds. *Contributions to Political Economy* 11:85-88.

English

Gernes, Sonia G.
S.G. Gernes. 1993. Fields Before Threshing. *The Flying Island* 1(1):1-3.
S.G. Gernes. 1993. The Grease Pit. *Palo Alto Review* 2(1):44-48.

Government and International Studies

Mainwaring, Scott P.
S.P. Mainwaring. 1993. Democratic Governance and Political Institutions in Brazil. Pages 13-20 *in,* Brazil in a New World. The Inter-American Dialogue, Washington, D.C.
S.P. Mainwaring. 1993. Presidentialism, Multipartism and Democracy: The Difficult Combination. *Comparative Political Studies* 26(2):198-228.

Philosophy

McInerny, Ralph M.
R.M. McInerny. 1993. Ethics. Pages 196-216 *in,* N. Kretzmann and E. Stump, eds., The Cambridge Companion to Aquinas. Cambridge University Press, Cambridge, England.
R.M. McInerny. 1993. The Peek of Peter. *Catholic World Report* 3(7):58-59.

Program of Liberal Studies

Nicgorski, Walter J.
W.J. Nicgorski. 1993. Nationalism and Transnationalism in Cicero. *History of European Ideas* 16:785-791.

Sociology

Christiano, Kevin J.
K.J. Christiano. 1993. Review of Holding Fast/Pressing On: Religion in America in the 1980s, by E. Jorstad. Pages 331-332 *in,* E.J. Epp, ed., Critical Review of Books in Religion, 1992. Atlanta, Georgia: Scholars Press, Atlanta, Georgia.
Dasilva, Fabio B.
F.B. Dasilva and M. Kanjirathinkal. 1993. Politics at the End of History. New York: Peter Lang. xi + 291 pp.

COLLEGE OF SCIENCE

Biological Sciences

Craig, George B., Jr.
S.M. Hanson, J.-P. Mutebi, G.B. Craig, Jr. and R.J. Novak. 1993. Reducing the Overwintering Ability of *Aedes Albopictus* by Male Release. *Journal of The American Mosquito Control Association* 9(1):78-83.
Fraser, Malcolm J., Jr.
S.-W. Ma, B.G. Corsaro, P.E. Klebba and M.J. Fraser, Jr. 1993. Cloning and Sequence Analysis of a p40 Structural Protein Gene of *Helicoverpa zea* Nuclear Polyhedrosis Virus. *Virology* 192:224-233.
H.H. Wang and M.J. Fraser, Jr. 1993. TTAA Serves as the Target Site for TFP3 Lepidopteran Transposon Insertions in Both Nuclear Polyhedrosis Virus and *Trichoplusia ni* Genomes. *Insect Molecular Biology* 1(3):109-116.
Kulpa, Charles F., Jr.
R. Boopathy and C.F. Kulpa, Jr. 1993. Nitroaromatic Compounds Serve as Nitrogen Source for *Desulfovibrio sp.* (B strain). *Canadian Journal of Microbiology* 39(4):430-433.

Chemistry and Biochemistry

Castellino, Francis J.
T.L. Colpitts and F.J. Castellino. 1993. Binding of Calcium to Synthetic Peptides Containing γ-Carboxyglutamic Acid. *International Journal of Peptide & Protein Research* 41:567-575.
A. Boutaud and F.J. Castellino. 1993. The Construction and Expression of Chimeric Urokinase-Type Plasminogen Activator Genes Containing Kringle Domains of Human Plasminogen. *Archives of Biochemistry and Biophysics* 303:222-230.
Fehlner, Thomas P.
W. Cen, B. Ladna, T.P. Fehlner, A.E. Miller and D. Yue. 1993. Formation of High Surface Area, Regular Porous Solid From the Cluster of Clusters, $ZN_4^{II}O[(CO)_9Co_3CCO_2]_6$. *Journal of Organometallic Chemistry* 449:19-25.

Miller, Marvin J.
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Smith, Bradley D.
M.-F. Paugam and B.D. Smith. 1993. Active Transport of Uridine Through a Liquid Organic Membrane Mediated by Phenylboronic Acid and Driven by a Fluoride Ion Gradient. *Tetrahedron Letters* 34(23):3723-3726.

Thomas, J. Kerry
Y. Mao, S. Pankasem and J.K. Thomas. 1993. Photoinduced Oxidative Reactions of Dioxin and Its Chlorinated Derivative on Laponite Surfaces. *Langmuir* 9:1504-1512.

