April 27, 1977

TO: Those Listed Below*
FROM: Robert E. Mahn, Secretary, Board of Trustees
SUBJECT: Minutes of April 16, 1977, Meeting of the Board

Enclosed for your file is a copy of the April 16 minutes. This draft will be presented for approval at the next regular meeting of the Board.

REM:cs

*Chairman and Members of the Board
Mr. Aspengren
Dr. Ping
Mr. Mahn (2)
Dr. Bucklew
Mr. Peebles
Mr. Hecht
Dr. Harter
Mr. Kennard
Archivist (2)
Resident Auditor
Mr. Burns
MINUTES OF THE MEETING OF
THE BOARD OF TRUSTEES OF OHIO UNIVERSITY

Saturday, April 16, 1977, 9:00 a.m.
Room 319, Vernon R. Alden Library
Athens, Ohio

I. ROLL CALL

All members were present, namely Fred H. Johnson, Chairman,
Mrs. Dorothy Johns, Vice Chairman, G. Kenner Bush, Charles E. Holzer, Jr.,
J. Grant Keys, William A. Lavelle, Mrs. J. Wallace Phillips, Donald A.
Spencer, and Milton J. Taylor.

President Charles J. Ping and Secretary Robert E. Mahn also were
present. Arthur E. Aspengren, who sits with the Board by invitation as
President of the Ohio University Alumni Board of Directors could not be
present. He was represented by John M. Jones, Vice President of the
Alumni Board.

Present to give reports were Provost Neil Bucklew, Associate
Provost Joseph B. Tucker, and Assistant to the President for Equal Oppor-
tunity Programs John McDonald.

II. APPROVAL OF MINUTES OF THE MEETING OF
FEBRUARY 15, 1977 (previously distributed)

Chairman Johnson, determining that there were no corrections or
additions for the minutes, declared them approved as distributed.

III. COMMUNICATIONS, PETITIONS AND MEMORIALS

The Secretary stated that none had been received.
IV. ANNOUNCEMENTS

The Secretary reported that there were no announcements.

V. REPORTS

A. REPORT BY DR. BUCKLEW ON ENVIRONMENTAL STATEMENTS

President Ping introduced Dr. Bucklew for his report, stating that the critical part of the planning effort was beginning with the preparation of the environmental statements. These statements represent the next to last stage in the development of the Educational Plan—the establishment of goals for Ohio University.

Trustees had received a copy of the environmental statements. A copy is filed with the official minutes.

B. REPORT BY DR. TUCKER ON PROMOTIONS AND TENURE

Dr. Tucker gave an overview of the report which had been distributed to members of the Board. This appears as Attachment 1, page 263.

In response to questions, Dr. Tucker stated that he did not have a comparison of our tenure rate with that of other Mid-American Association schools, but that he would get that information for the Board. Also that he would determine the median age of our non-tenured faculty. He expressed the view that our median term of service of faculty of from 6 to 9 years would be somewhat higher than that of other institutions. President Ping observed that we had dealt with this problem obliquely in our February report to the Board on salaries. We compared better in respect to salaries based on the average of the entire faculty than on individual ranks.

C. REPORT BY MR. MCDONALD ON WOMEN AND MINORITY STAFFING LEVELS AND ENROLLMENT

The report, Status Report: Affirmative Action at Ohio University, had been distributed to Board members. It appears as Attachment 2, page 274.

President Ping stated that Mr. McDonald's report was in response to the Board's request at its last meeting.
In commenting on the report, Mr. Spencer stated that the matter of affirmative action had been before the Educational Policies Committee, and that the group, although not satisfied with conditions at Ohio University, was encouraged by what was going on. He reported on an excursion to the Black Resource Center and Student Development Center. We had an obligation, he said, to be more effective in our efforts and expressed the view that the Board would continue to be helpful.

D. REPORT BY PRESIDENT PING ON PROGRESS ON DEVELOPMENT OF THE 1977-78 OPERATING FUND BUDGET AND RELATED MATTERS

Dr. Ping outlined briefly the legislative budget process to date, and cited both positive and discouraging views of what the outcome might be. He stated that internally the budget development procedure was moving forward, but that there could be nothing for action by the Board until the appropriation was known.

In respect to the possibility of the University being designated a site for a coal research center, the President expressed the views that the University's prospects were good and that the bill designating a research center might become part of a larger package.

A copy of "Report to the Ohio Board of Regents on Training and Research in Energy-Related Programs at Ohio University" had been distributed to Board members. A copy is filed with the official minutes.

VI. UNFINISHED BUSINESS

The Secretary reported no unfinished business.

VII. NEW BUSINESS

Chairman Johnson stated that agenda items had been discussed by the respective Board committees. He asked the respective chairmen to read or summarize the resolutions and report the recommendations of their committees for discussion and action.
A. EDUCATIONAL POLICIES COMMITTEE MATTERS

Mr. Johnson asked Committee Chairman Spencer to present matters considered by the Committee and recommendations relative to them.

1. FACULTY IMPROVEMENT LEAVES

Mr. Spencer moved approval of the motion which had emerged from the Educational Policies Committee following discussion of the recommendation contained in the Agenda of April 6, 1977. It differed from the April 6 recommendation in respect to the dates for leaves, the latter specifying "1977-78 and 1978-79" instead of "1977-78."

Mrs. Johns seconded the motion.

RESOLUTION

WHEREAS, the leave proposals on the attached lists have been reviewed in accordance with University policy and found to be meritorious,

NOW, THEREFORE, BE IT RESOLVED that the faculty improvement leaves for 1977-78 and 1978-79 are approved.

BE IT FURTHER RESOLVED that the Provost can approve changes in the times leaves may be taken but not the length of the leave.

Dr. Holzer moved to amend the resolution to make it read as follows:

FACULTY IMPROVEMENT LEAVES, 1977-79
RESOLUTION 1977-334

WHEREAS, the leave proposals on the attached lists have been reviewed in accordance with University policy and found to be meritorious,

NOW, THEREFORE, BE IT RESOLVED that the faculty improvement leaves for 1977-78 and 1978-79 are approved.
However, the Board of Trustees, fully understanding the causes of the situation which has resulted in what would appear to be a disproportionately large number of requests for leaves at one time, recognizing the fact that a moratorium has been placed on leaves for the past five or more years, supporting the importance of leaves in the enrichment and development of the faculty, and aware of the senior nature of our faculty, resolves that the Provost can approve changes in the times leaves may be taken but not in the length of the leave.

BE IT RESOLVED FURTHER that the Administration is instructed to review University policy in granting leaves and to prepare new guidelines limiting in some appropriate way the number of leaves in force at any given time. Further that submission dates for faculty leave requests be altered to insure that future recommendations on faculty leaves come before the Board for review at least by the Board's regular winter meeting.

Mr. Keys seconded the motion.
<table>
<thead>
<tr>
<th>FACULTY NAME</th>
<th>DEPARTMENT</th>
<th>PROJECT</th>
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<tbody>
<tr>
<td>Shirley Slater</td>
<td>Home Economics</td>
<td>Work on a book on Creative Teaching and Learning Strategies</td>
</tr>
<tr>
<td>Joyce A. King</td>
<td>HPER</td>
<td>Pursue graduate work in Therapeutic Recreation</td>
</tr>
<tr>
<td>Ray Skinner</td>
<td>Curriculum &amp; Instruction</td>
<td>Study oceanography and relate the field to environmental education</td>
</tr>
<tr>
<td>Melvin Witmer</td>
<td>SABSEL</td>
<td>Complete a manuscript on affective education</td>
</tr>
<tr>
<td>Loyde Hales</td>
<td>SABSEL</td>
<td>Complete a manuscript dealing with educational statistics</td>
</tr>
<tr>
<td>Douglas Adie</td>
<td>Economics</td>
<td>Engage in a research project (An Evaluation of Public Housing Rental Policy) at the Hoover Institution on War, Revolution, and Peace.</td>
</tr>
<tr>
<td>Lee Soltow</td>
<td>Economics</td>
<td>Work on a manuscript in the area of wealth distribution in the U.S.</td>
</tr>
<tr>
<td>Lowell Gallaway</td>
<td>Economics</td>
<td>Complete manuscript on labor exploitation and labor market discrimination against minority groups in the U.S.</td>
</tr>
<tr>
<td>Arthur J. Marinelli</td>
<td>Organizational Science</td>
<td>As a lawyer, Professor Marinelli will investigate recent administrative law and case law developments taking place in the Occupational Safety and Health Act of 1970.</td>
</tr>
<tr>
<td>Lawrence Miller</td>
<td>Organizational Science</td>
<td>Research into Federal laws and regulations that affect the information systems of organizations in the public and private sectors.</td>
</tr>
<tr>
<td>FACULTY NAME</td>
<td>DEPARTMENT</td>
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<tr>
<td>John Stinson</td>
<td>Organizational Science</td>
<td>A study of the situational factors which influence the leadership</td>
</tr>
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<td>effectiveness of first-line supervision in underground coal mining.</td>
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<tr>
<td>S. Benjamin Prasad</td>
<td>Administrative Sciences</td>
<td>A study of authority patterns and subordinate behavior in a selected</td>
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<td></td>
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<td>number of private business firms.</td>
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<tr>
<td>Ellsworth Holden</td>
<td>Accounting and Quantitative methods</td>
<td>Study with a CPA firm to gain practical experience in computerized</td>
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<td></td>
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<td>accounting and information systems and in statistical sampling in</td>
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<td>auditing.</td>
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<tr>
<td>Hugh Culbertson</td>
<td>Journalism</td>
<td>To undertake a study of working newsmen's assumptions and policies</td>
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<tr>
<td></td>
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<td>related to cloaked attribution.</td>
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<tr>
<td>Ralph Izard</td>
<td>Journalism</td>
<td>Work with a major daily newspaper and begin writing a book dealing</td>
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<td></td>
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<td>with public affairs reporting.</td>
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<tr>
<td>Robert Goyer</td>
<td>Interpersonal Communication</td>
<td>Assess the state of current research in communications at leading</td>
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<td></td>
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<td>research centers.</td>
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<tr>
<td>William Miller</td>
<td>Radio-TV</td>
<td>Complete a book on screenwriting and do study in film and television</td>
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<td></td>
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<td>theory, aesthetics and criticism.</td>
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<tr>
<td>Charles Overby</td>
<td>Industrial and Systems Engineering</td>
<td>Work with a federal agency in Washington D.C. in which the assignment</td>
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<td></td>
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<td>will involve science, technology, engineering and public policy.</td>
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<tr>
<td>Roy Lawrence</td>
<td>Mechanical Engineering</td>
<td>Spend a quarter at the Electric Power Research Institute, Palo Alto,</td>
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<td>Col.</td>
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<td>FACULTY NAME</td>
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<tr>
<td>James Gilfert</td>
<td>Electrical Engineering</td>
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<tr>
<td>Hollis Chen</td>
<td>Electrical Engineering</td>
<td></td>
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<tr>
<td>David Hostetler</td>
<td>Art</td>
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<tr>
<td>William Kortlander</td>
<td>Art</td>
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<tr>
<td>Karen Nulf</td>
<td>Art</td>
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</tr>
<tr>
<td>Barry Katz</td>
<td>Comparative Arts</td>
<td></td>
</tr>
<tr>
<td>Shirley Wimmer</td>
<td>Dance</td>
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<tr>
<td>David Lewis</td>
<td>Music</td>
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<tr>
<td>Robin Lacy</td>
<td>Theater</td>
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<tr>
<td>Seabury Quinn</td>
<td>Theater</td>
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</table>

- **Karen Nulf**
  - Work with the device applications group of a major semiconductor manufacturer with a view to updating the electronics curriculum in the Department of Electrical Engineering.
- **Hollis Chen**
  - Refine theory developed by Dr. Chen involving the relationship between electromagnetic waves and plasmas.
- **David Hostetler**
  - Research into scrimshaw carving in New England and continuation of work in wood sculpture.
- **William Kortlander**
  - Develop more fully the landscape theme in his painting.
- **Karen Nulf**
  - Study latest developments in optical printing and animation.
- **Barry Katz**
  - Undertake first English translation and analysis of Lorenzo Ghiberti's fifteenth century treatise *The Commentaries (I Commentarii)*.
- **Shirley Wimmer**
  - Edit and complete a manuscript begun by Arch Lauterer, a pioneer in the field of contemporary dance.
- **David Lewis**
  - Improve teaching and performing skills on the clarinet through study with the principal clarinetist of the Cleveland Orchestra.
- **Robin Lacy**
  - Work on a manuscript dealing with scenographers.
- **Seabury Quinn**
  - Complete a manuscript involving certain problems in comedy.
<table>
<thead>
<tr>
<th>FACULTY NAME</th>
<th>DEPARTMENT</th>
<th>PROJECT</th>
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<tbody>
<tr>
<td>James P. Braselton</td>
<td>Botony</td>
<td>To study the ultrastructure and temporal aspects of Meiosis in plants.</td>
</tr>
<tr>
<td>James Cavender</td>
<td>Botony</td>
<td>To undertake a revision of the taxonomy of the Dictyosteliaceae</td>
</tr>
<tr>
<td>Howard W. Latz</td>
<td>Chemistry</td>
<td>(Cellular slime molds)</td>
</tr>
<tr>
<td>Gary Pfeiffer</td>
<td>Chemistry</td>
<td>Undertake research in the use of dye lasers for analytical measurements.</td>
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<tr>
<td>Frank Cronin</td>
<td>English</td>
<td>To work with a research team at the University of California Berkeley</td>
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<td>on problems of quantum chemistry.</td>
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<tr>
<td>Robert DeMott</td>
<td>English</td>
<td>To study technical writing and professional writing at Renssalaer</td>
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<td>Polytechnic Institute for the purpose of improving Ohio University's</td>
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<td>technical writing program.</td>
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<tr>
<td>Roy Flannagan</td>
<td>English</td>
<td>To undertake a major new study of John Steinbeck using newly available</td>
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<td>material.</td>
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<tr>
<td>John Hollow</td>
<td>English</td>
<td>To complete a manuscript on the poetry of Milton.</td>
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<tr>
<td>William Kuhre</td>
<td>English</td>
<td>To complete a book about the poetry and prose of William Morris.</td>
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<tr>
<td>Stanley Lindberg</td>
<td>English</td>
<td>To study dramatic arts at the U. of Cincinnati and relate this experience</td>
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<td>to the teaching of drama.</td>
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<td>Dean McWilliams</td>
<td>English</td>
<td>To work on a book-length reappraisal of Dr. Samuel Johnson.</td>
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<td>A study of the growing number of important writers who have become</td>
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<td>filmmakers.</td>
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<td>FACULTY NAME</td>
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<tr>
<td>Calvin Thayer</td>
<td>English</td>
<td>To complete a manuscript on the political implications of Shakespeare's historical plays.</td>
</tr>
<tr>
<td>Ronald Isaac</td>
<td>Geography</td>
<td>To refine simulation models for the assessment of relationships between climate and productivity of arid grasslands.</td>
</tr>
<tr>
<td>Robert Yeats</td>
<td>Geology</td>
<td>To study earthquake prone active faults, particularly in North Anatolian fault of Turkey.</td>
</tr>
<tr>
<td>Paul van der Veur</td>
<td>Government</td>
<td>Complete translation of writings of a major Indonesian Nationalist and prepare a Political Gazetteer of Southeast Asia.</td>
</tr>
<tr>
<td>Richard Bald</td>
<td>Government</td>
<td>Research involving the Free Democratic Party (FDP) of the Federal Republic of Germany.</td>
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<tr>
<td>David Dabelko</td>
<td>Government</td>
<td>Completion of a study analyzing the relationship between military expenditures and expenditures for social services.</td>
</tr>
<tr>
<td>Richard Harvey</td>
<td>History</td>
<td>To undertake a study of poverty in seventeenth century England.</td>
</tr>
<tr>
<td>William Kaldis</td>
<td>History</td>
<td>To complete a manuscript on the exchange and settlement of Greek and Turkish minorities following WWI.</td>
</tr>
<tr>
<td>Lyle McGeoch</td>
<td>History</td>
<td>Completion of a manuscript on Lord Lansdowne.</td>
</tr>
<tr>
<td>A. Compton Reeves</td>
<td>History</td>
<td>To complete a manuscript on &quot;Lancastrian Englishmen&quot;.</td>
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<tr>
<td>FACULTY NAME</td>
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<tr>
<td>Shih-Liang Wen</td>
<td>Mathematics</td>
<td>To study the mathematical aspect of problems of equilibrium, stability and diffusion related to controlled thermonuclear fusion.</td>
</tr>
<tr>
<td>Robert Atalla</td>
<td>Mathematics</td>
<td>To work on the theory of Matrix summability.</td>
</tr>
<tr>
<td>Lois Vines</td>
<td>Modern Languages</td>
<td>To continue a study of the French writer Paul Valery.</td>
</tr>
<tr>
<td>Lawrence LaJohn</td>
<td>Modern Languages</td>
<td>To undertake an analysis and criticism of plays written by Spanish dramatists while in exile.</td>
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<tr>
<td>Ursula Lawson</td>
<td>Modern Languages</td>
<td>To study the contemporary literature of the German Democratic Republic.</td>
</tr>
<tr>
<td>Richard Danner</td>
<td>Modern Languages</td>
<td>To complete a study on the Fables of La Fontaine.</td>
</tr>
<tr>
<td>Douglas Hinkle</td>
<td>Modern Languages</td>
<td>To complete a manuscript on The Jew in Medieval and Renaissance Spain: A Literary Appraisal.</td>
</tr>
<tr>
<td>Manuel Serna-Maytorena</td>
<td>Modern Languages</td>
<td>To continue and complete a critical study of the novels of Sergio Galindo.</td>
</tr>
<tr>
<td>Marie-Claire Wrage</td>
<td>Modern Languages</td>
<td>An investigation of the influence of Rabelais on the writing of Herman Melville.</td>
</tr>
<tr>
<td>Donald Borchert</td>
<td>Philosophy</td>
<td>An analysis of the value of violence in Marxism and Christianity.</td>
</tr>
<tr>
<td>Stanley Green</td>
<td>Philosophy</td>
<td>To write a monograph analyzing and evaluating the significance of the religious philosophy of the 20th century Russian thinker, Lev Shestov.</td>
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<tr>
<td>FACULTY NAME</td>
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<tr>
<td>Folden B. Stumpf</td>
<td>Physics</td>
<td>To complete a manuscript on analytical acoustics and investigate innovations in teaching physics.</td>
</tr>
<tr>
<td>Svenn Lindskold</td>
<td>Physiology</td>
<td>To complete a book in experimental psychology.</td>
</tr>
<tr>
<td>Orville Gursslin</td>
<td>Sociology &amp; Anthropology</td>
<td>To complete a manuscript dealing with organizational stratification.</td>
</tr>
<tr>
<td>William Harlan</td>
<td>Sociology &amp; Anthropology</td>
<td>To conduct a study in India of information utilization in State and Central Government decision-making.</td>
</tr>
<tr>
<td>Arthur Saxe</td>
<td>Sociology &amp; Anthropology</td>
<td>To study recent advances in method, theory and data in paleoanthropology.</td>
</tr>
<tr>
<td>ADDENDUM</td>
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<tr>
<td>William Burkhardt</td>
<td>Sociology &amp; Anthropology</td>
<td>Add one quarter which was omitted from previously approved leave. (Preparation for developing a teaching and scholarship ability in the sociology of the family.)</td>
</tr>
<tr>
<td>Elizabeth Smith</td>
<td>Philosophy</td>
<td>To undertake a study of the justification of legal obligation.</td>
</tr>
<tr>
<td>Robert Roe</td>
<td>English</td>
<td>To develop expertise in the area of folklore in order to develop courses not now offered.</td>
</tr>
</tbody>
</table>
Mr. Bush stated that he supported the amendment because of the need for a policy that was more specific in respect to the number of leaves to be granted in any one year.

Chairman Johnson invited President Ping to comment. He stated that the leave question had been discussed at great length at committee meetings and that at no time had the importance of leaves been questioned. The resolution as reported by Mr. Spencer was, he stated, in his view a workable one. Chairman Johnson asked whether members would be willing to accept the resolution with the understanding that the Board would re-study the leave policy prior to the next meeting. Dr. Holzer stated that he wished to have the Board vote on the amended resolution. Mr. Lavelle expressed agreement with Chairman Johnson's suggestion about studying the policy prior to the next meeting.

The roll call vote in support of the motion to amend was 5 to 4 and was declared approved:

Taylor  yes       Holzer  yes
Spencer  yes       Bush  yes
Phillips  no       Johns  no
Lavelle  no       Johnson  no
Keys  yes

The roll call vote in support of the amended resolution was 8 to 1 and was declared approved:

Taylor  yes       Holzer  yes
Spencer  yes       Bush  yes
Phillips  yes       Johns  yes
Lavelle  yes       Johnson  no
Keys  yes

2. EMERITUS AWARDS

Mr. Spencer moved approval of the resolution. Dr. Holzer seconded the motion. Approval was unanimous.

RESOLUTION 1977--335

WHEREAS, the following individuals have rendered dedicated and outstanding service to Ohio University and whereas their colleagues and deans have recommended action to recognize this service,
NOW, THEREFORE, BE IT RESOLVED that emeritus status be awarded to the following individuals effective upon their retirement.

Edward P. Lynn  Professor Emeritus of Curriculum and Instruction (posthumous award)

Karl J. Weimer  Associate Professor Emeritus of Curriculum and Instruction

Robert M. Boyd  Professor Emeritus of Curriculum and Instruction

Irvin P. Badger  Professor Emeritus of Civil Engineering

Virginia Hahne  Associate Professor Emerita of Theater

Roma A. King, Jr.  Distinguished Professor Emeritus of English

EDWARD P. LYNN

Dr. Lynn has distinguished himself at Ohio University as a teacher, scholar and counselor of students. During his long career he served his profession by giving his time and attention to those activities which promoted the quality of educational experiences for youth. Among these many activities he served as Director for Ohio Student Council Workshops, provided leadership in the coordination of a district program for accrediting high school programs by the North Central Association of High Schools and Colleges, conducting "an Analysis of Summer Head Start Centers in Ohio" for the Ohio Office of Opportunity and serving as a consultant to USAID in Vietnam in 1966. Dr. Lynn died on January 21, 1977.