Mathematics

Migliore, Juan C.
C. Bolondi and J.C. Migliore. 1993. The Lazarsfeld-Rao Property on an Arithmetically Gorenstein Variety. *Manuscripta Mathematica* 78:347-368.

Physics

Furdyna, Jacek K.
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Garg, Umesh
U. Garg, W. Reviol and P. Semmes. 1993. Electromagnetic Properties of ^{181}Ir: Evidence of β Stretching? *Physical Review C* 47(5):2407-2409.
A.J.M. Plompen, M.N. Harakeh, W.H.A. Hesselink, G.van't Hof, N. Kalantar-Nayestanaki, J.P.S. van Schagen, R.V.F. Janssens, I. Ahmad, I.G. Bearden, M.P. Carpenter, T.L. Khoo, T. Lauritsen, Y. Liang, U. Garg, W. Reviol and D. Ye. 1993. Lack of Evidence for a Superdeformed Band in ^{192}Pb. *Physical Review C* 47(5):2378-2381.

Tomasch, Walter J.
E.K. Moser, W.J. Tomasch, J.K. Furdyna, M.W. Coffey and J.R. Clem. 1993. Transmission and Reflection of Superconducting YBCO Films at 35 GHz. *IEEE Transaction on Applied Superconductivity* 3:1119-1123.

COLLEGE OF ENGINEERING

Aerospace and Mechanical Engineering

Sen, Mihir
M. Sen and H.-C. Chang. 1993. Chaotic Advection with Heat Transfer. Pages 254-261 *in,* A. Mir, E. Bilgen, Z. Zrikem and P. Vasseur, eds., First International Thermal Energy Congress Proceedings. Faculté des Sciences Semlalia, Marrakesh, Morocco.

Thomas, Flint O.
F.O. Thomas, C.M. Putnam and H.-C. Chu. 1993. Experimental Investigation into the Mechanism of Unsteady Shock Oscillation in Shock Wave/Turbulent Boundary Layer Interactions. Pages 209-220 *in,* L.D. Kral and T.A. Zang, eds., Transitional and Turbulent Compressible Flows. ASME, New York, New York.

Chemical Engineering

Brennecke, Joan F.
C.B. Roberts, J. Zhang, J.F. Brennecke and J.E. Chateauneuf. 1993. Laser Flash Photolysis Investigations of Diffusion-Controlled Reactions in Supercritical Fluids. *Journal of Physical Chemistry* 97(21):5618-5623.
T.K. McBride and J.F. Brennecke. 1993. Physicochemical Model of Solid–Liquid Solubilities using NMR Measured Equilibrium Constants. *Fluid Phase Equilibria* 85:191-215.
C.B. Roberts, J.F. Brennecke and J.E. Chateauneuf. 1993. Spectral Shifts in the Triplet-Triplet Absorption Spectrum of Anthracene in Supercritical Fluids. *Journal of Chemical Society, Chemical Communications* 10:868-869.

Chang, Hsueh-Chia
H.-C. Chang, E.A. Demekhin and D.I. Kopelvich. 1993. Construction of Stationary Waves on a Falling Film. *Computational Fluid Dynamics* 11:313-322.
H.-C. Chang, E.A. Demekhin and D.I. Kopelevich. 1993. Nonlinear Evolution of Waves on a Vertically Falling Film. *Journal of Fluid Mechanics* 250:433-480.
See under Aerospace and Mechanical Engineering; Sen, Mihir. 1993. Pages 254-261 *in,* First International Thermal Energy Congress Proceedings.
See under Wolf, Eduardo E. 1993. *Journal of Physical Chemistry* 97:1055.

Wolf, Eduardo E.
C.-C. Chen, E.E. Wolf and H.-C. Chang. 1993. Low-Dimensional Spatio-Temporal Dynamics on Non-Uniform Catalytic Surfaces. *Journal of Physical Chemistry* 97:1055.

Civil Engineering and Geological Sciences

Makris, Nicos
N. Makris and M.C. Constantinou. 1993. Models of Viscoelasticity with Complex-Order Derivatives. *Journal of Engineering Mechanics, ASCE* 119(7):1453-1464.

Pyrak-Nolte, Laura J.
L.R. Myer, A.-M. Cook-Polek, L.J. Pyrak-Nolte and C. Marone. 1993. Mercury Porosimetry Studies on a Natural Fracture. Pages 2017-2022 *in,* High-Level Radioactive Waste Management, Proceedings of the 4th Annual International Conference, Las Vegas, Nevada, April 26-30, 1993, Volume 2. American Nuclear Society, New York, New York.

W.-Y. Chen, C.W. Lovell, L.J. Pyrak-Nolte and G.M. Haley. 1993. New Precursor of Stick-Slip Movement of Rock Block. Pages 200-214 *in,* Proceedings of the 44th Annual Highway Geology Symposium, May 19-21, 1993, Tampa, Florida. Department of Civil Engineering; University of South Florida and Florida Department of Transportation.

Spencer, Billie F., Jr.

B.F. Spencer, Jr., S. Dyke, M.K. Sain and P. Quast. 1993. Acceleration Feedback Control Strategies for Aseismic Protection. Pages 1317-1321 *in,* Proceedings of the American Control Conference. Institute of Electrical and Electronics Engineers, Piscataway, New Jersey.

Computer Science and Engineering

Bass, Steven C.

X. Hu and S.C. Bass. 1993. A Neglected Error Source in the CORDIC Algorithm. Pages 766-769 *in,* Proceedings of the 1993 International Symposium on Circuits and Systems, May 3-6, 1993, Chicago, Illinois.

X. Hu, R.G. Harber and S.C. Bass. 1993. An Efficient Implementation of Singular Value Decomposition Rotation Transformations with CORDIC Processors. *Journal of Parallel and Distributed Computing* 17(4):360-362.

Henry, Eugene W.

See under Uhran, John J., Jr. 1993. Pages 1438-1443 *in,* 1993 Annual Conference Proceedings, Shaping Our World, Century II.

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J.J. Uhran, Jr. and E.W. Henry. 1993. Real Labs vs. Simulation. Pages 1438-1443 *in,* 1993 Annual Conference Proceedings, Shaping Our World, Century II. American Society for Engineering Education, Urbana-Champaign, Illinois.

Electrical Engineering

Michel, Anthony N.

M.S. Radenkovic and A.N. Michel. 1993. Bursting Phenomena in Extended-Least Squares Based Self-Tuning Control. Pages 296-300 *in,* Proceedings of the 1993 American Control Conference, Volume 1 of 3. San Francisco, California.

K. Wang and A.N. Michel. 1993. Robustness and Perturbation Analysis of a Class of Nonlinear Systems with Applications to Neural Networks. Pages 2907-2911 *in,* Proceedings of the 1993 American Control Conference, Volume 3 of 3. San Francisco, California.

K. Wang and A.N. Michel. 1993. Sufficient Conditions for Hurwitz and Schur Stability of Interval Matrices. Pages 3094-3098 *in,* Proceedings of the 1993 American Control Conference, Volume 3 of 3. San Francisco, California.

Miller, Albert E.

See under Chemistry and Biochemistry; Fehlner, Thomas P. *Journal of Organometallic Chemistry* 449:19-25.

Sain, Michael K.

See under Civil Engineering and Geological Sciences; Spencer, Billie F., Jr. 1993. Pages 1317-1321 *in,* Proceedings of the American Control Conference.

COLLEGE OF BUSINESS ADMINISTRATION

Accountancy

Mittelstaedt, H. Fred

H.F. Mittelstaedt and M.J. Warshawsky. 1993. The Impact of Liabilities for Retiree Health Benefits on Share Prices. *Journal of Risk and Insurance* 60(1):13-35.

LAW SCHOOL

Diamond, Aubrey L.

A.L. Diamond. 1992. Jurisdiction Clauses. Pages 141-150 *in,* Tebbens, Kennedy and Kohler, eds., Civil Jurisdiction and Judgments in Europe. Court of Justice of the European Communities, Luxembourg and Butterworths, London, England.

RADIATION LABORATORY

Bobrowski, Krzysztof

K. Bobrowski and C. Schoneich. 1993. Hydroxyl Radical Adduct at Sulfur in Substituted Organic Sulfides Stabilized by Internal Hydrogen Bond. *Chemical Communications* (9):795-797.

Chateauneuf, John E.

See under Chemical Engineering; Brennecke, Joan F. 1993. *Journal of the Chemical Society, Chemical Communications* 10:868-869.

See under Chemical Engineering; Brennecke, Joan F. *Journal of Physical Chemistry* 97(21):5618-5623.

Ferraudi, Guillermo J.

G.J. Ferraudi and M. Perkovic. 1993. Mechanism of CO_3H Generation in the Charge-Transfer Photochemistry of $Co(NH_3)_4CO_3^+$. A Picosecond to Microsecond Flash Photochemical Investigation of the Reaction Intermediates. *Inorganic Chemistry* 32(11):2587-2590.

Mozumder, Asokendu

A. Mozumder. 1993. Quasi-Ballistic Model of Electron Mobility in Liquid Hydrocarbons. *Chemical Physics Letters* 207(2,3):245-249.