KARL J. WEIMER

Dr. Weimer has distinguished himself at Ohio University as a teacher, champion of students and a goodwill ambassador of Ohio University to public school personnel throughout the state. He has provided leadership in working with one of the initial cycles of Teacher Corps, working with the Ohio Elementary Principal's Association, serving as consultant to Project MOVE and in providing leadership in the Individually Guided Education movement.
Over the years Dr. Weimer has consistently chosen to work with undergraduate students and with projects designed to assist in the inserviceing of practicing teachers. This combination has kept him very aware of the current problems and concerns of teachers in the field. This knowledge has enriched the experiences of pre-service teachers and provided valuable input to program development within the college.

ROBERT M. BOYD

Dr. Boyd has distinguished himself at Ohio University as a scholar, teacher, administrator and counselor of students. He served as Chairman of the Department of Secondary Education for eight years, Assistant to the Dean of the College of Education for three years, and Director of Summer School for two years. He is highly acclaimed as a teacher and advisor to approximately two dozen students in the final stages of doctoral research.

Dr. Boyd has served the university and his profession in many capacities of leadership by serving on countless numbers of committees, study groups, commissions and programs.

IRVIN P. BADGER

Professor Badger has distinguished himself as a teacher of civil engineering since he began his association with Ohio University in 1946. For over 30 years he has rendered distinguished service not only as a teacher but as Assistant Dean of the College of Engineering and Technology for eleven years and Acting Dean for a year.

VIRGINIA HAHNE

In the past 30 years Miss Hahne has given of herself in every conceivable manner to the University and most of all to the students. She has been an outstanding teacher, valued counselor, colleague and friend. She has provided expertise and knowledge to the School of Theater which have been essential to the growth and welfare of the program.

ROMA A. KING, JR.

Dr. King retires after 14 years of outstanding service to Ohio University. His rank of Distinguished Professor stands as testimony
to his internationally recognized scholarship and criticism. He has been known as a superior teacher and has contributed valuable service on numerous University and Departmental Committees.

3. APPOINTMENTS TO COORDINATING COUNCILS FOR REGIONAL CAMPUSES

Mr. Spencer moved approval of the resolution. Mrs. Johns seconded the motion. Approval was unanimous.
BE IT RESOLVED by the Board of Trustees of Ohio University that the following roster of persons recommended for appointment by the President to increase the membership on the Coordinating Councils for the Regional Campuses of Ohio University, as provided for by Board action of January 15, 1977 is hereby approved.

BE IT FURTHER RESOLVED by the Board of Trustees of Ohio University that the following persons recommended for appointment by the President for renewal terms and replacement terms on the Coordinating Councils for the Regional Campuses of Ohio University is hereby approved.

Ohio University - Belmont County

Dr. James P. Antalis, M.D.  Six Year Appointment (new-replacement)
Errol C. Sambuco  Eight Year Appointment (new)
Robert C. Dix  Nine Year Appointment (new)
John J. Shannon  Nine Year Appointment (renewal)

Ohio University - Chillicothe

Edward G. Grigg  Eight Year Appointment (new)
Charles D. Tabor, Jr.  Nine Year Appointment (new)
Max M. Fulks  Nine Year Appointment (renewal)

Ohio University - Lancaster

Elaine Barber  Six Year Appointment (new-replacement)
Benis Lutz  Eight Year Appointment (new)
Willard Smith  Nine Year Appointment (new)
Mary P. Smith  Nine Year Appointment (renewal)

Ohio University - Zanesville

Kenneth C. Ray  Eight Year Appointment (new)
David Ellwood  Nine Year Appointment (new)
Lowell E. Anderson  Nine Year Appointment (new)

Ohio University - Ironton Academic Center

Jan J. Wolfe  Eight Year Appointment (new)
Keith Molihan  Nine Year Appointment (new)
Dr. James P. Antalis

Physician, on medical staff at Shadyside and Powhatan Clinics and Bellaire City Hospital, Bellaire, Ohio. Graduate of University of Pittsburgh, School of Medicine. Married with four children.

Member and past president of Belmont County Medical Society.
Member and past president of Board of Education, Shadyside, Ohio.
Member of Ohio Medical Association.
Member of Elks, Masons, and Shrine.

Errol C. Sambuco

Plant Manager, Martins Ferry Division of Wheeling-Pittsburgh Steel Corporation. Holds a Bachelor of Industrial Engineering degree and a Master's degree in Business Administration from Ohio State University. He is married with four children.

Robert C. Dix

Publisher of Times-Leader, Inc., Martins Ferry, Bellaire, St. Clairsville. Graduate of Ohio Northern University with J.D. degree. Married with one son.

Member and past president of Bellaire, Ohio Kiwanis Club.
Member and past president of Board of Trade, Bellaire, Ohio.
Member of Board of Directors, Ohio Public Expenditures Council.
Director of Belmont County Community Improvement Corporation.
Member of Ohio State Bar Association.
Member of Ohio Newspaper Association.
Member and Board of Director of Downtown Wheeling Associates.

Edward G. Grigg

Manager, Circleville General Electric Lamp Plant, Circleville, Ohio. Received B.S. in Electrical Engineering and B.S. in Industrial Engineering at Virginia Polytechnic Institute and State University, Blacksburg, Virginia.

Past member of Circleville City School Board.
Member and past chairman of General Citizen Advisory Committee of Pickaway-Ross Vocational School.

Charles D. Tabor, Jr.

General Manager of Goodyear Atomic Corporation, Jackson, Ohio. Received B.S. degree in Mechanical Engineering from Tennessee Polytechnic Institute (now Tennessee Technological University), Cookeville, Tennessee.

Member of Gallia-Jackson-Meigs County Mental Health and Mental Retardation Board.
Member of the Jackson City School Board.
Member and past president of the Ohio School Boards Association.
Member of the Pike County, Jackson County, Portsmouth Area Chambers of Commerce.
Member of Jackson Rotary Club.
Member of Symposiarchs.
Member of Tau Beta Pi.
Charles D. Tabor, Jr. (continued)

Member of the American Society for Mass Spectroscopy.
Member of the American Society for Testing Materials.
Member of the Institute of Nuclear Materials Management.
Representative to the Atomic Industrial Forum.
Representative to the National Association of Manufacturers.

Elaine Barber
Six Year Appointment

HOMEMAKER and wife of George Barber, President of Anchor Hocking, Lancaster, Ohio.

Enrolled in classes at Ohio University-Lancaster campus. Served on Women's Planning Group Committee at Lancaster. Served on Student Publications Board at Lancaster campus.

Benis Lutz
Eight Year Appointment

Superintendent, Teays Valley Local School District, Ashville, Ohio. Received M.A. degree from Ohio State University in Educational Administration and Speech Education. Married with five children.

Member and past president and past secretary of the Ashville Kiwanis Club.
Member of the Ashville Community Club.
Member of Phi Delta Kappa.
Listed in Who's Who in the Methodist Church.
Listed in Who's Who in American Education.
Listed in Who's Who in the Midwest.
Listed in the International Biography Dictionary.
Lay Speaker in the United Methodist Church.
Chairman of the Administrative Board of Ashville Village United Methodist Church.

Willard W. Smith
Nine Year Appointment

Manager, Public Relations, Diamond Power Specialty Corporation, Lancaster, Ohio. Received B.B.A. from Ohio University.

Member and past president of Lancaster Jaycees.
Member and past president of Lancaster Rotary Club.
Served two terms as member of Lancaster City Council.
First vice president, United Way of Fairfield County, Board of Trustees.
Member of Fairfield County Regional Planning Commission.

Kenneth C. Ray
Eight Year Appointment

Retired educational administrator living in McConnelsville, Ohio. Received Ph.D. from Ohio State University.

Past principal of Meigs ville, Ohio High School.
Past principal of Chesterhill, Ohio High School.
Past teacher of mathematics McKeesport, Pennsylvania High School.
Past principal, Coolville, Ohio High School.
Past county superintendent of Schools, Athens, County, Athens, Ohio.
Past city superintendent of schools, Zanesville, Ohio.
Kenneth C. Ray (continued)

Past director Education Division International Coop. Administration, Washington.
Visiting lecturer in Education at Ohio University, Athens, Ohio.
Past member of Ohio House of Representatives.
Member of N.E.A., Ohio Education Association of American School Administrators.
Member of Kappa Delta Pi.
Member of Phi Delta Kappa.
Member of Masons.

David A. Ellwood

Attorney at Law with firm of Ellwood and Brown, Cambridge, Ohio. Received B.A.
degree from Hiram College, M.B.A. from Ohio University and J.D. degree from
Capitol University.

Member of Guernsey County Bar Association.
Member of Ohio State Bar Association.
Member of Ohio Academy of Trial Lawyers.
Secretary/Treasurer of Guernsey County Bar Association.

Lowell E. Anderson

Superintendent, Caldwell Exempted Village Schools, Caldwell, Ohio. Received B.S.
in Education at Ohio University and Master's degree in Education at Xavier
University, Cincinnati, Ohio. Married with two children.

Member of Noble County Chamber of Commerce.
Past member of Lions International.
Member of American Legion, Marietta, Ohio.
Member of B.P.O. Elks, Marietta, Ohio.
Past member of Noble County Recreation Board.
Member of First United Presbyterian Church, Caldwell, Ohio; past trustee, and
past Elder.
Director of Educational Television of Southeastern Ohio.
Member of American Association of School Administrators.
Member of Buckeye Association of School Administrators.
Director of East-Central-Ohio Special Education Regional Resource Center.
Member of Superintendents' Advisory Board for Muskingum Area Joint Vocational
School District.
Past member of State Department Committee for Reviewing and Adopting Curriculum
Materials for Understanding News Media.
Past member of State Department Committee for In-Service Programs for School
Administrators, Division of Renewal and Re-Design.
Permanent High School Certificate.
Professional High School Principal's Certificate.
Permanent Superintendent's Standard Certificate.
Jan J. Wolfe  
Eight Year Appointment

Homemaker and wife of John Wolfe. Received B.S. degree in Home Economic Education at Ohio University, 1962.

Past president of Ironton Junior Women's Club.
Member of Ironton Co-op Club.
Member of The American Association of University Women

Keith Molihan  
Nine Year Appointment

Director of Lawrence County Community Action Organization. Graduate of Rio Grande College, Rio Grande, Ohio.

Chairman of Corporation for Appalachian Region Development.
First vice president for The Ohio Association of CAO Director.
Second vice president for The National Association of CAO Director.
4. HONORARY DEGREES

Mr. Spencer moved approval of the resolution. Mr. Keys seconded the motion. Approval was unanimous.

RESOLUTION 1977--337

WHEREAS, the University Committee on Honorary Degrees has recommended that Ohio University honor Sidney Alexander, Ariel C. Hollinshead, Vernal G. Riffe, Jr. and Jesse Hilton Stuart through the conferral of an honorary degree, and

WHEREAS, it remains for the President to determine whether these persons wish to accept this award,

THEREFORE, BE IT RESOLVED that the degrees recommended be conferred at appropriate times in the future after the President has determined that the persons recommended wish to be so honored.
TO Charles Ping, President

FROM Arthur J. Marinelli, Chairman, Honorary Degree Committee

SUBJECT Honorary Degree - Sidney Alexander

The Honorary Degree Committee at the suggestion of Professor Robert Wortman has considered an individual who had previously been recommended by the Committee in April 1975; but because of the shortness of time involved in that case, an award could not be given. The Committee made up of entirely different persons from the 1975 committee again unanimously recommends that Ohio University award the honorary degree, Doctor of Humane Letters, to Sidney Alexander, a distinguished novelist, poet, translator, art historian and teacher.

While Sidney Alexander lives in Italy, he does visit the United States on occasion and by making arrangements with Dr. Robert Wortman the conferring of the degree might be able to be arranged on his next visit to the United States.

He has received the Maxwell Anderson award for Dramatic Composition in Verse and has received numerous awards from the Italian Ministry of Foreign Affairs and the Ascoli Foundation for Michelangelo Studies. His book, Lions and Foxes: People and Ideas of the Italian Renaissance, has won critical acclaim throughout the world. He has an international reputation as an art historian, novelist, poet and translator.

As a guest teacher, he has given great energy and time to the Ohio University Study Abroad Program in Florence, Italy and has had a way of leading students into many thoughts and has proven to be a most stimulating teacher. He has also served in the Fall and Winter Quarter of 1975 as Morton Visiting Professor of Comparative Arts.

Respectfully submitted,

Arthur J. Marinelli
Professor of Business Law and
Chairman, Honorary Degree Committee
OHIO UNIVERSITY
INTER-OFFICE COMMUNICATION

DATE April 16, 1975

TO President Harry Crewson

FROM R. C. Quisenberry, Chairman, Honorary Degree Committee

SUBJECT

The Honorary Degree Committee unanimously recommends that Ohio University award the honorary degree, Doctor of Humane Letters, to Professor Sidney Alexander, a distinguished novelist, poet, translator, art historian and teacher.

Professor Alexander served during the Fall and Winter Quarter as a Morton Visiting Professor of Comparative Arts, and will return to Italy in June. In addition to his numerous activities and publications listed in the attached forms, his most recent book (Lions and Foxes: People and Ideas of the Italian Renaissance, MacMillan and Co., November 1974) has won critical acclaim in the New York Times and other American newspapers as well as in the international press. He has been active as a guest faculty member for our programs in Italy since 1969, and was presented by the Distinguished Lecturer Series of the College of Fine Arts in 1970.

Assuming final approval, the Committee has been informed that the Comparative Arts Department under the Chairmanship of Dr. Robert Wortman plans to supplement the occasion of the presentation of this degree with one or more seminars, along with appropriate social functions honoring Professor Alexander and his family. Ideally this presentation would take place around the middle of May, the exact date compatible with Professor Alexander's schedule.

Respectfully presented,

R. C. Quisenberry
Professor of Electrical Engineering

RCQ/rcb
Attachment

cc: Robert Mahn, University Secretary
TO: Dr. Roger Quisenberry, Chairman, Honorary Degree Committee
FROM: Robert Wortman, Department of Comparative Arts

SUBJECT: Nomination for an Honorary Degree

I should like to nominate Professor Sidney Alexander for an Honorary Degree. Professor Alexander is serving as Morton Visiting Professor of Comparative Arts during the Fall and Winter Quarters of the current academic year. I am taking the liberty of enclosing xerox copies of the nomination documents which were favorably reviewed by last year's Morton Chair Selection Committee.

In addition to the activities noted on his Curriculum Vitae, Professor Alexander's most recent book (Lions and Foxes: People and Ideas of the Italian Renaissance, MacMillan and Company, November, 1974) has won critical acclaim in the New York Times and other American newspapers as well as in the international press. As a novelist, poet, translator, art historian and teacher, his is an international reputation.

I am not unaware of the problems of precedent-setting which arise in connection with the nomination of a person active in the University community. I have no arguments to advance in the matter except to say that this case appears to me to be somewhat exceptional.

Dean Henry Lin of the College of Fine Arts has expressed his willingness to write an endorsement of this nomination. You should be receiving his statement within a few days.

Professor Alexander will be returning to his home in Italy around March 20. May I request that, should the committee act favorably on his nomination, the award be made prior to that date?

RW:sct
encl.
cc: Dean Lin
Employment (teaching)

Stanford University in Florence: Regular courses in Michelangelo, Renaissance Art, Renaissance intellectual history, contemporary Italian novels, seminar in modern Italian poetry. 1963 to date. Adjunct Professor of Fine Arts.

Syracuse University: Associate Professor of Fine Arts, 1963-67

Syracuse University, School of Art in Florence: Summer sessions 1967 - to date


Sarah Lawrence College: Professor of Art History. Summer sessions in Florence 1966-1971

Villa Schifanoia: Florence branch of Rosary College Graduate seminar in Aesthetics 1971

Università Internazionale dell'Arte: Painting from French Impressionism to contemporary trends, 1973

Lake Forest College in Florence: Professor in Renaissance Art and History, 1969 - 1971

California State University in Florence: Professor in Renaissance Art and History, 1969 - 1971

Associated Colleges of the Midwest in Florence: Professor in Renaissance Art and History, 1971 to date.

Moore College of Art in Florence: Professor in Renaissance Art, 1968, 1969

Manhattanville College in Massa Carrara: Course in Renaissance Sculpture, 1973

In the summer of 1972, I conducted a graduate seminar, as well as a series of guest lectures for Ohio University in Florence. I have also been a frequent guest lecturer on Italian subjects for many other American Universities, the United States Information Service and other organizations in Florence. I have lectured both in English and in Italian.

First prize P.E.N., award for Translation 1970
for Guicciardini's History of Italy, published Macmillan 1939, See also my address on translating from Renaissance Italian read at International Conference on Translation N.Y. and published by PEN American Center 1971. (see Anthologies above)

Italian Ministry of Foreign Affairs

Ascoli Foundation
Grant-in-aid for Michelangelo studies, 1958, 1959, 1960

Faculty Grant-in-aid Syracuse University
Grant-in-aid for Michelangelo studies, 1964-1965

Maxwell Anderson Award for Dramatic Composition in Verse
University, California

1st Prize Great Folly (1948, First Prize)

Chamber 50th Story Contest, NY
1st Prize (1948, First Prize)

Recent prize-winning anthologies of short stories at
United States, Italy and Austria. (see Anthologies
A Little Lower than the Angels

(Facets of Italian Renaissance intellectual history. To be published by Macmillan, NY 1974)

The History of Italy


The History of Italy


The Hand of Michelangelo

(novel) Mario Casalini, Montreal, 1966.

Michelangelo The Florentine


Michelangelo II Florentine

(Italian trans.) Martello, Milan, 1959.

Gigantes

(Swedish trans. of above) Natur och Kultur, Stockholm, 1960

The Berenson Collection


A House in Milan

(trans. from Testori) Harcourt Brace & World, 1962

The Celluloid Asylum

(novel) Bobbs-Merrill, NY 1951.

The Marine Cemetery

(adapted from Valéry's Le Cimetière Marin) Introduction by Gustave Cohen, Firenze, Italy, 1949.

The Man on the Hour


Tightrope in the Dark

Represented in Anthologies:

*Genanz von den Abgrund*  
(translations by Ernst Waldinger)  
Stingy Verlag,  
Vienna 1961

*La Più Belle Novelle Di Tutti I Paesi*  
Ed. D. Porzio, Martello, Milan

The Short Story

*Ed. James B. Hall & Joe. Langland*  
Macmillan, NY 1956

Modern Poetry

*Ed. Paul Engle & Warren Carrier*  

Modern Short Stories, A Critical Anthology

*Ed. Robert B. Nollman, Univ. of Wash.*  
Harcourt Brace,  

The Poetry of the Negro

(new revised edition, 1970)

The Best American Short Stories  
(1943 & 1944)  
*Ed. Martha Foley*  
Soughton Miflin

La Belle De Du Cafè Triste A Autros Nouveaux Américaines  
La Portulan, Paris, 1946.

Accent Anthology  
Harcourt Brace, NY, 1946.

War Poems of the United Nations  
Dial, NY, 1943.

The Poetry of Flight

*Ed. Selden Rodman*  
Duell Sloan & Pearce, NY 1941

The New York Times Book of Verse

*Ed. Thomas Lask*  
Macmillan, NY 1970

The World of Translation

PEN American Center, NY 1971

Encyclopedias

Michelangelo


Florence

Encyclopedia Americana, NY. Revised ed.
Plays

Salem Story

Off-Broadway production. NY, 1948. Earlier version on radio. WNYC, 1940. Maxwell Anderson Award 1948

The Hawk and the Flesh

Radio Play. WNYC, NY, 1939


Magazines

For twenty years (1949-1969) I was regular foreign correspondent for The Reporter Magazine, covering cultural affairs in Europe and the United States.


Several articles of mine published in the American Scholar and The Reporter have been distributed world-wide under the aegis of the United States Information Service.

NOTE: Currently under contract to Putnam's, New York, for a biography of Marc Chagall.
Employment (editorial)

Office of War Information, Editor, 1943.

United States Army Air Force 1943 - 1946.

Education

B.S. in General Studies, Columbia University, 1935.
Post Graduate work in History and Comparative literature
Columbia University; Graduate faculty of the
New School; Sorbonne, Paris; University of Florence;
(Certificate of Proficiency in Italian Culture and
Literature, 1949).
Mill St. Apt. K-9  
Athens, Ohio 45701  
18 January 1974

Dr. Barry Katz  
Department of Comparative Arts  
Ohio University  
Athens, Ohio 45701

Dear Dr. Katz:

Ohio University should consider inviting Sydney Alexander as a guest lecturer for an academic year. During the summer of 1972, I was with the Ohio University Study Abroad Program in Florence, Italy. As a doctoral student in Comparative Arts, I was able to meet with Mr. Alexander in special seminars which were set up for graduate students, and I also heard him present a special lecture on the Sistine Chapel. He is both a delightful person to know and a thorough scholar. He has a way of leading students into many thoughts and is a most stimulating teacher. His presence on this campus would be a tremendous experience for persons in many fields, especially those of history, music, art history, and language.

I hope that such a visit may occur. He would bring many new thoughts and a sense of vitality to the arts program of this university.

Sincerely,

Karen C. Allen
HONORARY DEGREE - NOMINATING FORM

In order to act on a nomination the Honorary Degrees Committee needs all pertinent information about the nominee. Please supply as much information as possible. Whenever possible supporting data should be attached separately.

Name of Nominee: Sidney Alexander

Place and Date of Birth: New York City, 1913

Position: Novelist, Poet, Playwright, Translator, Cultural Historian - Currently Morton Visiting Professor of Comparative Arts

Academic Degrees Earned and Institutions Granting Them:
B.S. - General Studies - Columbia University
Post Graduate Study in History and Comparative Literature - Columbia University
Further Post Graduate Study - New School for Social Research
Sorbonne
University of Florence (Italy)

Honorary Degrees and Institutions Granting Them:
None
Vocational Experience:

Recent Published Works:

- Guicciardini - History of Italy. Translation, Macmillan, 1969
- The Hand of Michelangelo (novel) Mario Casalini, 1966
- Michelangelo the Florentine (novel) Random House, 1967
- Michelangelo il Florentino (Ital. trans.) Martello-Milano, 1959
- Giganten (Swedish trans of above) Natur Och Kultur, Stockholm

Now under contract to G. P. Putnam, Inc. for biographical study of Marc Chagall. A complete list of published works including plays, poetry, short stories, etc. was enclosed with nomination documents submitted earlier.