Pimblott, Simon M.

N.J.B. Green and S.M. Pimblott. 1993. Stochastic Analysis of the Asymptotic Kinetics of Multi-Particle Spurs. *Journal of the Chemical Society, Faraday Transactions* 89(9):1299-1304.

Schuler, Robert H.
See under Tripathi, G.N.R. 1993. *Journal of Physical Chemistry* 97(21):5611-5617.

Tripathi, G.N.R.
D.A. Armstrong, Q. Sun, G.N.R. Tripathi, R.H. Schuler and D. McKinnon. 1993. Spectra, Ionization Constants and Rates of Oxidation of 1,4-Dimercaptobenzene and Properties of the *p*-Mercaptophenylthiyl and *p*-Benzodithiyl Anion Radicals. *Journal of Physical Chemistry* 97(21):5611-5617.

SCHOOL OF ARCHITECTURE

Doordan, Dennis P.
D.P. Doordan. 1993. Exhibiting Progress: Italy's Contribution to the Century of Progress Exposition. Pages 219-232 *in*, J. Zukowsky, ed., Chicago Architecture and Design 1923-1993. Prestel-Verlas/Art Institute of Chicago, Chicago, Illinois.
D.P. Doordan. 1993. Tales of the Vienna Streets. *New York Times Book Review* (June 13, 1993):20.

Summary of Awards Received and Proposals Submitted

In the period May 1, 1993, through May 31, 1993

AWARDS RECEIVED

Category	Renewal		New		Total	
	No.	Amount	No.	Amount	No.	Amount
Research	16	1,257,739	4	276,428	20	1,534,167
Facilities and Equipment	1	20,000	2	77,787	3	97,787
Instructional Programs	1	81,832	3	148,750	4	230,582
Service Programs	1	30,000	5	6,378	6	36,378
Other Programs	1	40,000	4	106,106	5	146,106
Total	20	1,429,571	18	615,449	38	2,045,020

PROPOSALS SUBMITTED

Category	Renewal		New		Total	
	No.	Amount	No.	Amount	No.	Amount
Research	6	623,179	22	5,104,532	28	5,727,711
Facilities and Equipment	0	0	0	0	0	0
Instructional Programs	0	0	0	0	0	0
Service Programs	1	40,200	0	0	1	40,200
Other Programs	0	0	7	1,056,332	7	1,056,332
Total	7	663,379	29	6,160,864	36	6,824,243

Awards Received

In the period May 1, 1993, through May 31, 1993

AWARDS FOR RESEARCH

Biological Sciences

Fraser, M.
Transposon Mediated Mutagenesis Nuclear Polyhedrosis Viruses
National Institutes of Health
$63,720 12 months

Chemical Engineering

Wolf, E.
AFM and STM Studies of Catalysts
National Science Foundation
$72,056 12 months

Chang, H.
Wave Dynamics on Failing Films
Department of Energy
$60,246 12 months

Chemistry and Biochemistry

Thomas, J.
Polymerizatlon of Vinyl Monomers
3M Corporate Research Lab.
$39,896 12 months

Fehlner, T., Wolf, E.
Alloy Thin Films
National Science Foundation
$136,000 36 months

Bumpus, J.
Enzymology of Fungal and Mammalian Peroxidase
Utah State University
$79,182 12 months

Creary, X.
Carbanion, Carbocation, Carbenic, and Electron Transfer
National Science Foundation
$88,000 24 months

Castellino, F., Francis, R.
Glycan Assembly on Human Plasminogen
American Heart Association - Ind.
$11,000 12 months

Scheidt, W.
X-Ray and Chemical Studies of Metalloporphyrins
National Institutes of Health
$243,572 12 months

Castellino, F., Colpitts, T.
Gla Domain
American Heart Association - Ind.
$12,000 12 months

Electrical Engineering

Michel, A.
Qualitative Analysis of Complex Dynamical Systems
National Science Foundation
$39,200 36 months

Mathematics

Taylor, L., Dwyer, W.
Algebraic and Geometric Topology
National Science Foundation
$112,800 24 months

Physics

Ruggiero, S.
Single-Electron Tunneling
Department of Energy
$49,000 12 months

Kolata, J.
Nuclear Research with Heavy Ions
National Science Foundation
$8,495 36 months

Dobrowolska-Furdyna, M., Furdyna, J., et al.
Optical Studies of Heterostructures
National Science Foundation
$90,000 24 months

Blackstead, H.
Microwave Dissipation
Purdue University
$6,000 36 months

Biswas, N., Ruchti, R., et al.
Study of Particle Production and Detector Development
National Science Foundation
$295,000 36 months

Furdyna, J., Giebultowicz, T., et al.
Neutron Studies of Magnetic Semiconductor Heterostructures
National Science Foundation
$75,000 24 months

Marshalek, E.
Theoretical Studies in Nuclear Structure
Department of Energy
$52,000 12 months

Psychology

Anderson, D.
Discretionary Research Fund
Miscellaneous
$1,000

AWARDS FOR FACILITIES AND EQUIPMENT

Chemical Engineering

Hill, D.
Undergraduate Experiments in Polymer Science
National Science Foundation
$62,787 24 months

Computer Science and Engineering

Brockman, J.
Design Automation Conference
Institute Electric/Electronic Engineering
$15,000 24 months

Physics

Cason, N., LoSecco, J., et al.
Equipment for Brookhaven Experiment E-852
Brookhaven National Laboratory
$20,000 12 months

AWARDS FOR INSTRUCTIONAL PROGRAMS

Civil Engineering and Geological Sciences

Gray, W.
REU Site in CE/GEOS at the University of Notre Dame 93-95
National Science Foundation
$45,000 12 months

O.S.I.P.A.

Borelli, M.
P.W.M.E.G.S.
Department of Education
$99,750 12 months

Psychology

Borkowski, J., Whitman, T.
Research Training in Mental Retardation
National Institutes of Health
$81,832 12 months

South Bend Center for Medical Education

Olson, K.
REU Supplement to IBN91-05247
I.U. School of Medicine
$4,000 24 months

AWARDS FOR SERVICE PROGRAMS

Biological Sciences

Craig, G.
St. Joseph County Vector Surveillance Program
St. Joe County Health Department
$30,000 5 months

ND Center for Pastoral Liturgy

Bernstein, E.
Center for Pastoral Liturgy
Various Others
$24 1 month
Center for Pastoral Liturgy
Various Others
$989 1 month

Center for Continuing Formation in Ministry

Cannon, K.
Center for Continuing Formation in Ministry
Various Others
$4,835 1 month

Institute for Church Life

Cannon, K.
I.C.L./Central Office
Various Others
$438 1 month
I.C.L./Dynamic Parish
Various Others
$92 1 month

AWARDS FOR OTHER PROGRAMS

Center for Educational Opportunity

Outlaw, W., Smith, R., et al.
Teen 2000 Summer Youth Employment Orientation
Workforce Development Services
$11,362 5 months

English

Buttigieg, J.
Antonio Gramsci's Prison Notebooks
National Endowment for the Humanities
$58,236 31 months

Medieval Institute

Jordan, M.
Patrologia Latina Database
ChadwyckHealey Inc.
$19,008 4 months

Academic Services for Student Athletes

Marlowe, D., Beauchamp, E.
NYSP-ND
NCAA
$40,000 12 months

Graduate School

Hatch, N.
Doctoral and Postdoctoral Fellowship Programs for Minorities
Ford Foundation
$17,500 12 months

Proposals Submitted

In the period May 1, 1993, through May 31, 1993

PROPOSALS FOR RESEARCH

Aerospace and Mechanical Engineering

Jumper, E., Batill, S., et al.
Study of Forced Vibration in Axial-Flow Compressors
SCERDC
$752,107 36 months

Art, Art History and Design

Poole, C.
Redefining the Focus of Design Education
Campus Compact
$7,370 4 months

Biological Sciences

Rai, K.
Genetic Differentiation in Aedes Albopictus Subgroup
National Institutes of Health
$182,419 12 months

Feder, J.
Genetics of Host Race in the Apple Maggot Fly
National Science Foundation
$606,056 48 months

The Molecular Genetics of the Apple Maggot Fly
National Institutes of Health
$115,787 12 months

Ecological Genetics of Host Race Formation in Apple Maggot
National Science Foundation
$262,776 48 months

Civil Engineering and Geological Sciences

Gray, K.
NSF Presidential Young Investigator
National Science Foundation
$127,825 12 months

Evaluation of Drinking Water Treatment Processes
Environmental Protection Agency
$207,490 24 months

Pyrak-Nolte, L.
Seismic Wave Attenuation during Frictional Sliding
National Science Foundation
$261,082 36 months

Neal, C., Irvine, R.
Technician Support for the ICP-MS Facility
National Science Foundation
$167,271 36 months

Halfman, J.
Holocene and Earlier Paleoclimatology, Lake Turkana, Kenya
National Science Foundation
$384,672 36 months

Kareem, A.
Safety of Offshore Platforms
U.S. Department of the Interior
$172,326 24 months