Other Experience or Activities Relevant to Nomination:

Professor of Art History for Harvard Center for Renaissance Studies (I Tatti), Stanford University, Syracuse University, Sarah Lawrence College, Villa Schifanoia (Rosary College) in Florence, Italy.
Important Publications:
See list above and attached material

Membership in Learned Societies, Professional Associations, Civil Organizations:
Fellow, British Royal Society of Arts
Member of several Florentine arts and cultural societies.
Significant Honors Attained:

First prize P.E.N. Award for Translation, 1970 (Guicciardini)
Italian Ministry of Foreign Affairs - Award for Michelangelo Studies 1958, 59, 60, 61
Ascoli Foundation - Award for Michelangelo Studies 1958, 59, 60
Maxwell Anderson award for Dramatic Composition in Verse, 1948

Exceptional Achievements or Contributions:

See above
Special Relationship to Ohio University:

He has been active as a guest faculty member for our programs in Italy since 1959 and was presented by the Distinguished Lecturer Series of the College of Fine Arts in 1970.

Other Sources of Information Which Could be Consulted About the Nominee:

Dean Henry Lin, College of Fine Arts
Dr. Phillip Pebb, Department of History
Dr. Rainer Schulte, Department of Comparative Literature
Prof. Bartolomeo Martello, Department of Modern Languages
Dr. Karl Ahrendt, Distinguished Professor Emeritus of Music
Personal Evaluation of Nominee:

In my opinion, the record of achievement speaks for itself. Professor Alexander has been and continues to be involved with creative enterprise in several different fields. His contribution to Ohio University programs has been both direct and beneficial to graduate and undergraduate students. I believe he is deserving of the honor for which he is being nominated and recommend him to the favorable action of the committee in the strongest possible terms.

Nominator's Name: Robert Wortman

Address: Department of Comparative Arts - Ohio University

Phone Number: 894-3717

Return to Elizabeth Smith
325 Geology Hall
R.C. Williams Library
Cincinnati 272-13
The Honorary Degree Committee unanimously recommends that Ohio University award the honorary degree, Doctor of Science, to Ariel C. Hollinshead.

A graduate of Ohio University she is Professor of Medicine and Director of Laboratories at George Washington University. She was named "Medical Woman of the Year for the United States" by the Joint Board of American Medical Colleges in 1976. An active member of national and international societies concerned with viruses, she is an acknowledged authority in this field. The citation she received as "Medical Woman of the Year" recited in part, "Dr. Hollinshead with her unique talents of research and application of the principles of her research, is one of the few women in our country who...will receive lasting distinction by applying the principles of basic research to the diseases of humanity." She is one of the outstanding researchers, teachers and lecturers on cancer, vaccines and drugs relating to infectious diseases.

Respectfully submitted,

Arthur J. Marinelli
Professor of Business Law and
Chairman, Honorary Degree Committee
The Honorary Degree Committee unanimously recommends that Ohio University award honorary degrees to the following two persons at June Commencement, if at all possible. If this is not possible, then at the earliest moment convenient for all concerned:

- Ariel C. Hollenshead
- Jesse Hilton Stuart

The Committee unanimously recommends that next time Sidney Alexander is in the United States arrangements be made to confer the honorary degree, Doctor of Humane Letters, upon him. This recommendation merely repeats a recommendation made in 1975.

Very truly yours,

Arthur J. Marinelli
Professor of Business Law and Chairman, Honorary Degree Committee
A pioneer in cancer immunology, Dr. Hollinshead is the first person to achieve success in the separation of tumor-related antigens. For her work, Dr. Hollinshead has received the Distinguished Scientist Award from the American Association for the Advancement of Science and was named Medical Woman of the Year in 1975. In 1977 Dr. Hollinshead received an honorary Doctor of Science degree from Ohio University. Her concern for the untapped source of educated women led her to establish the Professional Opportunities for Women in Science association. Continuing her research and extensive publication on virus-related tumors, Dr. Hollinshead has served on the National Science Foundation Advisory Board on Health Manpower and chairs the Medical Service Review Board of the Veterans Administration.
HONORARY DEGREE - NOMINATING FORM

In order to act on a nomination the Honorary Degrees Committee needs all pertinent information about the nominee. Please supply as much information as possible. Whenever possible supporting data should be attached separately.

Name of Nominee:  Professor Ariel C. Hollinshead

Place and Date of Birth:  

Position:  Professor of Medicine, Director of Laboratory
            George Washington University

Academic Degrees Earned and Institutions Granting Them:

A. B. and M. A., Swarthmore College, The Ohio University and The George Washington Medical Center - 1955

Ph. D. in Pharmacology, The George Washington University Medical Center - 1957

Postdoctoral Fellow in Pharmacology at George Washington University

Honorary Degrees and Institutions Granting Them:
Vocations Experience:

1974- present: Professor of Medicine, Director of Laboratory

1964-73: Associate Professor of Medicine and Head of Laboratory for Virus and Cancer Research, The George Washington University

1961-64: Assistant Professor of Medicine, George Washington University

1959-61: Assistant Professor of Pharmacology, George Washington University

1958-59: Assistant Professor and Fellow in Virology and Epidemiology, Baylor University School of Medicine

Other Experience or Activities Relevant to Nomination:

Councils: NCI Consultant: Experimental Therapeutics 1975, 1976

Medical Service Review Board, Veterans Administration 1976-79
Membership in Learned Societies, Professional Associations, Civil Organizations:

American Assoc. for Advancement of Science (Member, 1957, Fellow, 1966, Life Member, Sept. 1967)

New York Academy of Sciences (Member 1957, Life Member, January, 1967)


Society of Sigma Xi (Member, 1958, Life Member, 1968)

Tissue Culture Association (Member, 1963)

American Society for Microbiology (Member, 1964)

Washington Academy of Sciences (Fellow, 1968)

American Assoc. for Cancer Research (1973)


American Assoc. of Immunologists (1973)

Int'l. Agency for Research on Cancer (1973)

Int'l. Union Against Cancer (1973)
Significant Honors Attained:


Who's Who in American Men and Women of Science

Blue Book

Who's Who in America, 14th Edition

Exceptional Achievements or Contributions: see attached.
Special Relationship to Ohio University:

Dr. Hollinshead received the 1976 Certificate of Merit, the Alumni Association's highest award.

Other Sources of Information Which Could be Consulted About the Nominee:
see attached.
Personal Evaluation of Nominee:

Dr. Hollinshead, as her qualifications show, had made a unique and invaluable contribution to mankind and to the world of medicine through her tireless efforts in the field of virus and cancer research.

Nominator's Name  Keith Welsh
Address  Alumni Relations Office
Phone Number  504-5429
Return to: Arthur J. Marinelli
Copeland Hall - Room 217
Biographical Sketch

Professor Ariel C. Hollinshead

Office Address: Laboratory for Virus and Cancer Research, Department of Medicine, The George Washington University Medical Center, 2300 "I" Street, N.W., Washington, D.C. 20037

Home Address: 3637 Van Ness Street, N.W., Washington, D.C. 20008

Dr. Hollinshead is currently engaged in scientific research related to the separation and identification of tumor related antigens present on cell membranes and in clinical studies of their use in diagnostic tests and immunotherapy for cancer. Her work in this specific area began in 1967 when she studied and developed various methods for the isolation of intact immunogenic soluble cell membrane antigens. She was the first to achieve success in the separation of tumor related antigens from the cell surface. She has shown that specific soluble antigens may be used in various tests for a further understanding of their role in various cancer systems. In two different animal cancer model systems, she has shown that one of these antigens inhibits tumor formation. The first system studied was that of adeno-virus-induced hamster tumors, and the results were later confirmed in inbred hamsters. The second study was done using chemically-induced mouse lymphomas. In human systems she found a soluble antigen in tumor cell membranes of patients with intestinal cancer which gave a specific delayed hypersensitive skin reaction in both autologous and allogeneic tests of patients. She was a pioneer in the study of soluble membrane antigens found in human fetal counterparts, tissues and conducted skin test studies of these antigens in selected cancer patients. One of these skin reactive antigens was found in first and second trimester human fetal intestines.

She has succeeded in establishing a diagnostic test for melanoma. In order of increasing lethality, there are three types of melanoma: lentigo-maligna melanoma, superficial-spread melanoma and nodular melanoma. Detection of these systemic forms of melanoma is reported in Cancer. In addition, another coded series of studies were conducted on patients with cutaneous melanoma and in a group suspected of having ocular melanoma. Dr. Hollinshead's antigen again proved to be useful for diagnosis of this devastating form of eye cancer (in the New England Journal of Medicine). By similar methods used for isolating the tumor associated antigens of melanoma, Dr. Hollinshead also succeeded in isolating and identifying those antigens which are associated with breast cancer. It would appear that women react both to a tissue-associated and to a tumor-associated antigen in the early stages of the development of breast cancer, and that they respond to the tumor associated antigen in a specific manner only during the late stages of breast cancer, when it is too late. In a similar manner to the studies with melanoma, it is hoped that the discovery of this antigen will lead to the development of various types of tests for detection of early breast cancer. In addition, studies can now be conducted to determine the usefulness of this antigen in combination with chemotherapy for a new form of chemoimmunotherapy. Specific antigens associated with lung cancer have been identified and isolated by Dr. Hollinshead, and these are already being used in a very careful study of chemoimmunotherapy of lung cancer patients. The lung cancer studies are being conducted in cooperation with Dr. Thomas Stewart, University of Ottawa Medical Center, and have recently reported at an international forum.
She isolated a soluble antigen from vaginal, vulvar, and cervical cancer which proved to be a non-structural protein induced by a tiny piece of genetic information from a herpesvirus. In a series of coded experiments, sera from women with cervical cancer reacted in complement-fixation tests with this soluble antigen from genital cancer cells. Neither cancer, nor control sera, reacted with similar preparations from normal vaginal tissue. Antibody to the virus-induced soluble antigen of cancer tissue appears to be therefore prevalent in the cancer population. In a further study the first proof of a relationship between a human virus and two forms of human cancer was established (herpes and cervical and lip cancers). She is continuing to study the relationships between viruses, virus-induced antigens, and major and minor histocompatibility antigens for their relationship to the soluble membrane antigens of cancer cells.

In five coded large-scale tests, four with NCI and one with Baylor, the purified, separated, identified herpesvirus-tumor associated antigens were shown to be associated with all squamous carcinomas of the head and neck as well as of the genital areas. Thus, a new understanding of head and neck cancer and new ways to diagnose and to treat this problem are being developed.

An earlier achievement during her doctoral studies was the discovery of the first synthetic drug, hydroxybenzyl-benzimidazole (HBB), which effectively inhibits poliovirus infection of the cell. She also investigated the mechanism of the action of this drug. This drug has since been used for many important basic studies by scientists at Rockefeller University and elsewhere. She has conducted studies on drug evaluation in several clinical pharmacology programs and has investigated the mechanism of action of several drugs and several purine and pyrimidine analogues. For her postdoctoral studies she investigated the chemical nature of virulence by studying the differences between a virulent poliovirus strain and an avirulent daughter strain of the same virus (used in live vaccines). Another study has involved the identification, isolation and characterization of specific virus-induced tumor antigens which were the only "fingerprints" left behind in tumors induced in animals by human adenoviruses.

Dr. Hollinshead was chosen as a representative from the United States of America in the First International Congress for Virology, held in Helsinki, Finland, July 1968. In August, 1968, she was invited to participate in the Gordon Conferences on Cancer Immunology. She attended and participated in both the International Cancer Immunology Conference in Montreal, October, 1969 and the International Cancer Congress in Houston, May, 1970. She gave a seminar to the Chemistry and Carcinogen Branch of the National Cancer Institute in November, 1971 and a seminar to the Immunology Branch, also of the N.C.I., in February, 1971. She was the keynote speaker for a symposium on immunology and cancer held in honor of the 25th Anniversary of the University of Ottawa in May, 1971 where she announced a scientific breakthrough in the cancer problem using cervical cancer and intestinal cancer as experimental models. She was guest speaker at Ohio State University's Medical Center, June, 1971, and participated in the Second International Congress for Virology in Budapest, Hungary, July, 1971, and in four workshops of the First International Congress of Immunology, Washington, D.C., August, 1971. In September, 1971, Dr. Hollinshead, as guest of the Italian government, worked in laboratories and delivered a series of lectures at various medical centers in Italy. At that time, she also spoke at the 5th International Conference on Leukemia, in Padova, Italy. In January, 1972, she was moderator for a panel discussion on recent advances and future work in diagnosis and treatment of malignant diseases. This discussion was
taped for a VOA broadcast given around the world. From February to June of 1972, she gave sixteen lectures on tumor-related and carcinoembryonic antigens at various medical schools in the U.S.A. In June, 1972, she participated in a conference and a workshop, sponsored by the N.I.H. on "Cellular Immune Reactions to Human Tumor Associated Antigens," and in a Gordon Conference on Cancer in August of 1972. She participated in a conference on lung cancer in Canada during September of 1972. Early in 1973 she gave several university and N.I.H. lectures on the role of herpesviruses in certain human cancers, and participated in an N.I.H. herpesvirus workshop. In April, 1973, she participated on a panel and also delivered 3 papers at the Second International Symposium on Cancer Detection and Prevention, Bologna, Italy. In August, 1973, she participated in the Second International Conference on Comparative Virology, in Canada and also in the Cold Spring Harbor Symposium on herpesviruses. She participated in the Sixth International Symposium on Comparative Leukemia Research, September 1973 in Nagoya/Ise-Shima, Japan and established a cooperative research program on gastric cancer with Tokyo, N.C.I., and Juntendo University. A special honor was the selection as distinguished cancer scientist by Board of Directors of N.M.S. and the resulting invitation by the counterpart organization "Znaniye" (a 2 1/2 million member scientific group) of the USSR for a 15-day lecture tour of the key oncology and basic science institutes in the USSR as a guest of USSR scientists in December, 1973; she was awarded a foreign membership of that group. In October, 1974, Dr. Hollinshead attended the International Herpesvirus meeting, Nüremberg, Germany, and the International Cancer Congress in Florence, Italy. Dr. Hollinshead chaired and spoke at a special conference in Rome for the Ministry of Health on the subjects of cancer immunodiagnosis and immunotherapy. She gave a key speech on immunotherapy and immunodiagnosis at the National Working Party for Therapy of Lung Cancer in December, 1974, and also participated in the National Bladder Cancer Task Force meeting in February, 1975, and again in January, 1976, as well as a special bladder cancer meeting planned for August in Iowa City. She attended the International Conference on Immunotherapy of Cancer in November-1975 and gave papers as well as heading a workshop on tumor cell antigens at the International Conference on Detection and Prevention of Cancer in April of 1976. She participated in several panel taped discussions used for physician-education programs and an audiotape session as a representative of the scientific community for the N.M.S sponsored Bicentennial Program: Knowledge 2000. She delivered many lectures at major medical centers such as M.D. Anderson, Univ. of Pennsylvania; Univ. of Miami, New England Center, Yale University, Cornell University and to 16 state medical society meetings during 1975-76. She received the honor of being selected as the annual Meller Visiting Scholar at Memorial Sloan-Kettering Cancer Center in March, 1976. Along with Dr. Evan Hersh, she represented the United States at a World Health Organization meeting held in Austria April 1976 on Possibilities of Specific Immunotherapy of Solid Tumors and both representatives put forth the parameters for phase I, II and III specific active immunotherapy and requisites for clinical trials in immunotherapy which met with approval. In June 1976 she attended a meeting on Biological Markers, Division of Cancer Treatment N.C.I. Several foreign visitors spend from 1 month to 1 year in her laboratory. In 1975-76 an Associate Professor from Taiwan spent 1 year, with shorter visits by Russian, Danish, Swedish, Scottish, Italian, French, Japanese, Irish, English, Yugoslavian and several others from this continent. She has worked extremely hard to pave the way for new approaches to diagnosis and treatment of cancer, began such work when it was unpopular, and it is now recognized as a major approach. Intramural activities have included being director of thesis and research for three Ph.D. and six M.A. candidates; director of fourteen medical research fellowships for medical students; participation in research planning for clinical colleagues; teaching pharmacology, advanced cancer chemotherapy, advanced immunology, medical
virology and scientific research disciplines to medical and graduate students. She is reviewer for various medical journals.

As 1968-69 President of Graduate Women in Science (Sigma Delta Epsilon), omicron chapter, a women's scientific honorary society, she worked hard to encourage young women to pursue scientific careers, including the establishment of round table discussions at many colleges between budding young scientists and established scientists. She established P.O.W.S., which is organized to research and acts on behalf of Professional Opportunities for Women in Science, and which is equally concerned about the vast, relatively untapped source of educated women who could be equipped for part-time positions in science. As Liaison Officer and a member of the National Council, she has built up chapter relations and represented G.W.I.S. by serving on committees dedicated to the establishment of a national registry of professional women and to their career development, for the newly formed Federation of Organizations for Professional Women (FPW). She served as chairwoman of the FPW Finance Committee, 1972-73. She was selected to represent the women scientists of the United States at the 50th Anniversary Meeting of the Women's Bureau in June, 1970. She served on the National Academy of Science World Committee for I.A.S.A., July 1973 and is a member of the Virginia Gildersleeve Foundation for the promotion of international goodwill and understanding among women. Her extramural activities have also included being part of the Scholarship Committee and the E.O.P. (Economic Opportunity Program) Committee of the George Washington University and being a member of the board and an active officer of Rock Creek Women's Republican Club. She lectures to biology classes and clubs in the neighboring colleges and high schools, is science advisor to Sandy Spring Friends School, has been the judge of Montgomery County and D.C. Science Fairs and of the Future Scientists of America contest. She lectures at women's clubs on cancer or on current vaccines and drugs for infectious diseases, was on the finance and property committee of Washington Friends Meeting; participated for the last eight years in the Children's Hospital drive, is an active citizen working in primary and presidential elections. She is also room mother and head (1971-75) of the Science Committee of Sidwell Friends School. She is the wife of an administrative law judge Montgomery K. Hyun. The couple are members of the Kenwood Country Club, Blue Ridge Mt. Country Club and professional clubs in the city. Judge Hyun has had a distinguished career. First an attorney with Covington and Burling law firm, he then worked in the antitrust division of FTC and was eventually assistant to the Chairman. He never lost a case. He is a bright, well-informed and effective judge with a promising future. There are two fine sons: William, age seventeen and Christopher, age thirteen.

Dr. Hollinshead was named Medical Woman of the Year for the U.S.A. for 1975-76 by a national committee appointed by the Joint Board of American medical colleges. Dr. Hollinshead was chosen from among 250 women who were nominated for this award. At a special banquet held under the auspices of the Medical College of Pennsylvania, Philadelphia on May 23, 1975, Dr. Hollinshead received a citation "In recognition of her pioneer work in separating tumor related antigens from the cell surface and in showing the reactivity of purified antigens for specific types of carcinoma with important implications for immunodiagnosis and immunotherapy. An active member of national and international societies concerned with viruses, she is an acknowledged authority in this field. We honor her as an outstanding scientist, a dedicated teacher, a community leader and a devoted wife and mother. This surprise tribute was the result of a concerted effort by outstanding scientists and medical colleagues in the United States and many other countries. Part of the nomination read as follows:

"Dr. Hollinshead, with her unique talents of research and applications of the principles of her research, is one of the few women in our country who will receive lasting distinction by applying the principles of basic research to the diseases of humanity."
Ph.D. in Pharmacology, The George Washington University Medical Center - 1957.
Chief graduate college subjects: Pharmacology, Chemotherapy, Biochemistry, Virology, Cellular Physiology.


Specialties: Cancer Immunology, Animal Virology, Cancer and Virus Chemotherapy, Viral Oncology.

Current Major Activity or Research Projects: Soluble membrane antigens of cancer and normal cells: 1) separation, identification and structural analysis, 2) application to diagnosis and immunotherapy of cancer patients.

Professional Experience: 1974-present: Professor of Medicine, Director of Laboratory
1964-1973 Associate Professor of Medicine and Head of Laboratory for Virus and Cancer Research, The George Washington University
1961-1964 Assistant Professor of Medicine, The George Washington University
1959-1961 Assistant Professor of Pharmacology, The George Washington University
1958-1959 Assistant Professor and Fellow in Virology and Epidemiology, Dr. Joseph L. Melnick, Chairman of Department of Virology and Epidemiology, The Baylor University School of Medicine.

Councils: NCI Consultant: Experimental Therapeutics 1975, 1976--.

Membership in Scientific Societies:
American Assoc. for Advancement of Science (Member, 1957; Fellow, 1966; Life Member, Sept. 1967)
New York Academy of Sciences (Member, 1957; Life Member, January, 1967)
Sigma Delta Epsilon (Member, 1961; Education Committee, 1966-1967; Vice President and Program Chairman, 1967-68; President, 1968-69) Women's Scientific Honorary Society for Experimental Biology and Medicine (National, 1969)
Society of Sigma Xi (Member, 1958; Life Member, 1968)
Tissue Culture Association (Member, 1963)
American Society for Microbiology (Member, 1964)
Washington Academy of Sciences (Fellow, 1968)
American Association for Cancer Research (1973)

American Association of Immunologists (1973)

International Agency for Research on Cancer (1973)

International Union Against Cancer (1973)

Committees:

Human Cancer Virus Task Force (Adenovirus Committee, 1963-67; Transplantation Antigen Committee, 1968); Student Financial Aid Committees (4 years) and Research Committees (3 years) at G.W.U.; Cancer Immunology (1969-73); National Bladder Cancer Task Force (1975, 1976); Immunodiagnosis (1974-76); Working Lung Cancer Task Force (1975); Head, Task Force on Health, Federation of Organizations for Professional Women; Committee on Medical Sciences, Graduate Programs.


Publications:


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Hollinshead, A., Jaffurs, W., Alpert, L. and Herberman, R. Specific soluble
membrane antigen of malignant and normal breast cells: delayed hypersensitive

Hollinshead, A., Gold, P. and Herberman, R. Further comparisons of separated
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antigens and the role of tumor related antigens in the diagnosis and treatment
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Stewart, T., Hollinshead, A. and Herberman, R. Soluble membrane antigens of human

Herberman, R., Char, D., McCoy, J., Hollinshead, A. and Leventhal, B. Cell-mediated
immunity in human acute leukemia. Comparative Leukemia Research, Leukemogenesis,
Ed. Y. Ito and R.H. Dutcher, Univ. of Tokyo Press, Tokyo/Karori, Basel, pp. 339-48
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Herberman, R.B., Hollinshead, A.C. and von Kleist, S. Relationship of skin reactive
intestinal cancer antigen to the carcinomaembryonic antigen of Gold and other antigens.