Chemical Engineering

Brennecke, J.
Presidential Young Investigator Award
National Science Foundation
$135,758 12 months

Chemistry and Biochemistry

Chetcuti, M.
Reactions of Ni-Mo and Ni-W Complexes with Sulfur Ligands
National Science Foundation
$283,891 36 months

Blasquez, V.
Structure and Function of Chromatin in B-Cell Development
National Science Foundation
$479,334 36 months

Smith, B.
Artificial Metal Cation/Saccharide Cotransporters
National Institutes of Health
$118,713 12 months

Thomas, J.
Radiation Induced Processes on Clays
Environmental Protection Agency
$500,001 36 months

Serianni. A.
Studies of the Reverse Anomeric Effect
National Research Council
$17,835 5 months

Economics

Swartz, T.
Investing in Affordable Housing in South Bend
Campus Compact
$7,370 13 months

Electrical Engineering

Alcock, C.
Development of an Electrochemical Sensor
International Lead Zinc Research Organization, Inc.
$45,065 9 months

Bandyopadhyay, S.
Electron Transport in Quantum Structures
Department of the Air Force
$177,939 36 months

Liu, R., Huang, Y.
Reliable Robust Wideband Array Signal Processing
Department of the Navy
$423,230 36 months

Mathematics

Yin, H.
The Temperature Effect on Electrical Fields
Department of the Navy
$40,064 24 months

Management

Davis, J., Sporleder, D.
The Life House Rehabilitation Center: A New Beginning
Campus Compact
$7,370 4 months

Physics

Shephard, W., Cason, N., et al.
Experimental Research in Elementary Particle Physics
National Science Foundation
$73,684 7 months

LoSecco, J., Cason, N., et al.
Operating Costs for Brookhaven Experiment E-852
Brookhaven National Laboratory
$66,783 11 months

Glazier, J.
NSF Young Investigators Award
National Science Foundation
$29,593 12 months

Livingston, A.
Rydberg States in Multiply Charged Ions
Department of Energy
$73,900 12 months

PROPOSALS FOR SERVICE PROGRAMS

Biological Sciences

Craig, G.
St. Joseph County Vector Surveillance Program
St. Joseph County Health Department
$40,200 8 months

PROPOSALS FOR OTHER PROGRAMS

Aerospace and Mechanical Engineering

Batill, S., Renaud, J., et al.
Program in Integrated Product and Process Development
National Science Foundation
$509,319 36 months

Computer Science and Engineering

Uhran, J.
Russia/Eurasia Awards Program (REAP)
NAFSA/Association of International Educators
$28,965 12 months

College of Engineering

Vann-Hamilton, J.
NSF Young Scholars Program
National Science Foundation
$201,506 24 months

Institute for International Peace Studies

Hayner, A.
NAFSA/USIA REAP Grant for Lydia Skrynnikova in Peace Studies
NAFSA/Association of International Educators
$30,412 12 months

Philosophy

Freddoso, A.
Francisco Suarez: Metaphysical Disputations 20-22
National Endowment for the Humanities
$114,860 15 months

Theology

Ford, J.
Anthology of Translated Texts on the Apocalypse of John
National Endowment for the Humanities
$94,812 24 months

Business Affairs

Thomson, L.
Round 5 Projects
Indiana Department of Environmental Management
$76,458 12 months

Summary of Awards Received and Proposals Submitted

In the period June 1, 1993, through June 30, 1993

AWARDS RECEIVED

Category	Renewal		New		Total	
	No.	Amount	No.	Amount	No.	Amount
Research	9	726,389	14	802,154	23	1,528,543
Facilities and Equipment	0	0	2	150,831	2	150,831
Instructional Programs	1	3,500	0	0	1	3,500
Service Programs	0	0	6	6,208	6	6,208
Other Programs	1	60,000	1	27,776	2	87,776
Total	11	789,889	23	986,969	34	1,776,858

PROPOSALS SUBMITTED

Category	Renewal		New		Total	
	No.	Amount	No.	Amount	No.	Amount
Research	4	833,720	21	6,466,128	25	7,299,848
Facilities and Equipment	1	30,000	1	416,650	2	446,650
Instructional Programs	1	420,050	0	0	1	420,050
Service Programs	0	0	0	0	0	0
Other Programs	1	358,502	2	1,362,781	3	1,721,283
Total	7	1,642,272	24	8,245,559	31	9,887,831

Awards Received

In the period June 1, 1993, through June 30, 1993

AWARDS FOR RESEARCH

Aerospace and Mechanical Engineering

Szewczyk, A.
Bluff Body Wake Flows
Department of the Navy
$25,000 38 months

Batill, S.
Wind Tunnel Data System Accuracy Assessment
NASA - Langley Research Center
$30,000 9 months