Herberman, R.B., Hollinshead, A., Char, D., Oldham, R., McCoy, J. and Cohen, M.
In vivo and in vitro studies of cell-mediated immune response to antigens associated
with malignant melanoma. International Symposium on Immunological Reactions to
Melanoma Antigens, Hannover, West Germany, pp. 16-17, April (1974).

Herberman, R.B., Hollinshead, A.C., Alford, T.C., McCoy, J.L., Halterman, R.H. and
Leventhal, B.G. Delayed cutaneous hypersensitivity reactions to extracts of human

Hollinshead, A., Tarro, G., Foster, W.A. Jr., Seigel, L.J. and Jaffurs, W. Studies

Hollinshead, A.C. and Tarro, G. Soluble membrane antigens of lip and cervical
carcinomas: reactivity with antibody for herpesvirus nonvirus antigens. (Abstract)

Hollinshead, A. Suppression of the immune response to tumor-associated antigens
of acute leukemia. Proceedings of the Ninth Leukocyte Culture Conference,

Char, R.V., Hollinshead, A., Cogan, D.G., Ballentine, E.J., Hogan, M.J. and
Herberman, R.B. Cutaneous delayed hypersensitivity reactions to soluble melanoma
antigen in patients with ocular malignant melanoma. New England J. of Medicine


Hollinshead, A.C., Chretien, P.B. and Tarpley, J.L. Studies of the nature of herpesvirus-induced tumor-associated antigens induced by herpes simplex virus type 1 and further analysis of their relationship with squamous-cell carcinomas of the head and neck region. In: Oncogenesis and Herpesvirus, Zur Hausen, de The and Epstein (eds), World Health Organization, in press.


Hollinshead, Ariel C. Analysis of soluble melanoma cell membrane antigens in metastatic cells of various organs and further studies of antigens present in primary melanoma. Cancer 36:1202-88 (1975).


March 24, 1977

Keith Welsh, Director
Alumni Relations
Lindley Hall

Dear Keith:

Thank you for sending over the nomination form of Ariel C. Hollinshead. Your assistance to the Honorary Degree is most appreciated, and we will be meeting in early April to make a decision on the nomination.

Sincerely,

Arthur J. Marinelli, Jr.
Chairman
Honorary Degree Committee
Dear Keith:

It is a pleasure to inform you that Ariel C. Hollinshead has been recommended to the president for an honorary degree. The president mentioned that she will be considered as a possible commencement speaker for next year. In our deliberations concerning many persons for the honorary degree a number of individuals were considered, who the committee felt might be considered for an alumni award or a certificate of merit or some other award that your office might give. Two names particularly stood out in that regard. They are Ruby Mercer, (whose materials are enclosed) who I quite frankly felt was deserving of an honorary degree but the committee did not see fit to send her name to the president. Her distinguished career in music is I think quite evident from the enclosed materials. This is the 50th anniversary of her graduation from Ohio University.

Another who stood out is James Hyslop, retired President of Hanna Coal Company. I have enclosed materials concerning him, both Jim Bryant and Dean Bovenizer can give you more information about him.

The above two candidates the honorary degree committee requested that I forward to you for your consideration of some appropriate award and we unanimously endorse the giving of some appropriate award to them.

Other names which came before the committee and which I believe you might want to give some consideration to include, Joseph Levine, the well known film producer. John Wilhelm can provide you with all the information. I have provided a great deal of information about him in this packet of materials. He has been helpful in providing an Ohio premiere for the film A Bridge Too Far, the profits of which will go to a scholarship fund for foreign reporting to be established in the name of Cornelius Ryan.
April 14, 1977

Keith Welsh

I am also enclosing a number of recommendations relating to the Rev. Fred Luchs and some materials concerning Glenn H. Brown. In addition one committee member, Dr. Kenneth Light suggested the name of Victor Oakley. Dr. Light would be most happy to provide you with more information concerning Mr. Oakley and the committee was impressed with Dr. Light's brief comments concerning the contributions of Mr. Oakley.

Very truly yours,

Arthur J. Martinelli, Chairman
Honorary Degree Committee

Enclosures (5)
cc: Charles J. Ping, President
Jack G. Ellis, Director of Development
James C. Bryant, Vice Provost/Regional Higher Education
The Honorary Degree Committee recommends that Ohio University award the honorary degree, Doctor of Laws, to Vernal G. Riffe, Jr.

Vernal G. Riffe, Jr. has demonstrated his leadership abilities by being elected by his colleagues in the House of Representatives as Speaker Pro Tem in 1973, and two years later being elected Speaker of the House of Representatives. His legislative ability, industry and creativity was recognized by the State House Newspaper, Radio and Television Reporters when he was selected as the "Outstanding Legislator in Ohio."

He served on the Conservation, Taxation, Education, and Highways Committees of the House of Representatives and has been an outspoken leader and played a major role in these fields. Speaker Riffe has been a leader in supporting action to improve the internal operation of the Ohio General Assembly.

Respectfully submitted,

Arthur J. Marinelli
Professor of Business Law and
Chairman, Honorary Degree Committee
February 1, 1977

HONORARY DEGREE - NOMINATING FORM

In order to act on a nomination the Honorary Degrees Committee needs all pertinent information about the nominee. Please supply as much information as possible. Whenever possible supporting data should be attached separately.

Name of Nominee: Vernal G. Riffe, Jr.

Place and Date of Birth: New Boston, Ohio June 26, 1925

Position: Speaker, House of Representatives

112th Ohio General Assembly and President of Riffe and Bennett Insurance Agency in New Boston, Ohio

Academic Degrees Earned and Institutions Granting Them:

NONE

Honorary Degrees and Institutions Granting Them:

NONE
Vocations Experience: **OHIO GENERAL ASSEMBLY**
Since 1959 State Representative, 89th District (Scioto, Pike, part of Jackson Counties)

Speaker of the House, 111th General Assembly and the 112th General Assembly

**BUSINESS**
President, Riffe and Bennett Insurance Agency, Inc.

Other Experience or Activities Relevant to Nomination:
Committee Assignments—Ohio General Assembly
1. Education
2. Conservation
3. Highways
4. Taxation
5. Insurance—Utilities and Financial Institutions
6. Rules
7. Ex-officio member of all current standing committees

1976 Member Executive Committee of the National Conference of State Legislatures.
Important Publications:
NONE

Membership in Learned Societies, Professional Associations, Civil Organizations:

Business and Professional Men's Association
Kiwanis Club
Ohio Independent Insurance Agents Association
Portsmouth Ohio Chamber of Commerce
Significant Honors Attained:

1973 "Legislator of the Year" by League of Ohio Sportsmen
1973 "Legislator of the Year" by Disabled American Veterans
1973 "Independence Award" by Ohio Association of Insurance Agents
1974 "Certificate of Merit" by the Ohio University Alumni Association
1974 "Outstanding Legislator in Ohio" by Statehouse Newspaper, Radio and Television reporters
1975 "Meritorious Service Award" by Veterans of Foreign Wars
1976 "Phillips Medal" First Recipient by the Ohio University Osteopathic Medicine College
1976 "Outstanding Achievement Award" by the Ohio Chapter of International Exceptional Achievements or Contributions:

1. Tenure in General Assembly - 19 years
2. Speaker-House of Representatives - 4 years
3. Successful Businessman and leader in field of insurance
4. Playing a major role in making the General Assembly sensitive to the needs of Ohio and its citizens
Special Relationship to Ohio University:

A friend who believes in the quality of the institution and the important role it has played and continues to play in higher education. A friend without whose support in the Ohio General Assembly Ohio University may not have survived as a whole and viable institution during its critical financial problem years.

Other Sources of Information Which Could be Consulted About the Nominee:

Dr. Charles J. Ping

Gene Bennett, 422 Center Street, New Boston, Ohio 45662
Mr. Riffe is a politician with a great record and future in public service. His political and business record and personal life are much admired. His sensitivity to the needs of people and his leadership in doing something about needs is praiseworthy.

I am personally proud and fortunate to be considered a friend of Vernal G. Riffe, Jr.

Nominator's Name: [Signature]
Address: [Signature]
Phone Number: 394-5776

Return to: Arthur J. Marinelli
Copeland Hall - Room 217
Legislative Background

Vernal G. Riffe, Jr., began his career in the Ohio General Assembly in 1959 when he was elected to the House of Representatives. Over the years he built up a reputation as an able and dedicated public servant. He served on several major committees, including Education, Taxation, Highways and Conservation, during the years the Democratic party was in the minority.

His colleagues acknowledged his leadership abilities by electing him Speaker Pro tem in 1973 when the Democrats gained a majority for the first time in many years. Two years later he was elected Speaker of the House of Representatives, and he is now in his second term as Speaker. The State House Newspaper, Radio, and Television Reporters paid Vernal G. Riffe their highest honor in 1974 by selecting him "Outstanding Legislator in Ohio."

The award came in recognition of Speaker Riffe's contribution to public policy in Ohio and the improvement in the operation of the Ohio General Assembly.

Public Policy

Vernal G. Riffe, Jr., was an outspoken leader in 1971 in support of the need for a state personal and corporate income tax. His role was crucial in passage of the tax bill in the House.

Since he holds a major leadership position, his name does not appear on individual bills. As Speaker, of course, Mr. Riffe plays a major role in all legislation passed by the House. He has been particularly interested in education and energy issues.

Speaker Riffe has played a major role in increased funding for higher education in the past two biennia. In addition to education, Mr. Riffe has taken a special interest in energy policy. He was instrumental in the creation of the Ohio Energy Research and Development Agency. The Speaker's concern for energy research grew out of his conviction that the future of the state's economy depends on breakthroughs in the energy field.

Internal Legislative Improvements

Speaker Riffe has been a leader in supporting action to improve the internal operation of the Ohio General Assembly. These efforts have been aimed at making
the legislature more efficient and increasing its independence from the executive branch. A recent study by a national study group, the Citizens' Conference on State Legislatures, found Ohio ranked in the top 16 states in the overall operation of its legislature.

Institution of annual sessions, improvements in legislators' compensation and improved staff assistance have been crucial in improving the performance of the legislature. Adequate staffing is probably the most important change and the establishment of the Legislative Budget Office has contributed greatly to the legislature's independence from the Executive. In addition, individual staffing for legislators has increased.

As a member of the Legislative Service Commission, the major research arm of the legislature for major policy questions, Speaker Riffe has supported expanded staffing to improve the Commission's effectiveness. In short, Mr. Riffe has been a major force in making the Ohio General Assembly a responsive, accountable, and independent body.

National Role

Speaker Riffe has been a member of the National Conference of State Legislators for a number of years and in 1976 was elected to that body's Executive Committee. The NCSL, operating under the auspices of the Council of State Governments, is a body composed of the state legislative leaders of all 50 states. It functions to share information, promote studies of interest to state legislators, and to articulate state concerns to the national government. The Executive Committee has the responsibility of directing and focusing the efforts of the NCSL.
The Honorary Degree Committee unanimously recommends that Ohio University award the honorary degree, Doctor of Humane Letters, to Jesse Hilton Stuart, a distinguished Appalachian author, poet, and educator.

Jesse Stuart stands out as one of the most prolific writers of the Appalachian heritage. The author of thirty-eight books, along with over three hundred published short stories. He has brought to the body of American literature a picture of a neglected literary source. The World of Jesse Stuart, a book of poetry, was nominated for the Pulitzer Prize in 1976 and he has received such other honors for his writings as outstanding poet of 1960 by the Academy of American poets, and the best book award by the National Education Association.

He has spoken on our campus a number of times and has encouraged numerous graduate students to attend Ohio University. He has often revealed his respect and affection for Ohio University.

Respectfully submitted,

Arthur J. Marinelli
Professor of Business Law and Chairman, Honorary Degree Committee

vjh
The Honorary Degree Committee unanimously recommends that Ohio University award the honorary degree, Doctor of Humane Letters, to Jesse Hilton Stuart, a distinguished Appalachian author, poet, and educator.

Jesse Stuart stands out as one of the most prolific writers of the Appalachian heritage. The author of thirty-eight books, along with over three hundred published short stories, he has brought to the body of American literature a picture of a neglected literary source. The World of Jesse Stuart, a book of poetry, was nominated for the Pulitzer Prize in 1976 and he has received such other honors for his writings as outstanding poet of 1960 by the Academy of American Poets, and the best book award by the National Education Association.

He has spoken on our campus a number of times and has encouraged numerous graduate students to attend Ohio University. He has often revealed his respect and affection for Ohio University.

Respectfully submitted,

Arthur J. Marinelli
Professor of Business Law and
Chairman, Honorary Degree Committee
HONORARY DEGREE NOMINATING FORM

In order to act on a nomination, the Honorary Degrees Committee needs all pertinent information about the nominee. Please supply as much information as possible. Whenever possible supporting data should be attached separately.

Name of Nominee: Jesse Hilton Stuart

Place and Date of Birth: August 8, 1907, N-Hollow, Cedar Ripples, Greenup County

Position: Appalachian Author, Poet, and Educator

Academic Degrees Earned and Institutions Granting Them:

A.B. Degree, Lincoln Memorial University, Harrogate, Tennessee
M.A. Degree, Vanderbilt University, Nashville, Tennessee

Honorary Degrees and Institutions Granting Them:

D.Litt., University of Kentucky, 1944
D.H.L., Lincoln Memorial University, 1950
D.Litt., Marietta College, 1952
L.L.D., Baylor University, 1954
D.Litt., Morris Harvey College, 1959
D.Litt., Marshall University, 1962
D.Litt., Northern Michigan University, 1954
D.Litt., Eastern Kentucky University, 1954
D.Litt., Berea College, 1966
D.of Pedagogy, Murray State University, 1968
D.of Pedagogy, Pfeiffer College, 1969
D.Litt., University of Louisville, 1974
D.Litt., Morehead State University, 1974
D.Law, Ball State University, 1975
Vocations, Experience:

- Elementary Teacher, one-room schoolhouse
- High School Teacher, Greenup, Ky.
- Principal, Greenup County Schools
- Superintendent, Greenup County Schools
- Principal, McKell High School, Ky.
- Teacher, Remedial English, Portsmouth, Ohio
- Professor, Graduate College of Education, University of Nevada
- Visiting Lecturer, American University, Cairo, Egypt
- Professor, Murray State University

Other Experience or Activities Relevant to Nomination:

1. Scholarship, Guggenheim Literary Award Fellowship, 1937
3. Appointed Poet Laureate of Kentucky by Kentucky State Legislature, 1954
5. Author in Residence, Eastern Kentucky University, 1967
Important Publications:

The following is a partial list of stories, books and poems all reflect
the Appalachian culture of which the Southeastern portion of Ohio is a part
of, dedicated to, and has a commitment to:

Man with a Bull-Tongued Plow (703 sonnets)
Head of W-Hollow (short stories)
Trees of Heaven
Man of the Mountains
Taps for Private Fussier
Mongrel Mettle
Alburn of Destiny
Foretaste of Glory
Tales from the Plum Grove Hill
The Thread That Runs So True
He to the Hunters
Clearing in the Sky
Kentucky is My Land
The Good Spirit of Laurel Ridge
The Year of My Rebirth
Plowshares in Heaven
God's Oddling
Hold April
A Jesse Stuart Reader
Save Every Lamb
Daughter of the Legend
My Land as a Voice
Harvest of Youth (poetry)

Mr. Gallion's School
Come Gentle Spring
Come Back to the Farm
Dawn of a Remembered Spring
Beyond Dark Hills
The Land Beyond the River
32 Votes Before Breakfast
Penny's Worth of Character
The Beatnest Boy
Tim, A Boy
The Rightful Owner
Andy Finds a Way
Old Ben
A Ride with Huey, the Engineer
The Red Mule
Come to My Tomorrow Land
My World
Up the Hollow from Linchburg

Membership in Learned Societies, Professional Associations, Civil
Organizations.
Significant Honors Attained:

1. See honorary degrees section on page 1.
2. Jeannette Sewall Davis Poetry Prize, 1934.
3. Academy of Arts and Sciences Award for Men of the Mountains, 1941.
4. Thomas Jefferson Southern Memorial Award for Taps for Private Tussie.
5. Man With a Bull-Tongue Plow selected as one of the 100 best books in American and one of the 1,000 great books of the world, 1946.
10. The Year of My Rebirth selected as one of the best 100 books printed in 1960.
15. Lodge in Greenbo State Park, Ky., named after Jesse Stuart.

Exceptional Achievements or Contributions:
Special Relationship to Ohio University:

Ohio University is perhaps the largest university in what has been called the Appalachian Region: a region unique in culture, poverty and heritage. Throughout its history, Ohio University has been an integral part of Appalachia and has enjoyed a mutual contribution to its genealogy. Jesse Stuart stands out as one of the most prolific writers of the Appalachian heritage.

Perhaps no other man has written so extensively about an area as Jesse Stuart. Certainly, Mr. Stuart is the outstanding local-colorist of the Appalachian region. His thirty-eight books, along with over three hundred published short stories, have revealed an area in which Ohio University is located to readers all over the world. The masculine strength of his poetry, the simple narratives of his short stories, and the character-envelopment of his novels have brought to the body of American literature a picture of a neglected literary source without his major efforts, the literary body would be significantly diminished.

Over ten years, Mr. Stuart has been a frequent speaker at special convocations at Ohio University. His presentations, always well-attended, have aided the students of Ohio University in the establishment of their identity within the region wherein the University is located.

As Mr. Stuart travels and speaks in the area, he often reveals his respect and affection for Ohio University.

Many graduate students, particularly in education, have attended Ohio University at the urging and suggestion of Mr. Stuart.

Other Sources of Information Which Could be Consulted About the Nominee:
Personal Evaluation of Nominee:

Residing as it does within the Appalachian area, Ohio University has established a reputation over the years as being an academic institution devoted to the growth of the region. As those responsible members of the Ohio University community seek an individual to honor who best exemplifies the body and spirit of the Appalachian area, no more outstanding figure emerges than Jesse Stuart. His literary achievements have long been noted. Few school anthologies of American literature exist that do not include either a short story or poem of Mr. Stuart.

In the field of education, wherein he has spent most of his life, the book The Thread That Runs So True, has become a classic. That book, which is largely autobiographical, traces the development of Appalachian education from the one-room log school to the consolidated high school.

An honorary doctorate for Jesse Stuart from Ohio University is long overdue.

Nominator's Name: John A. Masla, Associate Dean
Address: 133 McCracken Hall
Phone Number: 594-5761
Return to Dr. John H. Tinnis, Art Marinella, 217 Copeland Hall.
B. BUDGET, FINANCE AND PHYSICAL PLANT COMMITTEE MATTERS

Chairman Johnson asked Committee Chairman Taylor to present matters considered by the Committee and recommendations relative to them.

1. DESIGNATION OF USE OF INCOME FROM SHOPPING CENTER

Mr. Taylor asked Mr. Bush to present the resolution. Mrs. Johns seconded the motion. Approval was unanimous.

RESOLUTION 1977--338

WHEREAS, on March 10, 1975, by Resolution 1975--182, the Board of Trustees resolved "that the proceeds from the lease to Kroger Company for the East State Street property of Ohio University be appropriated for the purchase of land from the Ohio University Fund, Inc.," and

WHEREAS, the need to reserve shopping center income for the purchase from the Fund of land the Board had authorized it to purchase may become less critical because of sale by the Fund of land to outside interests,

THEREFORE, BE IT RESOLVED that Resolution 1975--182 is hereby rescinded and that income from the shopping center is appropriated for the purchase of land from the Ohio University Fund, Inc., and for the reduction of bonded indebtedness on the Convocation Center with the understanding that the University's obligations to The Ohio University Fund, Inc., be completely satisfied within five years.
2. APPROVAL OF PLANS AND SPECIFICATIONS AND RECOMMENDATION OF AWARD OF CONTRACT FOR THE CLIPPINGER HALL REMODELING PROJECT, PHYSICS PORTION

RESOLUTION 1977—339

WHEREAS, the 111th General Assembly has appropriated $1,000,000 through Amended Substitute House Bill 687 for purposes of remodeling space for the Physics and Chemistry Departments, and

WHEREAS, the Ohio University Board of Trustees did on November 15, 1975 approve the firm of Tully, Ames, Elzey & Thomas of Columbus, Ohio, to serve as consulting architects for the project, and did authorize administrative officials to prepare plans and specifications for the project, and

WHEREAS, after delay and considerable discussion between Ohio University officials and the Ohio Board of Regents, the Board of Regents have permitted the University to proceed with the development of plans and specifications for only the Physics portion of the original project, and

WHEREAS, university officials have proceeded with the development of project plans and specifications, said documents to be submitted to the State Architect's Office the week of April 18, 1977 for final approval and permission to seek competitive bids.

NOW, THEREFORE, BE IT RESOLVED that the Ohio University Board of Trustees does hereby approve the final plans and specifications for the Clippinger Hall Remodeling Project, Physics Portion, as prepared by Tully, Ames, Elzey & Thomas, Architects and Planners.

BE IT FURTHER RESOLVED that the Ohio University Board of Trustees hereby empowers the President or his designee, in consultation with the Budget, Finance and Physical Plant Committee, to accept and recommend to the Deputy Director, Division of Public Works, construction bids for the Ohio University Clippinger Hall Remodeling Project, Physics Portion, providing total bids do not exceed available funds.

At the request of Mr. Taylor, Mrs. Phillips presented the resolution and moved its approval. Mr. Taylor seconded the motion. Approval was unanimous.
TO Charles J. Ping, President
FROM Gene Peebles, Vice President for Operations
SUBJECT Clippinger Hall Remodeling, Physics Portion

The preparation of final plans and specifications for the Clippinger Hall Remodeling, Physics Portion, is proceeding. The design/development plans for the project were recently reviewed by the Physics Department, the Physical Plant and the Planning Office; and the Architect has been instructed to proceed with the development of final plans and specifications necessary for bidding. At this time, it appears that the project will be ready for bidding around the middle of April 1977.

In order to proceed with the bidding and signing of contracts, the enclosed resolution is recommended for the Board of Trustees' consideration at the April 16, 1977 meeting. Alan Geiger and I will be available with plans and specifications for the Board's review and comment. The urgency in now seeking approval to proceed with the bidding and signing of contracts will permit us to encumber these funds prior to their expiration so that we will not have to seek a re-appropriation and further delay the project.

GP:eb
Enclosure
WHEREAS, the Ohio Board of Regents have recommended the construction of a physical education facility for Ohio University Chillicothe Campus, said facility to be funded as a part of the 1977-79 capital improvements appropriation, and

WHEREAS, Ohio University, working with the Ohio Board of Regents and Division of Public Works, have identified and made available monies for architectural planning for the project, and

WHEREAS, funding for architectural services for the project has been made available through a capital budget transfer of available monies from the Clippinger Renovation Project to the Chillicothe Campus Physical Education Building Project, said monies to be reimbursed back to the Clippinger Project once funding is available through the 1977-79 capital appropriations act for the Chillicothe Campus Project, and

WHEREAS, the Ohio Board of Regents have approved a building program for the project containing 17,900 net square feet of space with a total estimated cost of $1,800,000, and

WHEREAS, Mr. Raymond R. Kohli, Deputy Director, Division of Public Works, did on March 9, 1977 recommend the interviewing of architectural firms for the Chillicothe Campus Physical Education Building Project, said interviews being held on the Chillicothe Campus March 18, 1977, and

WHEREAS, all parties desire to proceed with the selection of an architect and the development of plans and specifications as rapidly as possible.

NOW, THEREFORE, BE IT RESOLVED that the Ohio University Board of Trustees does hereby recommend the firm of Granzow and Guss, Columbus, Ohio, as project architects for the Chillicothe Campus Physical Education Building Project to the Deputy Director, Division of Public Works, and do authorize administrative officials to proceed with the development of plans and specifications for the project.

Mr. Taylor moved approval of the resolution. Mr. Bush seconded the motion. Approval was unanimous.
OHIO UNIVERSITY
INTER-OFFICE COMMUNICATION

DATE March 21, 1977

TO James C. Bryant, Vice President for Regional Higher Education

FROM Alan H. Geiger, University Facilities Planner & Director of Construction

SUBJECT RECOMMENDATION OF AN ARCHITECT FOR THE CHILlicoTHE CAMPUS PHYSICAL EDUCATION BUILDING PROJECT

The proposed Ohio University Chillicothe Campus Physical Education Building Project is beginning in a somewhat atypical manner. The Ohio Board of Regents have recommended that a physical education building project be funded for the Chillicothe Campus, and we have been assured by the Board of Regents staff that the project will in fact be a reality. Working on this understanding, Ohio University has, through a capital budget transfer, identified monies necessary to begin architectural planning for the project.

Mr. Raymond R. Kohli, Deputy Director, Division of Public Works, has provided the University with a list of architects to be interviewed for the project. I did meet on March 18, 1977 with members of the Chillicothe Campus faculty and staff to interview potential architects; and after our interview sessions, we wish to recommend the firm of Granzow and Guss as the project architect. I have enclosed a copy of a resolution seeking architect approval for the project, and ask that you transmit it to Bob Mahn for submission to the Board of Trustees for consideration at their April 16, 1977 meeting.

Thank you.

AHG:bkb
Enclosure
WHEREAS, the Board of Trustees of Ohio University is vitally concerned with the use and conservation of energy in the operation of the University, and

WHEREAS, there is the distinct possibility that natural gas reserves are located upon University property and there is the further possibility that if these resources were tapped a substantial reduction in natural gas usage or a limiting of the effects of future curtailments could be accomplished by drilling a successful well, and

WHEREAS, the University has received a proposal from Mr. Sheldon L. Turrill, an alumnus and consulting Geologist registered in the State of Ohio, to drill a well on University property with the associated natural gas supply and tax related benefits outlined,

THEREFORE, BE IT RESOLVED that the Ohio University Board of Trustees hereby authorizes the President or his designee to enter into negotiation with Mr. Turrill for the purposes of drilling a natural gas well on University property, and authorizes the President or his designee, in consultation with the Budget, Finance and Physical Plant Committee, to enter into a lease with Mr. Turrill if in the President's judgment the negotiations lead to terms and conditions of such a lease that would benefit the University.

At the request of Committee Chairman Taylor, Mr. Keys presented the resolution and moved its approval. He stated that the Committee had exercised great care in determining that safety and esthetic considerations related to the drilling project were adequate. Mr. Lavelle mentioned the need for determining transmission feasibility in relation to regulations pertaining to interstate and intrastate pipelines. Mr. Keys gave assurances that all legal matters would be researched. He stated the hope that the project might be completed
by fall. Mr. Ellis, he said, had been the principal contact with Mr. Sheldon Turrill, Consulting Geologist and proponent of the project.

Mrs. Phillips seconded Mr. Keys' motion, which was unanimously approved.
April 2, 1977

Mr. Gene Peebles
Vice President - Operations
Cutler Hall
Ohio University
Athens, Ohio 45701

Dear Mr. Peebles:

As you know, for the past year Jack Ellis and I have been discussing the possibility of drilling for a natural gas supply on University property, the resulting gas to be used at the discretion of University officials. With the gas supply curtailments experienced this past winter, the urgency of moving ahead with the idea has taken on new dimensions. Obviously, a gas well will not only assure the University a meaningful standby supply, but will also help reduce overall energy expenditures.

I have reviewed the limited subsurface geology available in Athens Township and indications are that 3 different depth zones have the potential of being gas productive; the Berea sandstone at about 1500 feet, the Ohio shale between 1500 and 2500 feet, and the Clinton sandstone at approximately 4500 feet. The first 2 have been gas productive in the township while the latter has produced substantial gas from 9 wells located about 7 miles to the north in the Chauncey - Millfield area. Overall, I would judge we have about a 75% chance of a well being successful from at least 1 of the 3 zones. Regardless of the good indications, it is always possible to drill a dry hole or non-productive well.

An estimate of the costs to drill and fully complete 1 well is attached. While there may be variables associated with well drilling, I believe I have adequately covered any unforeseen cost factors.

Our idea of financing the drilling project is based upon the various tax advantages to alumni and friends of the University who provide their support. Other than satisfying their innate desire to be helpful, they will be able to utilize a tax writeoff much in excess of the actual cost of the well. This is accomplished by the application of standard engineering practices in calculating the total producible gas reserves from the well and allowing the donation of the value of these reserves to O. U. If the well is as successful as the other Clinton wells referred to at Chauncey, donation credits in excess of 3 times the investment can easily be figured.
SHELDON L. TURRILL

While I requested a written ruling from the Internal Revenue Service and was turned down, I have taken this same approach for several clients over the years and have had no repercussions. From the tax angle this can be a real bonanza and, even if we are unsuccessful, the donor is permitted to deduct the amount of his investment. Any potential donor is certain to give our offering his utmost attention.

If our idea is sanctioned by University officials, and it should be ruled upon as soon as possible to take advantage of the coming dry, "good drilling" season, the general procedure to accomplish our purpose is as follows. Many minor details are omitted and some steps will overlap or be accomplished coincidentally.

1) File with the Ohio Securities Division for approval to sell our idea to the public. This must be filed under my personal brokerage license as the University has none. I have been advised by the Division that we will have no difficulty getting approval within 2 weeks.

2) As soon as we have acquired Securities approval, Jack Ellis and I will prepare a "solicitation" brochure properly outlining geology, chances for success, tax advantages, with the brochure being designed in accord with the University's image.

3) Determine the exact location of the drillsite on University land with due consideration being given student safety during and after drilling, and access to Columbia gas lines into which the gas will be produced.

4) Have the University legal department determine ownership to the mineral rights associated with the particular property chosen to drill.

5) Write an Oil and Gas Lease on the chosen property - from O.U. to me.

6) Have the University engineering department stake and plat the legal location for the well.

7) Acquire a drilling permit from the Oil and Gas Division.

8) Hire a drilling contractor and proceed accordingly.

Hopefully, while we are accomplishing steps 3-7, the donated monies will have arrived at the University so that we can proceed in due time with step 8.

The reason for filing with the Securities Division, having the Oil and Gas Lease made to me, etc., is that if those things are done in the name of the University and the well is successful, the donor cannot take advantage of the multiple tax advantages based on gas reserve calculations. The IRS
SHELDON L. TURRILL

would take the position that the donor had simply donated his share of the monies to the University before the well appreciated in value. If done in my name, the University owns nothing until the interest is legally assigned to it by the donor - having taken advantage of the appreciation in value.

I believe the best approach to the receipt and disbursement of the donated monies is to have the donations made in my name but sent to a chosen accountant at O. U. and placed in a special account. All invoices from expenditures can be sent directly from the supplier to me for my approval and forwarding to the accountant for payment. Any remaining funds can be donated to the O. U. Fund.

If the well is a success, I will assign each donor his share of the well which he will then donate to the University. I will prepare a gas reserve figure to which will be attached a monetary value for the donor's use in tax considerations. If the well is either a success or failure, a summary of tax considerations will be given each donor. If the well is a failure, I will quit-claim the Oil and Gas Lease back to O. U.

I have pledged my time to the project in exchange for the pleasure of doing it. I will retain no interest in the well and receive no cash remuneration of any kind except for reimbursement of expenses if they should become excessive and enough money remains in the fund. I would expect to be permitted the freedom of completing the project in the best manner I know with a minimum of intervention by others in my field of endeavor. I am anticipating the enjoyment of seeing the project through and will anxiously await the word of approval. I shall be available to answer any question or receive any comment.

Yours very truly,

[Signature]

Sheldon L. Turrill
### Estimated Costs - 4500' Clinton Well - Ohio University

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<td>b 10&quot; 125' @ $10.83/ft</td>
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<td>Production Casing-Tubing</td>
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<td>a 5-1/2&quot;</td>
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<td>b 4-1/2&quot; 4500' @ $3.53/ft</td>
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**Total**: $25,400
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C. BOARD-ADMINISTRATION COMMITTEE MATTERS

Chairman Johnson excused himself and left the room. He asked Vice Chairman Johns to take the Chair. Mrs. Johns expressed pleasure at the assignment because of the business at hand. She asked Dr. Holzer to present the first resolution.

1. TRUSTEE EMERITUS AWARD

RESOLUTION 1977--342

WHEREAS, Fred H. Johnson was able to serve as Trustee of Ohio University for thirty years, the last trustee to be so privileged under current statute which generally limits service to nine years and under no circumstances to more than twelve years, and

WHEREAS, this long tenure on the Board, including eight terms as Chairman, brought a breadth of understanding and of service which is deemed worthy of a form of recognition that invites continued special attention to Board activities,

THEREFORE, BE IT RESOLVED that Fred H. Johnson be named Trustee Emeritus with all the rights and responsibilities attached thereto.

Dr. Holzer moved approval of the resolution, to which there was a unanimous second. Mr. Lavelle moved to have the Secretary cast a unanimous ballot, which Mr. Keys seconded. The vote to so instruct the Secretary was unanimous.
2. AWARD OF FOUNDERS' CITATION

RESOLUTION 1977--343

WHEREAS, in 1961 the Board of Trustees created "THE FOUNDERS' CITATION, the highest recognition the University can give," and reserved it "for one who has rendered great personal service over a period of years in which the recipient's decisions, leadership, and help have brought greater glory to the University and has brought fuller realization of the ideals conceived by the founders," and

WHEREAS, in the judgment of the Board, Fred H. Johnson has met the criteria for this award,

NOW, THEREFORE, BE IT RESOLVED that the sixth issue of the Founders' Citation be awarded Fred H. Johnson at a ceremony on June 24, 1977, and that for the occasion the Secretary have prepared an appropriate citation and certificate.

Dr. Holzer moved approval of the resolution, to which there was a unanimous second. Support of Mr. Lavelle's motion, which was seconded by Mr. Spencer, to instruct the Secretary to cast a unanimous ballot was unanimous.
3. HISTORICAL COLLECTIONS COUNCIL PROPOSAL

RESOLUTION 1977--344

THE BOARD OF TRUSTEES RESOLVES to establish the Ohio University Historical Collections Council with the following charge:

1. To cultivate an interest in the University's history and tradition throughout the University community.

2. To develop means of preserving materials of significance to the University's history and tradition, to encourage contributions of such materials, and of monies to provide for their purchase, rehabilitation, safekeeping and appropriate educational use.

3. To engage in all appropriate activities related to 1 and 2 and, while excluding no legitimate activity, to specifically encourage the following activity:

   a. To identify, classify and catalog, by written and photographic means, items of historical and traditional value which are now the property of the University and which will be acquired by the University.

   b. To seek out items of historical value in the life of Ohio University and solicit their donation to the University, or to arrange for their purchase.

   c. To store and to assign for use, under appropriate security provisions, items related to the history of Ohio University already in possession of the University, or which will be acquired, to departments and offices, guest facilities, and to non-University locations such as museums and public buildings; indeed to search out arrangements of this nature and to keep a register of the location of such items for public reference. Such disposition shall not apply
to art objects or archival material, for which depositories exist. The Council shall also review presently crated materials from the former museum and dispense them in the manner described.

4. To apply for placement of buildings on the National Register of Historic Sites.

The Board resolves further that records of acquisitions, loans and the catalog be stored in the University Archives, and made available for such public use as is warranted.

The Board resolves further that the Council on Historical Collections be appointed by the President in consultation with the Chairman of the Board of Trustees, with the Secretary of the Board serving as ex-officio member and liaison with the Board of Trustees.

The BOARD RESOLVES further to authorize the President to allocate funds for implementing the activities described as such funds become available.

Dr. Holzer summarized the proposal and moved its approval. Mrs. Phillips seconded the motion. Approval was unanimous.
D. OTHER BUSINESS

Mr. Johnson returned to the Chair. He stated that President Ping had informed him of the actions of the Board affecting him. He thanked the Board and said that he would express his feelings more fully at another time.

To Chairman Johnson's question of whether Board committees had further business to come before the Board, Mr. Spencer, Mr. Taylor and Dr. Holzer responded negatively.

President Ping stated that he had no further business for the Board, but was pleased to announce that Dean of Students Carol Harter had been selected to attend Harvard's Institute for Educational Management this summer under a George Gund Foundation Institutional grant-in-aid. Also that Dean Gerald Silver of the College of Business had been selected to attend.

VIII. CONFIRMATION OF JUNE 25, 1977, MEETING DATE AND SITE

Chairman Johnson confirmed June 25 as the next regular meeting date, and the site as Athens.

IX. GENERAL DISCUSSION--ROLL CALL OF MEMBERS

Chairman Johnson asked the Secretary to call the roll of members for comments.

Mr. Taylor, Mr. Spencer, Mr. Bush and Mrs. Phillips had no comments.

Mr. Lavelle expressed pride in the efforts made by the Admissions Office and the way enrollment seemed to be turning around. He expressed the view that attrition and retention merited further attention.

Dr. Holzer reaffirmed his personal commitment to the Board's 1976 stated goal to improve faculty compensation and stated his view
that there existed a firm commitment to this on the part of all Board members.

Mrs. Johns observed that emeritus awards represent many years of dedicated service to Ohio University. Resolutions, she suggested, should be read carefully and circulated widely on campus.

Mr. Keys stated that he was giving serious consideration to resigning from the Board over the issue of financial disclosure by trustees, should legislation mandate this. People, he said, who serve on public boards at a cost to themselves time-wise and financially, should not be obligated to make financial disclosures. He expressed the view that adequate audits and moral commitments existed. He was shocked, he said, at the prevalence of the thought among students and others that trustees received compensation for their services, and expressed the hope that they would learn that this was not the case.

Mr. Keys concluded with the observation that he was the appropriate person to make a protest, since, as a public elected official, he already was required to file disclosure statements.

Mr. Johnson stated that he had no further business to present.

X. ADJOURNMENT

Chairman Johnson, determining that there was no further business to come before the Board, declared the meeting adjourned at 10:40 a.m.

XI. CERTIFICATION OF SECRETARY

Notice of this meeting and its conduct was in accordance with Resolution 1975--240 of the Board, which resolution was adopted in accordance with Section 121.22 (F) of the Ohio Revised Code and of the State Administrative Procedures Act.

Fred H. Johnson
Chairman

Robert E. Mahn
Secretary
STATUS REPORT:
FACULTY TENURE, AGE, LENGTH OF SERVICE, AND RANK DISTRIBUTION
ATHENS CAMPUS
OHIO UNIVERSITY

OFFICE OF PROVOST
APRIL 15, 1977
TENURE STATUS

1. Currently 83.1 percent of all full-time Athens campus faculty are tenured.

2. The percentage of the faculty with tenure for the current year has decreased by 1% due to addition of new faculty in the College of Medicine and health related disciplines.

3. The percentage of the faculty with tenure has increased from 38% in 1967 to a high of 84% in 1975.

4. The faculty at Ohio University has a higher tenure rate than faculties at a sample of other MAC schools.

5. When compared to a national sample of category 1 institutions, Ohio University has a much higher percentage of its faculty tenured.

AGE STATUS

1. The percentage of faculty with tenure is related to median faculty age and length of service at Ohio University. Both factors have changed significantly in recent years due to decreased enrollment and the addition of very few new faculty positions.

2. Median age of the faculty has increased from 38 in 1966 to 44 in 1976.

3. Median age has been highly variable for the rank of lecturer due to changes in the number of employees at that rank rather than changes in age.

4. The median age of full and associate professors has changed less than age of other ranks.

LENGTH OF SERVICE

1. While average age of the faculty has increased slightly, length of employment at Ohio University has increased significantly in the past ten years for most faculty ranks.

2. This pattern of increased length of service is largely attributed to the reduction in the number of new faculty added each year.

3. Since 1969 when the number of first time faculty was about 19% of the total faculty, the percentage of new personnel added due to new additions and replacements has declined to 2% in 1975. Recent additions associated with medical programs have raised that number to 5.3% of the total faculty in 1976.

RANK DISTRIBUTION

1. Between 1972 and 1976 the ranks of associate professor and professor increased from approximately 50% of the total to about 70%.
2. Conversely, the percentage of assistant professor and instructors fell from 48% to only 27% of the total.

3. These distributions reflect normal progression through the ranks and the reduced hiring of new faculty in recent years.

4. Female faculty members comprise a smaller percent of the senior ranks as compared to male faculty. This reflects the fact that many of the women faculty were hired in recent years.
### PERCENT OF OHIO UNIVERSITY FACULTY WITH TENURE

#### ATHENS CAMPUS

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<th>ASSISTANT PROFESSOR</th>
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**NOTE:** Information regarding tenure for various ranks prior to 1969 was not available.

(CFH 3-8-77)
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Source: AAUP Bulletin Summer, 1976. (Except for Ohio University data)
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**NOTES:** Last 3 years from Personnel System, prior from Faculty Inventory data. Median age for Lecturer rank highly variable due to small number of faculty. No data were available for 1964 and 1965.

(CFH 3-8-77)
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<th>Instructor</th>
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(CFH 3-8-77)
### NEW FACULTY EMPLOYED EACH YEAR

**Athens Campus**

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<th>Number</th>
<th>% of Total</th>
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*College of Medicine Faculty Employed for FY76-77.

(CFH 4-4-77)
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(CFH 3-28-77)
STATUS REPORT:

AFFIRMATIVE ACTION

AT

OHIO UNIVERSITY

OFFICE OF

EQUAL OPPORTUNITY PROGRAMS

APRIL 15, 1977
Affirmative action at Ohio University can, generally speaking, be viewed from three basic perspectives. With the first we find those individuals who acknowledge that the University has made a degree of progress, but would contend that what has been done is either too little or is merely tokenism.

The second group contains those who believe that the University is going too far; that it has demonstrated its commitment to affirmative action. They would argue that the University should be relieved of those burdensome requirements which are attendant to affirmative action. This group will be found to contain females as well as white males.

The third perspective, and I would hope that which reflects the majority of the University community, is that changes of a substantive and permanent nature are beginning to take place. This is not to say, however, that more could not have been achieved with a greater investment of effort.

A measure for determining whether affirmative action has been effective might be as follows:

1. The College of Education has a total of 26 females and 3 Blacks in ladder rank faculty positions. These figures represent by far the best effort of any college within the University, and are in contrast with the College of Business Administration which has but one female and no Blacks in a ladder rank faculty position, or the College of Engineering which does not have a female or Black in any type of faculty position.

The foregoing figures should be viewed, however, in the context of the following availability statistics nationally:

A) In the area of Education during the periods 1960-69 and 1970-75, women accounted for 19.5% and 25% respectively of the doctorates conferred.

B) In the fields of Civil, Chemical, and Electrical Engineering during the period 1973-75, women accounted for 47 or 1.1% of the 3971 doctorates conferred.

C) In the area of Engineering during the period 1972-75, Blacks accounted for 42 or less than one-half of one percent of the 9,988 doctorates conferred.

D) In the area of Business Administration during the periods 1973-74 and 1975 women received 3.9% (61) and 3.6% (28) respectively of the doctorates conferred.
2. The College of Arts & Sciences, which comprises nearly fifty percent of the University's faculty, has but 19 females and 4 Blacks in ladder rank faculty positions. One half of the departments within the College have no women in ladder rank positions, and only three have Blacks.

To an extent the performance by the College can be explained by the enrollment decline of the early 1970's which not only brought about retrenchment in the younger faculty ranks but continues to retard growth in most departments.

3. Efforts to recruit Black faculty and administrative personnel have met with minimal success. Of the 19 administrators reported in Table IV, only 12 are full time. Within the Student Affairs area only one full-time Black administrator will be found.

4. Though the University has and continues to be able to attract Black undergraduates, the attrition rate among this group is grossly disproportionate to the non-Black undergraduate population.

5. That the various areas responsible for graduate programs have met with modest results in their efforts to recruit Black graduate students is evidenced by the fact that the number of full time Black graduate students is but nineteen.

The foregoing thus provides in a nutshell an overview of where we currently stand.
WHERE DO WE GO - THE PROBLEMS - WHAT IS BEING DONE

It should be clear from the foregoing that we must make efforts of a sufficient magnitude and duration to bring our house into order. In this regard, it must be realized at the outset that no miracles can occur overnight given the current situation the University finds itself in.

Given the relative youth of the University faculty we cannot expect to see any significant attrition. Further, current projections on enrollment would indicate that little opportunity for growth can be expected.

With the realities of minimal growth facing the institution, I believe it necessary to approach each vacancy as though it were an irreplaceable gift. To this end it is imperative that the institution be brought out of its lethargic state, and those faculty and administrators who are living in the 1950's and early 1960's must be made aware that the year is 1977. Racial biases and sexist attitudes must not be allowed to perpetuate the status quo ante under the guises of academic freedom and administrative perogative.

To the question what is being done to remedy the problems of the past, I offer the following:

1. A female currently heads the Student Affairs area - a first at Ohio University.

2. Of the 26 non-College of Medicine faculty positions filled during the current academic year, seven (26.9%) were filled by females and four (15.3%) by Black males.