Renaud, J.
Multidisciplinary Design Optimization Development
National Science Foundation
$30,000 12 months

Biological Sciences

Hyde, D.
Identification of a Vertebrate rdgB Homolog
Prevent Blindness
$10,750 12 months

O'Tousa, J.
Genetic Analysis of Retinal Degeneration in *Drosophila*
National Institutes of Health
$139,710 12 months

Kulpa, C.
Biodesulfurization of Oil
Energy Biosys Corp.
$35,000 12 months

McAbee, D.
Isolation/Analysis of Hepatic Lactoferrin Receptor
American Heart Association - Ind.
$24,983 12 months

Center for Bioengineering and Pollution Control

Irvine, R.
Controlled-Release of Oxygen Sources for Soil Bioremediation
W.R. Grace
$68,541 12 months

Civil Engineering and Geological Sciences

Kareem, A.
Nonlinear Response of Ocean Structures
Department of the Navy
$285,000 36 months

Chemical Engineering

Brennecke, J.
Reactivity in Supercritical Water
ACS Petroleum Research Fund
$50,000 24 months

Kantor, J., Chang, H.
REU Supplement
National Science Foundation
$2,500 12 months

Chemistry and Biochemistry

McKee, E.
Regulation of Mitochondrial Protein Synthesis
I.U. School of Medicine
$25,000 12 months

Basu, S.
Biochemistry Studies with Human Colon Tumor Cell
United Health Services
$8,400 12 months

Castellino, F.
Structure-Function Studies on Plasminogen and Plasmin
National Institutes of Health
$342,679 12 months

Computer Science and Engineering

Brockman, J.
Graduate Summer Research Support
Delco Electric Corp.
$4,200 3 months

Electrical Engineering

Sain, M., Bauer, P., et al.
Clark Clutch Plates
Clark-Hurth Components
$30,000 8 months

McGinn, P.
ICIST Center Operations
Purdue University
$22,079 11 months

English

Ziarek, K.
Transatlantic Connections
National Endowment for the Humanities
$30,000 9 months

Classical Oriental Languages and Literatures

Sheerin, D.
Enhancing Chinese Studies at Notre Dame
Chiang Ching-kuo Foundation
$134,990 36 months

Mathematics

Buechler, S.
The Fine Structure of Superstable Theories
National Science Foundation
$91,500 36 months

Physics

Garg, U.
Collaborative Research on High-Spin States
National Science Foundation
$14,690 24 months

Aprahamian, A.
Nuclear Structure Studies
National Science Foundation
$53,521 48 months

Ruchti, R., Biswas, N., et al.
High Energy Collider Physics
Department of Energy
$70,000 12 months

AWARDS FOR FACILITIES AND EQUIPMENT

Aerospace and Mechanical Engineering

Dunn, P., Batill, S., et al.
Laser Doppler Velocimeter and Phase Doppler Particle Analyzer
Aerometrics
$82,075 12 months

Civil Engineering and Geological Sciences

Gray, K., Gaillard, J.
ILI for Undergraduate Environmental Analytical Chemistry
National Science Foundation
$68,756 24 months

AWARDS FOR INSTRUCTIONAL PROGRAMS

Civil Engineering and Geological Sciences

Neal, C.
REU Supplement to NSF Grant EAR-91-18128
National Science Foundation
$3,500 24 months

AWARDS FOR SERVICE PROGRAMS

ND Center for Pastoral Liturgy

Bernstein, E.
Center for Pastoral Liturgy
Various Others
$366 1 month

Center for Pastoral Liturgy
Various Others
$625 1 month

Center for Continuing Formation in Ministry

Cannon, K.
Center for Continuing Formation in Ministry
Various Others
$2,791 1 month

Institute for Church Life

Cannon, K.
I.C.L./Dynamic Parish
Various Others
$74 1 month
I.C.L./Central Office
Various Others
$860 1 month

Programs for Church Leaders

Tebbe, F.
Program for Church Leaders
Various Others
$1,492 1 month

AWARDS FOR OTHER PROGRAMS

Graduate School

Hatch, N.
Arthur J. Schmitt Foundation
A.J. Schmitt Foundation
$60,000 9 months
Diffley, P., Poole, R.
Philosophic Consciousness vs. Utopianism in Russia
Department of Education
$27,776 18 months