3. The full time undergraduate enrollment of females in the College of Business Administration has grown from 69 in 1973 to 222 in 1976. For the same period in the College of Engineering the enrollment has grown from one to 30.

4. The full time undergraduate enrollment of Blacks in the College of Business Administration has grown from 12 in 1973 to 125 in 1976. For the corresponding period in the College of Engineering, the enrollment has gone from 4 to 23.

5. At the beginning of the current fiscal year, salary adjustments totalling more than $61,000 were made to female and minority group faculty members where salary inequities had been demonstrated.

6. Guidelines on the filling of contract positions have been developed and are in the consultative stage. When published they will be supplemented with a series of workshops oriented towards those individuals with hiring responsibilities.

7. The Provost has indicated a strong interest in affirmative action and what can be done to improve upon our efforts. To this end he
has volunteered to serve in the role of facilitator in the initiation of discussions with the Dean's Council. These discussions will include an assessment of past efforts, and ways in which to improve upon those efforts, in areas such as employment, and graduate student recruitment and support.

In summary, the goal of the Equal Opportunity Program Office is change of a permanent nature, both within and without the University. To this end the mission of the office is not only to seek increase in the number of female and Black faculty and administrators at the various levels within the University, but to also work in the development of substantive programs which will allow for access into the various fields of employment outside the University.

The goal of true equality of educational and employment opportunity will not be easy to achieve and cannot be expected to occur without a concomitant adjustment of priorities. To the extent possible I believe that we must do more than merely comply with various legal provisions; we must approve affirmative action as being a moral obligation.

The role of the University is to train minds for a role in society. To fail to rectify a situation wherein a significant portion of the population is excluded from either an opportunity to be trained or to serve in the capacity of trainer is unpardonable.
ENVIRONMENTAL STATEMENTS

OHIO UNIVERSITY

PLANNING PROCESS
TO: MEMBERS OF THE OHIO UNIVERSITY COMMUNITY

The Educational Plan of Ohio University consists of three major parts. The first is a Mission Statement affirming basic purposes of the University. This formal statement was recently adopted by the Board of Trustees. The second part of the planning effort is the series of environmental statements in this report. The final stage in the development of the Educational Plan will be a process for establishing goals and identifying priority program directions for the University.

The environmental statements present major trends affecting higher education during the next decade. They evaluate areas ranging from prospects of financing to changing patterns of educational programs. The statements are intended to contribute to the general understanding of the context in which Ohio University must plan for the years ahead.

The five studies use a common format. Each begins with a one page summary of major observations or trends. That is followed by the report itself. Major bibliographic sources are noted at the end of the narrative report. The final section of each report is a list of questions raised by the particular environmental statement. The questions suggest some of the issues to be considered by the University as it continues its planning efforts.

Members of the University community are urged to study the environmental statements. The reports should provide an excellent opportunity for analysis of the best possible direction for Ohio University. It is recommended that departments and other units of the University sponsor discussion sessions to review these statements. A major contribution of these studies will be the understanding they generate by serving as discussion documents. A particular outcome of such discussions might be additional issues or questions for consideration. It will be helpful if such suggestions can be shared with the Provost's Office or members of the Planning Review Committee.

The environmental statements in this report are distilled and summary in nature. Additional information on each topic is on file at the reference section of the Alden Library. Included are the major reports used in development of the studies as well as general reference information on the various topics. The authors of each report will also be pleased to provide additional reference assistance.

Neil S. Bucklew
Provost
ENVIRONMENTAL STATEMENTS

OHIO UNIVERSITY
February, 1977
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ENVIRONMENTAL STATEMENT ON
MAJOR EDUCATIONAL TRENDS

by

Samuel Goldman and Edward Stevens
Summary

Trends in higher education in the next decade will focus on the following issues and encompass the following concerns:

1. Accountability
   Pressures on university leaders to validate claims that higher education is of some social utility will continue. The context for accountability will be the university's historic mission to function in an accountable way for the social good.

2. A Service-oriented Economy and Program Development
   The reconciliation of market realities and students' occupational expectations will be facilitated by the university. Increased attention will be given to programs of study designed to facilitate a humanistic approach to the alienating effects of a bureaucratic environment.

3. Development of Interdisciplinary and Multidisciplinary Studies
   The theoretical knowledge produced and codified by universities will become increasingly interdisciplinary and multidisciplinary in order to reflect the realities of a post-industrial society.

4. Continuing Education
   The university's reaching out to middle-aged adults will accelerate rapidly in the next decade and will be accompanied by a more explicit philosophy of continuing education and an adult psychology which takes account of changing interests in the adult life cycle.

5. Educational Technology
   Computer managed systems of instruction, computer-assisted learning activities, and instructional support systems for individualized instruction will highlight the impact of technology on education. Implementation of educational technology will be accompanied by debate and dialogue which focuses upon the reconciliation of humanistic values and technological innovation.

6. Legislative and Judicial Intervention
   Legislative intervention to assure accountability and judicial intervention to adjudicate questions of educational finance and individual rights will continue.

7. Women and Minorities in Higher Education
   Percentage increases in enrollments among women and blacks will reach a plateau, and the major question facing universities in this area will be one of preventing high attrition rates among these groups.
The Social Context for Major Educational Trends

Accountability

The sometimes zealous and occasionally sisyphic re-examination of the purposes and social roles of American higher education within the last decade will persist in the foreseeable future. More often than not, the roots of self-examination in particular may be found in higher education's "understandable obsession with basic survival." Perhaps the current phrase "accountability" best captures the mood of university leaders who have felt the pressures to validate claims that higher education is of some social utility. The various requests (sometimes spurred by a less than subtle whipping-boy psychology) that higher education do a more efficient job of fulfilling its social obligations must not be viewed in historical isolation. The State university's fee for being a charge upon public funds has long been that it provide an equipable share of the necessary research, human resources, and technology needed for both the dissemination of culture and social amelioration. In all likelihood, the major trends in state-funded universities in the next decade will occur within the context of the university's historic mission to function in an accountable way for the social good, including the fulfillment of its expected manpower allocation function as well as its broader role of cultural guardian.

Judicial and Legislative Intervention

The United States Commissioner of Education has recently pointed out that the "courts will shape education policy as they adjudicate questions of education and finance and individual rights." It is unlikely that such judicial intervention will be limited to elementary and secondary public education. The issue of whether or not education is a fundamental right—an issue which was at the heart of Rodriguez v. Texas—is an issue for higher education as well.
as one for secondary and elementary education.

Legislative intervention in the process of higher education has recently been accentuated as a result of the accountability movement. In Ohio, the project to redesign teacher education is a most obvious example. In addition, federally funded Title programs have become an ever-present reality in higher education as universities compete for federal monies.

Whether the concern is judicial or legislative intervention, certain fundamental questions about the autonomy of the university and its personnel must be raised:

1. To what extent should faculty productivity be measured in terms of satisfying legislative requirements?
2. To what extent should legislative enactments and judicial decisions reshape faculty-student relations?
3. What restrictions will legislative enactments and judicial decisions place upon program development in the university?

Continued Professionalization of Society

Despite periodic outbursts of criticism attacking the post-industrial society for its de-humanization and over-expertization of knowledge, it is likely that we will experience a continued occupational and professional specialization of society. While the impact of this specialization on the curriculae of universities and colleges has been apparent for some years, two trends for the future should be highlighted: (1) the immediate effect of a service-oriented economy on program development in higher education, and (2) the slower but equally as important expansion of interdisciplinary studies.

Human Services and Interdisciplinary and Multidisciplinary Studies

As Daniel Bell remarks, "a post-industrial society is based upon services." Unlike the industrial society in which the standard of living
is measured by a gross national product, it is the quality of life "as measured by services and amenities--health, education, recreation, and the arts" which is the measure of society's success in the post-industrial society. In response to a new measure of social progress, universities will undoubtedly increase their investment in programs related to "people work," i.e., "work that purports to serve the more subtle..., interpersonal and psychological needs of individuals as well as groups." The alienating effects of bureaucratic and technological structures on individual life will command renewed attention and will result in the expansion of or building of programs of study designed to react in humanistic fashion (with "increased sensitivity toward the needs of others and (increased) tolerance towards differences (in values)" to the alienating effects of indifferent bureaucracies).5 Secondly, and concordantly, the university must provide vocational guidance services to bridge the gap between individual occupational expectations based upon labor market needs of the past and a new economy with new market demands in the area of "people work."

The realities of a post-industrial society have made it apparent that traditional schemes of classifying knowledge now work to the detriment of planning and managing innovation. The theoretical knowledge produced and codified by universities will become increasingly interdisciplinary and multidisciplinary in order to (1) reflect more accurately the "realities" of a post-industrial society, and (2) increase its utility in coping with human and environmental problems created by these new "realities."

Continuing Education

If educational opportunity at the university level is conceded to be one measure of the quality of life in our post-industrial society, it is not unreasonable to ask that universities make an effort to extend that opportunity
to adults heretofore not considered as part of the university's potential student population. Already it has become apparent that increasingly larger proportions of college students are coming from older age groups. Figure I graphically illustrates the coming of the middle-aged adult to higher education. The motivations of these adults are likely to be varied, ranging from a desire for further expertise in a chosen career, a mid-career change, or simply the exercise of an option open to those with increased leisure time.

Adulthood, we are beginning to realize, is a developmental period itself—"a period during which biological maturation, accumulated experience and formative learning serve to shape an age group which is qualitatively distinct from childhood, adolescence or extreme old age." The university's reaching out to new age groups will accelerate rapidly in the next decade as is evidenced by the recent expansion of administrative divisions for continuing education. Accompanying this will be the development of an adult psychology to be applied by all teaching personnel in the university. The necessity for and, in all likelihood, the development of such a psychology may be seen by examining Figure II, which presents a model for the changing interests of adults during their life cycle.
Figure I Increasingly Larger Proportions of College Students Coming From Older Age Groups

Figure II Change With Age in Adult Interests for Continuing Education


Professors and instructors will probably adjust their programs cautiously, and will need support for innovative programs designed to accommodate new student populations. The university's potential for taking a leadership position in creating the educative society is great, and will probably depend upon its willingness to apply the principles of "education permanente."

Women and Minorities in Higher Education

The prospects for extending equal educational opportunity to women are substantially better than for those who are members of racial and ethnic minorities. It is evident from Figure III that female attendance rose rapidly in the ten year period between 1958 and 1968, but since that time has slowed considerably. Still, consistently more male than female high school graduates enroll in higher education. Moreover, a high attrition rate (see figure IV) among females has lessened the over-all change in the sex distri-
Figure III. College Entrance Ratios

First time degree-credit enrollment as a percent of high school graduates.

Figure IV. College Enrollment of the 1971 Freshman Class

Among selected racial and ethnic minorities there has been substantial gains in attendance as shown in Figure V, if those gains are measured in terms of numbers in minority groups only. Gains relative to the total enrollment in higher education are small, however, and show that for American Indians, Blacks, Orientals and those of Spanish origin the percentage gains have been only .1, 1.3, .3 and .7. Attrition rates among these minorities are high. (See Figure IV.)

The picture of the student population is further complicated by the fact that the percentage of students from low income levels enrolled in universities has dropped from 1966 to 1974. (See Figure VI.) The same decline is present in two year colleges.

Certain questions would naturally seem to arise from the former conditions:

1. What can universities do to encourage greater enrollment among women and minority groups in higher education?

2. Can universities provide counseling services which effectively reduce attrition rates among these groups?

3. Can new financing of higher education reduce the costs of higher education to low income groups?
Figure V. Ethnic Composition of College Students

Figure VI. Parental Income of Students in Institutions of Higher Education

Instruction and the Hardware of Technology

The hardware technology already appearing in education at all levels (but somewhat abated in its effect because of present financial constraints) will experience a resurgence in the next decade as costs per unit decrease. The U. S. Commissioner of Education has projected that "computers and information storage systems will have a profound effect on education as new generations of cheaper, more practical machines emerge along with a new generation of educators and administrators trained and experienced in using them."7 The current trend emphasizing teaching by objectives will become part of this technological apparatus, since computer management systems are heavily dependent upon the logical grouping of objectives.

Computer management of curriculum and instruction will be the major thrust of technological expansion in higher education, but will be accompanied by more general application of already existing computer-assisted activities. Both computer assisted instruction and computer-based curriculum management systems will, if undertaken in the spirit of reconciling humanistic values and technological advance, display the following features:

1. independence from specific curricula or teaching strategies;
2. adaptability to the classroom practices of its users;
3. sufficient power to handle widely diverse kinds of curriculum structures;
4. sensitivity to student preferences;
5. sufficient power to schedule session times (terminal use) effectively;
6. sufficient power...to account for frequent curricular changes without disruption of students already working in the curriculum.8
Systems already in use at the University of Illinois (PLATO), Florida State University (CDC), and Pennsylvania State University (ISS, see Appendix I) will undoubtedly receive wider application. Systems to engage students in the programming and solution of problems by computer, such as those presently operating at Bowling Green State University and the University of Cincinnati will also receive greater attention. At Ohio University, the instructional support system (ISS, see Appendix II) presently in use by the College of Education will provide greater impetus toward individualized programs of study.
Notes


Questions

Accountability
Aside from the obligation and ethical imperative to actually be accountable, the university will face two major questions in this area:

1. How will the university prioritize those groups to which it is accountable?
2. How can the university create more effective public relations machinery to make its efforts visible?
3. What methods can be instituted for demonstrating accountability?

Judicial and Legislative Intervention

1. To what extent should faculty productivity be measured in terms of satisfying legislative requirements?
2. To what extent should legislative enactments and judicial decisions reshape faculty-student relations?
3. What restrictions will legislative enactments and judicial decisions place upon program development in the university?

Continued Professionalization of Society

1. What committee structure would best facilitate interdisciplinary inquiry?
2. What faculty incentives could be used to promote interdisciplinary inquiry?
3. How can research efforts be best organized to project the effects of a service-oriented economy on university curricula?

Continuing Education

1. How can university curriculae be expanded and reorganized to accommodate older age groups and their interests?
2. What are the limits of such expression and reorganization?

Women and Minorities in Higher Education

1. What can universities do to encourage greater enrollment among women and minority groups in higher education?
2. Can universities provide counseling services which effectively reduce attrition rates among these groups?
3. Can new financing of higher education reduce the costs of higher education to low income groups?
Educational Technology

1. How can faculty awareness of the potential of technology for educational innovation and improvement be facilitated?

2. How can the university finance educational technology?

3. What can the university do to facilitate a dialogue addressed to the reconciliation of humanistic values and technological innovation?
Bibliography


ENVIRONMENTAL STATEMENT ON
CHARACTERISTICS OF STUDENTS IN HIGHER EDUCATION FOR THE NEXT DECADE

by

Don Flournoy
SUMMARY

Student Characteristics

Projected changes in the national college-going population between 1976 and 1986 include substantial decreases in the 18-24 age groups, especially among middle-class students. In Ohio, the rate of decline is most dramatic due to a high out-migration of potential students and a very low college-going rate. The problem is compounded by Ohio's comparatively high tuition fee schedule and its slowed economy, especially in Southeastern Ohio where family income is among the lowest in the state. In the region served by Ohio University, interest in vocational and technical education is expected to continue. Needs for continuing education will also grow among practicing professionals and those seeking job advancement.
Assuming that students will change over the next decade, what are those changes likely to be and how will those changes affect Ohio University?

One thing seems clear. The traditional pool of prospective college students is shrinking. The decline in the birthrate that began in the early 1960's will result in a dramatic decrease in the 18- to 21-year-old population, beginning about 1980 (Figure 1). Also, the change in rate of live births is not uniform in different parts of the population, the most dramatic drop occurring in the white, middle-class sector from which most college enrollments have come in the past. By 1980 a larger percentage of the total population of 18- to 21-year-olds will be from low socioeconomic backgrounds and the proportion of those from minority groups will have increased.

The State of Ohio is experiencing a lower rate of population growth than forty-five of the states. During the 1960's Ohio had a net out-migration of 130,000 people, and between 1970 and 1975 the state lost an additional 276,000 residents. In 1976, Ohio led the nation in out-migration. A relatively high proportion of those who left were under the age of 25. It appears that the Ohio growth rate, in number of residents as well as economically, will not keep up with the national average.

The 1970 census figures for Ohio point up the rural setting of Ohio University in comparison to Miami, Bowling Green, and Kent.

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<thead>
<tr>
<th>Institution</th>
<th>Area</th>
<th>Population</th>
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<tr>
<td>Ohio University</td>
<td>Athens County and adjoining counties</td>
<td>201,399</td>
</tr>
<tr>
<td>Miami University</td>
<td>Butler County and adjoining counties</td>
<td>1,876,017</td>
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<tr>
<td>Bowling Green State University</td>
<td>Wood County and adjoining counties</td>
<td>821,145</td>
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<tr>
<td>Kent State University</td>
<td>Summit County and adjoining counties</td>
<td>3,371,829</td>
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These figures are based on the area within a 50-mile radius of the main campuses and reveal that Ohio University's area of concentration contains less than 2% of the state's population, while Kent State's area of concentration contains 31.6% of the state's population.

The comprehensive fee for Ohio residents attending Ohio University has increased from $250 per semester in 1966-67 to $300 per quarter ($255 for regional campuses) in 1976-77: In 1975-76 the national college-going
rate was 60% while the Ohio rate was 41%. The influx of out-of-state college students has been erratic. In the last ten years the comprehensive fee at Ohio University for non-Ohio students has doubled from $1,000 in 1966-67 to $2,025 in 1976-77. Ohio University's percentage of enrolled students from outside the state reached a high of 24% in 1969-70 and is currently only 19.6%.

Participation in Ohio public higher education by counties (Figure 2) closely correlates with national figures relating to family income as a factor in taking part in postsecondary opportunities. Nationally, in 1974, 53.3% of high school seniors coming from families with incomes of $25,000 and over planned to go to a four-year college, but only 12.4% of those from families with incomes under $5,000 planned to do so. Financial aid for students from low-income families helps to correct this disparity to some extent but there is often a cultural barrier to be overcome as well. Vocational and technical college admissions attest to the fact that the cultural barrier is less severe for two-year "practical" courses of study than for those that are more general and extend over a longer period of time. Cuyahoga Community College opened its first campus in September of 1963 and now has 28,102 students enrolled. Sinclair Community College in Dayton was dedicated in March of 1966 and has a current enrollment of 12,634. In southeastern Ohio, the eight-year-old Hocking Technical College's enrollment reached 1,541 in the Fall of 1976. On the other hand, Ohio University in the Fall of 1975 attracted 71 students from two-year community and technical schools, and in the Fall of 1976 drew 133 students from two-year institutions. A 1976 survey of entering college freshmen conducted by the American Council on Education showed "student preferences for the more applied fields continued to grow, with probable careers in business showing the greatest increase."

The Ohio Board of Regents reports that "the enrollment of students 25 or over has been increasing on all types of Ohio campuses, rising from 25% of total enrollments in 1970 to over one-third of the 1975 enrollment." Of the 5,700,317 people in Ohio who were 25 years old or older (1970 census), 8.7% had completed from one to three years of college. There has been a 17.33% headcount increase in enrolled undergraduate students aged 25 or over on the main campus of Ohio University, including continuing education enrollments, between 1970 and 1975 (from 981 in 1970 to 1151 in 1975). Regional campus enrollment has risen 18.7% in the last five years (deducting 1970 Portsmouth enrollment) for students in this age range (from 1,312 in 1970 to 1,557 in 1975).

It is anticipated that many occupations and professions will within the next ten years require periodic, formal updating of knowledge. Health Service practitioners, engineers, and teachers are facing this situation at the present time. Still other occupations are heading toward the requirement of formal credentials in order to obtain certification/licensing where none has been required before. Proposed licensing of social workers and recent legislative mandates in Ohio requiring real estate brokers to take college-level courses are examples of an increased "credentialism"
FIGURE 2

PARTICIPATION IN OHIO PUBLIC HIGHER EDUCATION*
FALL 1973

Ohio Enrollees per 1,000 population

RATES RANGE
HIGH = Greater than 27
GOOD = 21-26
FAIR = 16-20
LOW = Less than 16

*Ohio Residents Enrollment in Public Higher Education Degree—Credit Courses Compared to Population

Source: Ohio Board of Regents, Ohio Department of Economic and Community Development, U.S. Bureau of the Census

Regional Campuses, Ohio University
which is expected to continue in the next decade. Figure 3 indicates the results of a 1972 poll of adults enrolled in higher education. U.S. Department of Labor projections indicate that in the coming years the percentage of women who enroll in college courses in order to improve or advance in a job will accelerate.

Other (somewhat intangible, somewhat questionable) Characteristics

1. Increased participation of women in traditional "male" occupations is anticipated in the next decade. We can expect larger percentages of women planning careers in law, medicine, business, and engineering and assuming supervisory responsibilities in all professions.

2. "Going away to college" will be less and less common with the rise of two-year and other commuter campuses. This will be true mainly for economic reasons but also because of a rising "ecological consciousness" which will prompt people to "stay off of airplanes" and to try to conserve energy by staying closer to home.

3. Data collected from 1976 freshmen point toward a growing political conservatism among college-age students. Preferences for academic programs, at least among the 18- to 21-year-olds, also reflect a more cautious approach to education.

4. Other behavioral (and therefore college enrollment) changes may be prompted by a national "draft avoidance", a tendency to "get as far away from the bomb" as possible, attraction to the "reliability of coal as a heat source", increased use of Amtrak, etc.

5. The steadily rising cost of education coupled with high unemployment may affect the students' ability or willingness to afford the luxury of learning for its own sake.

Questions To Be Asked

Questions that arise from this analysis include:

1. Will the predicted decline in the 18- to 21-year-old student population actually affect Ohio University? If so, why or why not?

2. Does the change in ratio between the college-going (white) middle class and (minority) lower-income students speak to the direction of future recruitment and, therefore, to such matters as developmental education services, curriculum changes, etc.?

3. Is it likely that Ohio's economic situation and population migration patterns will reverse, thereby increasing financial aid, reducing tuition, and improving the general education-employment outlook
Job advancement was the most popular reason for taking adult education for males; personal or family interest the most frequent reason among females.

See Table 4.23
in the state? What would be the result (especially on the Belmont County and Ironton campuses) if Ohio had a tuition reciprocity agreement such as now exists in the Plains states?