Proposals Submitted

In the period June 1, 1993, through June 30, 1993

PROPOSALS FOR RESEARCH

Aerospace and Mechanical Engineering

Nee, V., Yang, K.
Breathing Cooling
National Science Foundation
$510,221 36 months
Nelson, R.
X-31 Project
NASA - Ames Research Center
$64,892 12 months
Thomas, F., Gad-el-Hak, M.
SGS Energy Transfer in Nonequilibrium Turbulent Flows
Department of the Navy
$430,434 36 months
Huang, N.
Interfacial Fracture Mechanics
National Science Foundation
$239,822 24 months

Anthropology

Sheridan, S., Schurr, M.
Health and Nutrition in Ancient Nubia
National Science Foundation
$77,979 17 months

Biological Sciences

Adams, J.
Molecular Analysis of Apical Organelles of Plasmodium
National Institutes of Health
$101,438 12 months
Carlton, R.
Etiology of Black Band Disease of Corals in the Florida Keys
Environmental Protection Agency
$0 24 months
Lamberti, G.
Graduate Research Traineeship in Environmental Biology
National Science Foundation
$1,012,446 60 months

Center for Bioengineering and Pollution Control

Irvine, R., Varma, A.
Granular Activated Carbon-Sequencing Batch Biofilm Reactor
National Science Foundation
$521,416 36 months

Civil Engineering and Geological Sciences

Gray, W.
NSF-Graduate Research Traineeship
National Science Foundation
$1,013,480 60 months
Pyrak-Nolte, L.
Characterization of the Geometric Properties of Cleats
Amoco Production Company
$6,559 5 months

Chemical Engineering

Leighton, D.
Oscillatory Cross-Flow Electrophoresis
National Aerospace Administration
$132,982 24 months

Chemistry and Biochemistry

Lappin, A.
Stereoselectivity in Electron Transfer
National Science Foundation
$400,626 36 months

Nowak, T.
NMR Studies of Metals in Kinases and Related Enzymes
National Institutes of Health
$227,508 12 months

Bumpus, J., Irvine, R.
Photochemical Biodegradation of Organic Pollutants
National Science Foundation
$519,694 36 months

Blasquez, V.
Structure/Function of Chromatin in B-Cell Development
National Institutes of Health
$90,933 12 months

Helquist, P.
Synthesis and Activity of Streptogramins A and Analogues
National Institutes of Health
$140,694 12 months

Basu, S., Basu, M.
Biosynthesis of SA-LEX Glycolipids in Tumor Cells
National Institutes of Health
$222,710 12 months

McKee, E.
Regulation of Mitochondrial Protein Synthesis
I.U. School of Medicine
$178,200 36 months

Computer Science and Engineering

Bass, S.
Ph.D. Traineeships in High Performance Computing Research
National Science Foundation
$1,019,770 60 months

Electrical Engineering

Antsaklis, P., Lemmon, M.
Intel. Supervisory Control through Discrete Event System ID
Electric Power Research Institute
$141,693 36 months

McGinn, P
Y_2BaCuO_5 Segregation in $YBa_2Cu_3O_{7-x}$
National Aerospace Administration
$132,639 24 months

Philosophy

Kennedy, J.
Foundation of Gauge Theory
National Science Foundation
$64,713 12 months

Program of Liberal Studies

Power, F.
Self-Evaluation Processes
Ewing Marion Kauffman Foundation
$48,999 12 months

Radiation Laboratory

LaVerne, J., Kolata, J.
U.S. - Japan Cooperative Research
National Science Foundation
$0 24 months

PROPOSALS FOR FACILITIES AND EQUIPMENT

Aerospace and Mechanical Engineering

Dunn, P., Batill, S., et al.
Laser Doppler Velocimeter & Phase Doppler Particle Analyzer
Aerometrics
$416,650 12 months

Physics

Tanner, C.
Absolute Calibration of Atomic PNC Measurements
National Institute of Standards and Technology
$30,000 12 months

PROPOSALS FOR INSTRUCTIONAL PROGRAMS

Center for Bioengineering and Pollution Control

Irvine, R.
GAANNP Scholarships in Environmental Engineering
Department of Education
$420,050 12 months

PROPOSALS FOR OTHER PROGRAMS

Aerospace and Mechanical Engineering

Jumper, E., Powers, J.
Notre Dame Hypersonic Aerothermochemistry Center
National Aerospace Administration
$1,260,919 60 months

Center for Social Concerns

McClory, E.
Good Neighbors: Univ. Community and Service-Learning
Department of Education
$101,862 24 months

Cushwa Center for the Study of American Catholicism

Dolan, J.
Hispanic Catholics in 20th Century United States
Lilly Endowment, Inc.
$358,502 36 months

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