4. To what extent will Ohio University be able to attract new and different populations of students from two-year colleges, from among adults needing continuing education (businessmen, labor, governmental employees, professionals), from out-of-state and on the international scene? To do so, what changes must be brought about in campus procedure and what new facilities, resources, attitudes will be needed? Would putting more energy into attracting non-traditional students detract from our ability to appeal to traditional students?

5. Will Ohio University's Athens campus, its rural location, its residential programs, and the quality of its academic programs, and our aggressive recruiting actually work to give us a larger share of the diminished 18 to 21 population? Will this require any changes of emphasis?

6. Are Ohio University's regional campuses in a better position to serve the older-than-21 age population than the Athens campus? If so, what curricular, administrative, or community changes will be required?

7. Are the presumed characteristics of graduate students over the next ten years comparable to those described for undergraduates?
Sources


Harrington, Charles F. Projected Enrollment at Ohio University Main Campus (mimeographed).


ENVIRONMENTAL STATEMENT ON FINANCING OF HIGHER EDUCATION

by

Joseph B. Tucker
SUMMARY

The following report on the financing of higher education covers four areas. Each area is listed below and a few summary observations about each is listed.

I. Current Patterns of Financing Postsecondary Education.

Financing higher education in the U.S. is a responsibility shared by students and their families, state and local governments, the federal government, philanthropic organizations and individuals, and institutions themselves. Even though the federal and state role in funding higher education has increased substantially in 20 years, students and their parents are still the largest single source of income for higher education.

II. Identifiable Trends in Funding

Probably the most significant trends in funding are:

1. Students and their families are paying a larger share of educational costs through tuition and fees.

2. The tremendously expanded federal role in funding has taken the form of aid to students.

3. Increasing numbers of higher education institutions are experiencing financial difficulty.

III. Recommendations of Major Study Groups Regarding Financing of Higher Education

A number of groups in recent years have studied higher education in the U.S. Among these groups are: Carnegie Commission on Higher Education, the Committee for Economic Development, Carnegie Council on Policy Studies in Higher Education, the Ohio Citizens' Task Force on Higher Education, and the Ohio Master Plan.

While calling for significant new dollars for higher education, two studies called for higher tuition at public institutions.

IV. Economic and Political Trends as they impact on Funding

Attempting to relate political and economic developments to the funding of higher education is most difficult. The report makes few concrete observations about the economic outlook. While Ohio has the economic base to improve the funding of higher education the report states "Given the performance of the Ohio political system to date, there is little reason to think that a significant change will take place in the next several years."
This brief report covers four aspects of the financing of higher education in the United States and Ohio. Each has some relevance for anyone who would develop an educational plan for an institution. The four areas are:

2. Identifiable trends in funding.
3. The recommendations for financing higher education made by major national and Ohio study groups.
4. Economic and political trends as they impact on funding.

The report is summary in nature. Greater detail is provided in tables and appendices. Major sources are listed for those who want to pursue the subject in depth.

**Current Financing Patterns**

Financing of postsecondary education in the U.S. is a responsibility shared by students and their families, state and local governments, the federal government, philanthropic organizations and individuals, and the institutions themselves. Table 3-1 presents the major sources of income for postsecondary education.

**Income From Tuition And Related Fees**

Students paid an estimated $5.9 billion in 1971-72 of all of the total income of postsecondary education. The grand total was $10.3 billion but $4.4 billion of this was provided in direct financial aid to students from local, state, federal, and private sources. Table 3-5 makes it clear that, despite increasing federal aid, support from parents is the single largest source of student funds. Almost one-half of student support at institutions like Ohio University comes from parents. However, parental support is a much smaller percentage of total support for black and commuting students.

**State And Local Support**

1. Direct and Indirect Institutional Support
   a. General Institutional Support

   "Public institutions of higher education at the state level receive more than 95 percent of their state support and approximately 40 percent of their total support through direct appropriations by the state legislatures."¹

   There is an increasing use of formulas by states to determine allocations.

¹ The National Commission on the Financing of Postsecondary Education, p. 89.
b. Categorical Aid

In addition to direct institutional support, the state appropriates money to public institutions for special purposes: agricultural research, public service, and others. Increasingly state legislatures are providing aid to private institutions in support of specific programs. For example, a number of states provide support for private medical schools.

c. Capital Outlay

State and local governments provide direct appropriations to public institutions for construction of facilities. Reporting is imprecise, but it is estimated that the states provided $500 million to collegiate institutions for capital outlay in 1971-72 (not including interest costs).¹ Eleven states have established authorities which can make construction loans to private institutions.

d. Tax Exemptions and Credits

Public and private institutions of higher education are exempted from state and local taxes—primarily property and sales taxes. Endowment income is also exempt from state and federal taxes.

2. Student Financial Aid Programs

State supported programs take the form of:

a. Competitive scholarships

b. Non-competitive tuition grants (Ohio)

c. Educational opportunity grants—aimed to low income students and cover non-tuition items (only a few states)

d. Tuition equalization grants—grants limited to students who attend private institutions.

Table 3-7 lists total dollars going into these programs.

e. Grants for enrollments in other states

f. Guaranteed student loans (Ohio)

g. Direct student loans

Despite recent increases, state spending for student aid, including the cost of state administered loan programs and other forms of aid, accounts for no more than 4 or 5 percent of total measurable state and local support for post-secondary education.² However, Ohio, along with five other states, accounts for 78 percent of total student-aid funding and 67 percent of the student recipients.

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¹ Commission of Financing, p. 93.
² Commission on Financing, p. 96.
Federal Support

Federal support for postsecondary education has grown from no more than $500 million in 1951-52 to $8.1 billion by 1971-72.

1. Institutional Support -- The federal government provides direct support to four service academies plus several other national institutions. Land grant colleges and universities receive small amounts.

The National Commission on the Financing of Postsecondary Education classified the college work study program as institutional aid since the institutions were able to buy services with the money. However, it is treated as student aid at a later point in this report.

   a. Categorical Aid

   Categorical aid are funds allocated to the achievement of specific purposes rather than general aid. Projects funded by NSF, NIH, etc. are categorical grants. In addition, there is aid for agricultural research and developing institutions.

   b. Construction Aid

   Federal funds for construction of facilities for public and private institutions reached a peak in 1965-66 of $527 million. Almost all construction programs have been phased out.

   c. Tax Benefits

   The most important benefit is probably tax deductions for voluntary contributions to non-profit institutions.

   d. Other

   Educational institutions benefit from disposal of surplus federal property, facilities, and equipment.

2. Student Aid

The following lists all of the federal student aid programs. See Appendix A for a description of each. Table 3-9 provides a summary of actual and projected expenditures for these programs.

   a. Basic Educational Opportunity Grants

   b. Supplemental Educational Opportunity Grants

   c. State Student Incentive Grants Program

   d. Cost of Education Supplements

   e. Guaranteed Student Loan Program
Private Philanthropy And Endowment Income

"Philanthropic giving is the oldest and still one of the most important sources of support for postsecondary education in the country. In 1971-72, private donors—that is alumni, corporations, foundations, charitable organizations, religious groups, and individuals—provided an estimated $2.02 billion for support of institutions in the collegiate sector."

Table 3-15 indicates that while voluntary support has grown, it has not kept pace with inflation. Table 3-16 indicates voluntary support of collegiate institutions by source while Table 3-17 reports voluntary support by institutional type.

Trends In Funding Higher Education

The following section summarizes some of the major trends in financing higher education. These trends are drawn from the sources listed at the end of the report.

1. Revenue from tuition and other required fees represent an increasing share of education expenditures. See Table 3-18 for the share tuition and fees represented by state. (Carnegie Commission)

2. Increasing use of special appropriations to private institutions for special purposes (Commission on Financing).

3. The bulk of federal aid will take the form of aid to students. Federal policy makers believe aid to students is the best way to promote access and choice. Federal aid programs have grown faster than the Carnegie Council on Policy studies in Higher Education forecast. See Appendix B for current student aid funding at national, state, and O.U. Compare these figures with Carnegie projections on Table 3-9.

4. The cost of attending collegiate institutions of any kind has gone up rapidly over the past decade, increasing more than per capita income and, therefore, becoming an increasing burden to those who must pay the cost. (Commission on Financing)

5. In the past five years voluntary support for collegiate institutions has barely kept pace with enrollment growth and this has declined as a percentage of total institutional expenditures. Income from gifts and grants, plus endowment income, fell from 9.3 percent to 7.9 percent of total income for collegiate institutions. (Commission on Financing)

4 Commission on Financing, p. 119.
6. Between 1962-63 and 1971-72 public institutions increased their share of voluntary support from 15.8% of the total to 21.6%. (Commission on Financing)

7. At the state level, increases in student aid have been more popular with governors and legislators than proposed increased in direct support of institutions. (Commission on Financing)

8. Continued growth in state student aid programs is probable for the next few years, especially in the form of non-competitive grants for students attending public and private institutions. (Commission on Financing)

9. State legislators are showing an increasing willingness to provide aid to private institutions. This aid has tended to be in the form of grants to students for use at private institutions. (Commission on Financing)

10. Increasing numbers of institutions of higher education, public and private, are experiencing financial difficulty. (Carnegie Commission) Appendix C provides summary charts from a special report in CHANGE which analyzed the financial health of higher education.

Recommendations Of Major Study Groups Regarding Financing Of Higher Education

The major recommendations of various study groups are listed in Appendix D. A listing of recommendations relating to financing of higher education is included on the assumption that such recommendation might influence future policy. Recommendations are drawn from the Carnegie Commission on Higher Education, the Committee for Economic Development, Carnegie Council on Policy Studies, and the Ohio Citizens Task Force on Higher Education. In addition, the recommendations involving finance of higher education contained in the new Ohio Master Plan are included.

Briefly, these recommendations call for more support for higher education in the form of direct institutional aid, higher levels of student aid, support for private institutions, and greater support for research. Two study groups call for raising of the share of costs paid for by tuition.

Politics, Economic And Funding

Attempting to relate political and economic developments to the financing of higher education is most difficult. The national economic picture is still cloudy, although a majority of economists are predicting steady but not dramatic growth. In Ohio, both the Office of Budget and Management and the Legislative Budget Office have not released their income projections for the next two years. On a longer range basis the Academy for Contemporary Problems, in a recent study, projected a bleak economic future for Ohio unless new industries are attracted.

It is well known that Ohio is a low tax state given its per capita income, a high tuition state, and enrolls a low percentage of its population 18-24 years of age in institutions of higher education. The material in Appendix E, drawn
from a study by the Carnegie Council on Policy Studies in Higher Education, documents this situation. Given the performance of the Ohio state political system to date, there is little reason to think that a significant change will take place in the next several years.
QUESTIONS

1. Given the fact that the state of Ohio is the third highest in the nation in revenue from tuition and fees as a percentage of educational expenditures, to what extent can or should Ohio University depend on increasing student fees for needed resources?

2. Assuming the state will not channel significant new sums of money into higher education, as seems likely, which expenditure items will receive priority attention?

3. To what extent can Ohio University obtain needed new resources from philanthropic sources?

4. Dormitories on residential campuses face the possibility of significant excess capacity in the 1980's. On a campus like Ohio University, where costs for dormitory facilities are expected to be met by charges to the users, what are the implications for the general operating income of the institution if dormitories are unable to meet their costs?

5. Academic programs have differential costs associated with them. Should Ohio University consider charging students differential fees depending on their majors?
Table 3-1: Major Sources of Income for Postsecondary Education, 1971-72
(In billions)

<table>
<thead>
<tr>
<th>Sources of Income</th>
<th>Institutional Support</th>
<th>Aid to Students</th>
<th>Total Support</th>
<th>Percent of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student payments for tuition and other fees</td>
<td>$5.9*</td>
<td>--</td>
<td>$5.9</td>
<td>20.0%</td>
</tr>
<tr>
<td>State and local government</td>
<td>9.0</td>
<td>0.3</td>
<td>9.3</td>
<td>31.6%</td>
</tr>
<tr>
<td>Federal government</td>
<td>4.2</td>
<td>3.9</td>
<td>3.1</td>
<td>27.4%</td>
</tr>
<tr>
<td>Private philanthropy and endowment income</td>
<td>2.5</td>
<td>0.2</td>
<td>2.7</td>
<td>9.1%</td>
</tr>
<tr>
<td>Auxiliary enterprises and other activities</td>
<td>3.5</td>
<td>--</td>
<td>3.5</td>
<td>11.9%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$25.1</strong></td>
<td><strong>$4.4</strong></td>
<td><strong>$29.5</strong></td>
<td><strong>100.0%</strong></td>
</tr>
</tbody>
</table>

*Net of aid received by students from public and private sources and paid to institutions for tuition and fees.
Table 3-5: Percentages of Income Received from Various Sources, by Students in Selected Subgroups, 1969-70

<table>
<thead>
<tr>
<th>Source</th>
<th>Sex</th>
<th>Race</th>
<th>Residence</th>
<th>Institutional Type</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Men</td>
<td>Women</td>
<td>Black</td>
<td>White</td>
<td></td>
</tr>
<tr>
<td>Educational Opportunity Grants</td>
<td>2</td>
<td>2</td>
<td>11</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>State scholarships &amp; grants from colleges</td>
<td>4</td>
<td>4</td>
<td>15</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>State scholarships &amp; grants</td>
<td>3</td>
<td>3</td>
<td>1</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Private scholarships &amp; grants</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>National Defense Student Loans</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>College loans</td>
<td>*</td>
<td>*</td>
<td>1</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>Guaranteed loans</td>
<td>3</td>
<td>3</td>
<td>6</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Non-guaranteed loans</td>
<td>*</td>
<td>1</td>
<td>1</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>Other loans</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Part-time jobs awarded as part of aid package</td>
<td>5</td>
<td>5</td>
<td>10</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Other part-time jobs</td>
<td>13</td>
<td>8</td>
<td>5</td>
<td>15</td>
<td>1</td>
</tr>
<tr>
<td>Money drawn from assets</td>
<td>17</td>
<td>13</td>
<td>9</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>Social Security &amp; Veterans' benefits</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Income tax refunds</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Other income</td>
<td>1</td>
<td>*</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
</tbody>
</table>


*Indicates percentages of .5 or less.
**Due to rounding, totals may not be exactly 100 percent.
Table 3-7: State Scholarship and Grant Programs, 1969-70 through 1972-73

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Awards (in millions)</td>
<td>$191.5</td>
<td>$230.2</td>
<td>$291.0</td>
<td>$348.2</td>
</tr>
<tr>
<td>Number of Recipients</td>
<td>487,800</td>
<td>587,800</td>
<td>635,500</td>
<td>748,700</td>
</tr>
<tr>
<td>Award Funds per Recipient</td>
<td>$393</td>
<td>$392</td>
<td>$453</td>
<td>$465</td>
</tr>
</tbody>
</table>

Source: Annual reports of state scholarship and grant programs compiled by Joseph D. Boyd, Executive Director, Illinois State Scholarship Commission, and supplementary data obtained from individual states.
Table A: Appropriations for selected federal programs, actual or estimated, 1974-75, and recommended, 1975-76 to 1979-80 [in millions of constant (1974) dollars]

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total appropriations</td>
<td>69,502</td>
<td>59,728</td>
<td>10,336</td>
<td>510,707</td>
<td>511,110</td>
<td>$11,625</td>
</tr>
<tr>
<td>Basic educational opportunity grants</td>
<td>660</td>
<td>974</td>
<td>1,266</td>
<td>1,692</td>
<td>1,916</td>
<td>2,230</td>
</tr>
<tr>
<td>Supplemental educational opportunity grants</td>
<td>240</td>
<td>212</td>
<td>184</td>
<td>156</td>
<td>128</td>
<td>100</td>
</tr>
<tr>
<td>College work-study program</td>
<td>500</td>
<td>550</td>
<td>650</td>
<td>600</td>
<td>650</td>
<td>750</td>
</tr>
<tr>
<td>Interest and defaults on insured loans</td>
<td>430</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
<tr>
<td>Direct student loans</td>
<td>329</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
<tr>
<td>National student loan bank</td>
<td>0</td>
<td>35</td>
<td>114</td>
<td>195</td>
<td>272</td>
<td>350</td>
</tr>
<tr>
<td>Social security benefits</td>
<td>856</td>
<td>859</td>
<td>882</td>
<td>895</td>
<td>905</td>
<td>920</td>
</tr>
<tr>
<td>State student incentive grants</td>
<td>20</td>
<td>110</td>
<td>200</td>
<td>290</td>
<td>360</td>
<td>470</td>
</tr>
<tr>
<td>Tuition equalization grants</td>
<td>0</td>
<td>117</td>
<td>234</td>
<td>331</td>
<td>465</td>
<td>675</td>
</tr>
<tr>
<td>Developing institutions</td>
<td>110</td>
<td>115</td>
<td>126</td>
<td>134</td>
<td>142</td>
<td>150</td>
</tr>
<tr>
<td>Fund for improvement of postsecondary education</td>
<td>12</td>
<td>14</td>
<td>16</td>
<td>15</td>
<td>20</td>
<td>25</td>
</tr>
<tr>
<td>Cost-of-education supplements</td>
<td>0</td>
<td>160</td>
<td>320</td>
<td>430</td>
<td>640</td>
<td>800</td>
</tr>
<tr>
<td>Vocational education</td>
<td>159</td>
<td>155</td>
<td>171</td>
<td>178</td>
<td>184</td>
<td>190</td>
</tr>
<tr>
<td>Veterans' benefits&lt;sup&gt;a&lt;/sup&gt;</td>
<td>2,637</td>
<td>2,479</td>
<td>2,110</td>
<td>1,583</td>
<td>949</td>
<td>560</td>
</tr>
<tr>
<td>Graduate fellowships and traineeships</td>
<td>80</td>
<td>96</td>
<td>112</td>
<td>123</td>
<td>144</td>
<td>160</td>
</tr>
<tr>
<td>Research and development</td>
<td>3,000</td>
<td>3,112</td>
<td>3,224</td>
<td>3,336</td>
<td>5,115</td>
<td>5,550</td>
</tr>
<tr>
<td>Other&lt;sup&gt;c&lt;/sup&gt;</td>
<td>730</td>
<td>730</td>
<td>730</td>
<td>730</td>
<td>730</td>
<td>730</td>
</tr>
</tbody>
</table>

<sup>a</sup>Does not include costs associated with phasing out existing loan programs, which are difficult to estimate. In some cases, data for 1974-75 are actual expenditures, rather than appropriations.

<sup>b</sup>Reductions in veterans' benefits are estimated on the assumption that the number of veterans enrolled in higher education will decline at the same rate as in the case of Korean veterans.

<sup>c</sup>Includes, among other programs, health manpower and training programs, university community services, aid to land-grant colleges, postsecondary education commissions, veterans' cost of instruction, special programs for disadvantaged students, college library support, undergraduate equipment, agricultural extension, special programs for disadvantaged students, National Institute of Education funds allocated to higher education, undergraduate equipment, language training and area studies, public service and minority fellowships, and training and demonstration programs. Some of the specialized training programs are being phased out.

Source: Estimates developed by Carnegie Council staff.
Table 3.15: Voluntary Support of Collegiate Institutions, Relative to Enrollment and Purchasing Power, 1966-67 through 1971-72

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Estimated Support (millions)...</td>
<td>$1,450</td>
<td>$1,570</td>
<td>$1,800</td>
<td>$1,780</td>
<td>$1,860</td>
<td>$2,020</td>
<td>+32.3%</td>
</tr>
<tr>
<td>Enrollment (thousands).................</td>
<td>6,390</td>
<td>6,912</td>
<td>7,513</td>
<td>8,005</td>
<td>8,581</td>
<td>8,949</td>
<td>+40.0%</td>
</tr>
<tr>
<td>Support Per Student...................</td>
<td>$227</td>
<td>$227</td>
<td>$240</td>
<td>$222</td>
<td>$217</td>
<td>$226</td>
<td>-0.5%</td>
</tr>
<tr>
<td>Consumer Price Index (1967=100).......</td>
<td>98.2</td>
<td>102.1</td>
<td>107.0</td>
<td>113.1</td>
<td>118.8</td>
<td>123.3</td>
<td>+25.6%</td>
</tr>
<tr>
<td>Support Per Student in 1967 Dollars..</td>
<td>$231</td>
<td>$222</td>
<td>$224</td>
<td>$196</td>
<td>$183</td>
<td>$183</td>
<td>-3.7%</td>
</tr>
<tr>
<td>Total Expenditures (billions).........</td>
<td>$17.5</td>
<td>$19.9</td>
<td>$22.1</td>
<td>$24.7</td>
<td>$27.4</td>
<td>$29.9</td>
<td>+7.9%</td>
</tr>
<tr>
<td>Total Expenditures Per Student........</td>
<td>$2,740</td>
<td>$2,880</td>
<td>$2,940</td>
<td>$3,090</td>
<td>$3,190</td>
<td>$3,540</td>
<td>+21.9%</td>
</tr>
</tbody>
</table>

### Table 3-16: Voluntary Support of Reporting Collegiate Institutions, by Source, 1962-63 through 1971-72

(In thousands)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Inst.'s</td>
<td>1,236</td>
<td>1,064</td>
<td>1,035</td>
<td>1,042</td>
<td>1,043</td>
<td>1,013</td>
<td>1,045</td>
<td>1,080</td>
<td>1,093</td>
</tr>
<tr>
<td>Alumni</td>
<td>$121,907 (21.5%)</td>
<td>$243,401 (21.5%)</td>
<td>$265,558 (21.9%)</td>
<td>$277,744 (22.4%)</td>
<td>$307,477 (24.3%)</td>
<td>$352,658 (21.3%)</td>
<td>$311,346 (24.6%)</td>
<td>$372,962 (24.8%)</td>
<td>$392,460 (25.8%)</td>
</tr>
<tr>
<td>Other Individuals</td>
<td>197,179 (21.6%)</td>
<td>309,945 (25.2%)</td>
<td>319,918 (25.5%)</td>
<td>349,459 (25.1%)</td>
<td>366,146 (21.4%)</td>
<td>365,547 (24.8%)</td>
<td>390,266 (26.6%)</td>
<td>401,197 (24.4%)</td>
<td></td>
</tr>
<tr>
<td>Foundations</td>
<td>122,720 (25.4%)</td>
<td>357,601 (24.8%)</td>
<td>320,982 (23.4%)</td>
<td>352,321 (24.1%)</td>
<td>359,316 (23.5%)</td>
<td>341,079 (22.5%)</td>
<td>426,596 (25.9%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Business Corporations</td>
<td>166,088 (21.6%)</td>
<td>173,986 (14.0%)</td>
<td>195,705 (16.8%)</td>
<td>213,191 (15.6%)</td>
<td>220,562 (15.1%)</td>
<td>222,416 (13.9%)</td>
<td>223,183 (13.6%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Religious Denominations</td>
<td>50,289 (4.8%)</td>
<td>90,115 (7.2%)</td>
<td>92,375 (7.5%)</td>
<td>91,536 (7.7%)</td>
<td>102,014 (7.4%)</td>
<td>81,275 (5.5%)</td>
<td>83,358 (5.6%)</td>
<td>84,827 (5.6%)</td>
<td>81,825 (5.0%)</td>
</tr>
<tr>
<td>Nonalumni, Nonchurch Groups</td>
<td>38,093 (4.2%)</td>
<td>45,526 (5.6%)</td>
<td>59,236 (4.9%)</td>
<td>59,948 (4.7%)</td>
<td>60,750 (4.5%)</td>
<td>65,690 (4.9%)</td>
<td>99,194 (6.8%)</td>
<td>77,924 (5.1%)</td>
<td>91,086 (5.5%)</td>
</tr>
<tr>
<td>Other Sources</td>
<td>15,487 (1.7%)</td>
<td>19,694 (1.6%)</td>
<td>12,515 (1.2%)</td>
<td>18,694 (1.4%)</td>
<td>17,089 (1.3%)</td>
<td>22,226 (1.5%)</td>
<td>25,130 (1.9%)</td>
<td>25,830 (1.7%)</td>
<td>30,060 (1.8%)</td>
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</table>

<table>
<thead>
<tr>
<th></th>
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<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>1962-63</td>
<td>$364,080</td>
<td>40.0%</td>
<td>*In every Survey, each institution is classified in the category appropriate to its status in that year. Since the status of many institutions has changed over the years, the data by category are not strictly comparable from one Survey to another.</td>
</tr>
<tr>
<td>1964-65</td>
<td>$477,743</td>
<td>43.4%</td>
<td></td>
</tr>
<tr>
<td>1965-66</td>
<td>$444,201</td>
<td>38.4%</td>
<td></td>
</tr>
<tr>
<td>1966-67</td>
<td>$481,365</td>
<td>36.1%</td>
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<td>1967-68</td>
<td>$605,368</td>
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<tr>
<td>1968-69</td>
<td>$615,249</td>
<td>44.1%</td>
<td></td>
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<tr>
<td>1969-70</td>
<td>$638,927</td>
<td>42.1%</td>
<td></td>
</tr>
<tr>
<td>1970-71</td>
<td>$604,465</td>
<td>43.4%</td>
<td></td>
</tr>
<tr>
<td>1971-72</td>
<td>$685,807</td>
<td>41.7%</td>
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### TABLE 18
Revenue from tuition and other required fees as percentage of educational expenditures, by state and type of institution, public institutions, United States, 1971-72

<table>
<thead>
<tr>
<th>State</th>
<th>Universities</th>
<th>Comprehensive universities and colleges</th>
<th>Liberal arts colleges</th>
<th>Two-year institutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alabama</td>
<td>22.1% (2)</td>
<td>19.8% (9)</td>
<td>25.4% (1)</td>
<td>21.2% (14)</td>
</tr>
<tr>
<td>Alaska</td>
<td>9.5 (1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arizona</td>
<td>23.6 (2)</td>
<td>22.2 (1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arkansas</td>
<td>22.7 (1)</td>
<td>30.3 (8)</td>
<td></td>
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</tr>
<tr>
<td>California</td>
<td>20.1 (7)</td>
<td>13.5 (16)</td>
<td>16.8 (4)</td>
<td>2.5 (87)</td>
</tr>
<tr>
<td>Colorado</td>
<td>35.1 (3)</td>
<td>28.9 (7)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Connecticut</td>
<td>14.1 (1)</td>
<td>33.1 (4)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Delaware</td>
<td>27.0 (11)</td>
<td>22.6 (1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>District of Columbia</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Florida</td>
<td>15.4 (2)</td>
<td>21.7 (5)</td>
<td></td>
<td>23.2 (24)</td>
</tr>
<tr>
<td>Georgia</td>
<td>16.4 (3)</td>
<td>27.7 (12)</td>
<td></td>
<td>30.2 (13)</td>
</tr>
<tr>
<td>Hawaii</td>
<td>12.3 (1)</td>
<td>8.3 (1)</td>
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<td>Idaho</td>
<td>10.9 (1)</td>
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<td>18.6 (2)</td>
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<td>Illinois</td>
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<td></td>
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<td>23.6 (16)</td>
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<td>25.6 (1)</td>
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<td>18.4 (20)</td>
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<td>Kentucky</td>
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<td>Maine</td>
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<td>16.9 (1)</td>
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<td>Maryland</td>
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<td>Massachusetts</td>
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<td>9.2 (1)</td>
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<td>22.8 (1)</td>
<td>26.5 (27)</td>
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<td>26.2 (8)</td>
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<td>23.7 (20)</td>
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<tr>
<td>Mississippi</td>
<td>28.8 (4)</td>
<td>28.0 (5)</td>
<td></td>
<td>15.2 (15)</td>
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<td>Missouri</td>
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<td>27.6 (8)</td>
<td>21.4 (1)</td>
<td>26.0 (14)</td>
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<td>Montana</td>
<td>23.0 (2)</td>
<td>19.0 (3)</td>
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<td>15.9 (3)</td>
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<th>State</th>
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<th>Comprehensive universities and colleges</th>
<th>Liberal arts colleges</th>
<th>Two-year institutions</th>
</tr>
</thead>
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<tr>
<td>Nebraska</td>
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<td>44.9% (5)</td>
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<td>18.1% (8)</td>
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<td>23.5 (1)</td>
<td></td>
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<tr>
<td>New Hampshire</td>
<td>43.7 (1)</td>
<td>61.8 (2)</td>
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<td>17.6 (1)</td>
<td>29.2 (9)</td>
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<td>28.1 (11)</td>
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<tr>
<td>New Mexico</td>
<td>14.8 (2)</td>
<td>21.1 (3)</td>
<td></td>
<td>31.7 (8)</td>
</tr>
<tr>
<td>New York</td>
<td></td>
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<tr>
<td>CUNY</td>
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<td>7.5 (34)</td>
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<td>Vermont</td>
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<td>48.6 (2)</td>
<td>22.2 (1)</td>
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<tr>
<td>Virginia</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Washington</td>
<td>14.2 (2)</td>
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<tr>
<td>West Virginia</td>
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<td>23.1 (5)</td>
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<tr>
<td>Wisconsin</td>
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<td>26.8 (20)</td>
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<td>Wyoming</td>
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<td>Outlying areas</td>
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<td>8.9 (3)</td>
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(Table continued on next page)
ENVIRONMENTAL STATEMENT ON
EMPLOYMENT OPPORTUNITIES FOR COLLEGE GRADUATES

by

Gerald Silver
Employment Opportunities for College Graduates

It is recognized that there are many desirable outcomes of a college education, and employment is but one.

Summary

1. 25% of all job openings between 1972 and 1985 are expected to require persons who have completed four or more years of college (vs. 18% of jobs between 1959-1972).

2. Many positions that heretofore did not require college graduates will now do so.

3. The largest number of openings will be for replacements in the labor market rather than for new positions.

4. In the State of Ohio, job openings requiring replacements due to separations should outnumber openings due to growth by approximately 3 to 1.

5. The supply of graduates is determined by market conditions several periods earlier and is thus a lagging function of the state of the market.

6. The projections include 2-year college graduates, 4-year graduates, and those positions for which an advanced degree is required.
Introduction

Employment Opportunities For College Graduates

The material compiled here attempts to project employment opportunities for college graduates for the next decade. Included are correspondence from two placement directors, an economist specializing in human resources, the U. S. Department of Labor, and the State of Ohio.

Employment opportunities for college graduates depend upon (i) growth in employment in occupations currently requiring a college degree for entry, (ii) the need to replace workers in such occupations who die, retire, or leave the labor force for other reasons, and (iii) educational upgrading, the trend toward hiring college graduates for jobs once performed by workers with less education. The Bureau of Labor estimates suggest that total employment (college graduates as well as non-degree holders) to increase by about 20 percent between 1974 and 1985 from 85.9 million to 103.4 million.

It is noteworthy that nearly 25 percent of all job openings between 1972 and 1985 are expected to require persons who have completed four or more years of college. In comparison, during the preceding 13 years between 1959 and 1972 about 18 percent of all job openings were filled by college graduates.

As regards Ph.D.'s, the projections in the Bureau of Labor Statistics report indicate a need for about 187,000 doctorate holders over the 1972-85 period, 140,000 for growth and 47,000 for replacement. The available supply of new Ph.D.'s during the same period, however, is estimated at about 583,400 persons. Therefore, if present trend continues in patterns of use of Ph.D.'s relative to other workers and in the proportion of persons obtaining doctoral degrees, by 1985 more than twice as many Ph.D.'s would be available for work in Ph.D.-type jobs as there are jobs.

It must be noted that college graduates (baccalaureate) are expected to continue to have a competitive advantage over those with less education. Despite the projected surplus of college graduates for the 1980-85 period, it is unlikely that college graduates will experience significant levels of unemployment. It is felt that they are likely to obtain jobs previously held by individuals with less than 4 years of college.

It is useful to remind at this state that the above analysis and estimates are based on five fundamental assumptions which would be valid provided the present policies of the federal government do not change. However, the change of leadership at the top is likely to alter some of the previous policies and at present, indications are that these changes would stimulate demand for college graduates.

Furthermore, for certain fields, prospective imbalances may be intensified unnecessarily if short-run job situations are allowed to outweigh the long-range employment outlook in making educational and career decisions. According to data from the Engineering Joint Council, freshman engineering enrollments

1See Section 3
dropped 11 percent between 1970 and 1971. However, according to the U. S. Department of Labor, manpower requirements are expected to rise substantially in engineering over the 1970-80 decade as a whole, implying a repetition of the 1960's scarcity of personnel in the profession, unless the downtrend in enrollments is quickly ended (1976 enrollments data for engineering show that this trend has been reversed). Similar situations could also arise in other fields.

There are many fields for which recertification is, and will become, necessary. Other opportunities might exist for Ohio University in the areas of mid-career redirection, career change, and continuing education. However, this report on "Employment Opportunities for College Graduates" does not include these areas.
Section 1 - College Graduates: Supply and Demand

In 1975-76, the College Placement Council reported that 84% of all jobs offered through college and university placement centers, exclusive of positions in Education, were for business or engineering positions.

Richard B. Freeman speaks of the "cobweb feedback system." The supply of graduates is determined by market conditions several periods earlier, due to the fixed time delay in educational production, and is thus a lagging function of the state of the market.

Freeman's analysis leads him to project the economic situation of college graduates in the next 15 years.

How long will the depression in the college job market last? Forecasts of the future economic situation of college graduates, based on the model of the market given above, suggest that, while the market is unlikely to return to the booming sixties, the relative economic status of graduates will level off in the near future and improve in the 1980's. On the basis of the type of analysis sketched out in this section, the economic standing of college graduates, barring unforeseen increases in demand, is expected to remain more or less at the depressed level of the mid-1970's until the end of the decade and then to improve moderately, at least for new bachelor's recipients, largely as a result of diminished growth in the number of graduates in response to depressed market of the 1970's and to declines in the size of college-age cohorts. In the mid-1980's, the fall in the supply of new baccalaureates is expected

Freeman, op cit P 73
to create a substantial boom in the market for new college-trained workers, which will level off in the 1990's. Unless there is a sharp increase in demand in the future, however, the boom will not restore the college income premium that existed among the young in the 1960's.

Two letters from nationally regarded placement directors (Indiana University, Arizona State University) are included in the appendix. While there is no discernable trend that placement directors have yet agreed upon, it appears that they rely heavily on the Occupational Outlook Handbook statistics, which are reproduced in this report.
Section 2 - Industry Projections

Industrial Profile

To help understand the Nation's industrial composition, industries may be viewed as either goods-producing or service-producing. They may further be grouped into nine major divisions according to product or service.

Most of the Nation's workers are in industries that produce services, in activities such as education, health care, trade, repair and maintenance, government, transportation, banking, and insurance. The production of goods—raising food crops, building, extracting minerals, and manufacturing—requires only about one-third of the country's work force.

Service-producing industries. In 1974, about 53.7 million workers were on the payroll of service-producing industries—trade; government; services and miscellaneous; transportation and other utilities; and finance, insurance, and real estate—about 19.8 million more than the number employed in 1960. The major factors underlying this rapid growth were (1) population growth; (2) increasing urbanization with its accompanying need for more city services; and (3) rising incomes and living standards accompanying a demand for improved services, such as health and education. These factors are expected to continue to result in rapid growth of service industries as a group, and they are expected to employ 71.5 million by 1985, an increase of about 33 percent over the 1974 level.

Trade, the largest division within the service-producing industries, has expanded sharply since 1960. Wholesale and retail outlets have multiplied in large and small cities to satisfy the need of our highly urban society. Employment in trade was about 17 million in 1974, about 49 percent above the 1960 level.

Employment in trade is expected to grow by about 22 percent between 1974 and 1985. Although an ever-increasing volume of merchandise will be distributed as a result of increases in population and consumer expenditures, the rate of increase in manpower needs will be slowed by labor-saving technology such as the greater use of electronic data processing equipment and automated warehousing equipment, and by growth in the number of self-service stores, and vending machines.

Government employment has grown faster than any other industry division, and increased by about 70 percent, from 8.4 million to 14.5 million, between 1960 and 1974. Growth has been mostly at the State and local levels, which together expanded by 90 percent. Employment growth has been greatest in agencies providing education, health, sanitation, welfare, and protective services. Federal Government employment increased about 20 percent between 1960 and 1974.

Government will continue to be a major source of new jobs through the mid-1980's. Employment in government will grow faster than the average for other industries, rising about 35 percent over the 1974 total. Most of the growth will occur in State and local agencies; while at the Federal level, employment will grow more slowly than the average.

Service and miscellaneous industries have increased rapidly as a result of the growing need for health services, maintenance and repair, advertising, and domestic help. From 1960 to 1974, total em-
employment in this industry division rose by over 80 percent, from 7.4 million to about 13.5 million.

Service and miscellaneous industries will continue to be among the fastest-growing industries through the mid-1980's. More than half again as many workers are expected to be employed in this industry division in 1985 as in 1974. Manpower requirements in health services are expected to grow rapidly due to population growth and the increasing ability of persons to pay for health care. Business services, including accounting, data processing, and maintenance, also are expected to grow rapidly.

Transportation and public utility employment in 1974, at 47 million, was about 17 percent higher than in 1960. Different parts of this industry, however, have experienced different growth trends. For example, employment increased rapidly in air transportation, but declined in the railroad industry.

The number of jobs in transportation and public utilities as a whole is expected to increase by 11 percent to 1985, less than the average for other industries. Widely differing employment trends will continue to be experienced among individual industries within the division.

A continued increase in employment is expected in air transportation, and a decline is expected to continue in railroad employment. A slight decline is expected in water transportation.

Finance, insurance, and real estate, the smallest of the service-producing industry divisions, grew by about 56 percent from 1960, to more than 4.1 million in 1974. Employment has grown especially rapidly in banks; in credit agencies, and among security and commodity brokers, dealers, exchanges, and services.

Job growth in finance, insurance, and real estate will outpace the overall increases in nonfarm employment through the mid-1980's. 1985 employment will be about 35 percent higher than in 1974.

Goods-Producing Industries. Employment in the goods-producing industries—agriculture, manufacturing, construction, and mining—at more than 28.1 million in 1974 has increased slowly in recent years. Significant gains in productivity resulting from automation and other technological developments as well as the growing skills of the work force have permitted large increases in output without corresponding increases in employment. Overall, employment in goods-producing industries is expected to increase more slowly than the average for other industries. However, widely different patterns of employment changes have occurred and will continue among the industry divisions in the goods-producing sector.
Section 3 - Occupational Projections 1975 - 1985, U. S.

These occupational projections presume a college degree for entry level positions and were taken directly from the Occupational Outlook Handbook, 1976-77 Edition.

The following assumptions were used by the Bureau of Labor Statistics in compiling the projections:

1. The U. S. Economy will not alter radically from its present institutional framework.
2. Current sociologic, technologic, and scientific trends will persist, including values placed on work, education, income, and leisure.
3. Gradual recovery by the economy from the high levels of unemployment in the mid-1970's to full employment (defined as 4 percent unemployment) by the mid-1980's.
4. No major events such as war or long-lasting energy shortages will significantly alter the industrial structure of the economy nor its rate of economic expansion.
5. Changes in relative wages, technology, or other factors will not radically alter the trends in the occupational structure of industries.

The occupations listed here include those for which the projected percentage gain 1974-1985 is 20% or greater, and the average annual number of openings is 10,000 or more. The projections include 2-year college graduates, 4-year graduates, and those positions for which an advanced degree is required.
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<tbody>
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<td>Accountants:</td>
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</tr>
<tr>
<td>Administrators:</td>
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<td></td>
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<td>Elementary/Secondary</td>
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<td>250,000</td>
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<td>275,000</td>
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<td>313,000</td>
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<td>Electrical Engineers</td>
<td>290,000</td>
<td>378,900</td>
<td>32.0</td>
<td>12,200</td>
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<tr>
<td>Engineering &amp; Science Tech.</td>
<td>774,300</td>
<td>1,099,000</td>
<td>41.9</td>
<td>45,800</td>
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<td>Health Technologists &amp; Technicians, n.e.c.</td>
<td>79,300</td>
<td>160,000</td>
<td>101.8</td>
<td>12,800</td>
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<td>Insurance Agents, Brokers, &amp; Underwriters</td>
<td>470,000</td>
<td>536,000</td>
<td>15.0</td>
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<td>Lawyers</td>
<td>342,000</td>
<td>490,000</td>
<td>43.3</td>
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<td>125,000</td>
<td>150,000</td>
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<td>Medical Laboratory Workers</td>
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<td>250,000</td>
<td>42.9</td>
<td>18,800</td>
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<td>Personnel &amp; Labor Relations</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Workers</td>
<td>320,000</td>
<td>450,000</td>
<td>40.2</td>
<td>23,000</td>
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<td>Physicians:</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Medical &amp; Osteopathic</td>
<td>350,000</td>
<td>520,000</td>
<td>49.3</td>
<td>23,000</td>
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<td>Police Officers</td>
<td>480,000</td>
<td>650,000</td>
<td>35.5</td>
<td>22,000</td>
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<tr>
<td>Purchasing Agents</td>
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<td>258,000</td>
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<td>Registered Nurses</td>
<td>860,000</td>
<td>1,290,000</td>
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<td>71,000</td>
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<td>Salesworkers:</td>
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<td></td>
<td></td>
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<tr>
<td>Real Estate Salesworkers</td>
<td>400,000</td>
<td>480,000</td>
<td>21.8</td>
<td>28,500</td>
</tr>
<tr>
<td>Life Scientists</td>
<td>190,000</td>
<td>245,000</td>
<td>29.0</td>
<td>10,700</td>
</tr>
<tr>
<td>Social Workers</td>
<td>300,000</td>
<td>435,000</td>
<td>45.7</td>
<td>30,500</td>
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<tr>
<td>Elementary Teachers</td>
<td>1,276,000</td>
<td>1,439,000</td>
<td>12.8</td>
<td>94,000</td>
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</tbody>
</table>
Section 4 - Occupational Projections, 1974-1985 - Ohio

The occupational distribution of employment in Ohio is expected to show a further swing towards white-collar skills by 1985. Job openings requiring replacements due to separations should outnumber openings due to growth by approximately 3 to 1.

The following tables show the projected job openings within Ohio for fields calling for college degrees to 1985.

## Average Annual Job Openings in Ohio and Projections by Occupation to 1985

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Average Annual Openings 1970-74</th>
<th>Average Annual Openings 1974-75</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technical Engineers</td>
<td>1,531</td>
<td>1,869</td>
</tr>
<tr>
<td>Life and Physical Scientists</td>
<td>381</td>
<td>314</td>
</tr>
<tr>
<td>Mathematical Specialists</td>
<td>87</td>
<td>77</td>
</tr>
<tr>
<td>Engineers, Science Technicians</td>
<td>1,615</td>
<td>2,340</td>
</tr>
<tr>
<td>Medical Workers, Except Technicians</td>
<td>4,852</td>
<td>7,144</td>
</tr>
<tr>
<td>Health Technicians</td>
<td>1,721</td>
<td>2,113</td>
</tr>
<tr>
<td>Computer Specialists</td>
<td>379</td>
<td>679</td>
</tr>
<tr>
<td>Social Scientists</td>
<td>780</td>
<td>386</td>
</tr>
<tr>
<td>Teachers</td>
<td>7,202</td>
<td>7,510</td>
</tr>
<tr>
<td>Writers, Artists, Entertainers</td>
<td>3,324</td>
<td>2,737</td>
</tr>
<tr>
<td>Athletes and Kindred Workers</td>
<td>326</td>
<td>248</td>
</tr>
<tr>
<td>Designers</td>
<td>247</td>
<td>263</td>
</tr>
<tr>
<td>Editors and Reporters</td>
<td>325</td>
<td>515</td>
</tr>
<tr>
<td>Musicians and Composers</td>
<td>865</td>
<td>509</td>
</tr>
<tr>
<td>Painters and Sculptors</td>
<td>723</td>
<td>430</td>
</tr>
<tr>
<td>Photographers</td>
<td>127</td>
<td>123</td>
</tr>
<tr>
<td>Public Relations Specialists</td>
<td>356</td>
<td>224</td>
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<tr>
<td>Writers, Artists, Entertainers,n.e.c.</td>
<td>253</td>
<td>280</td>
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<td>Accountants</td>
<td>2,310</td>
<td>1,540</td>
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<tr>
<td>Architects</td>
<td>121</td>
<td>151</td>
</tr>
<tr>
<td>Clergy</td>
<td>377</td>
<td>435</td>
</tr>
<tr>
<td>Religious, Except Clergy</td>
<td>88</td>
<td>130</td>
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<tr>
<td>Lawyers</td>
<td>957</td>
<td>1,049</td>
</tr>
<tr>
<td>Librarians</td>
<td>893</td>
<td>515</td>
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<tr>
<td>Personnel, Labor Relations</td>
<td>716</td>
<td>852</td>
</tr>
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<td>Research Workers, n.e.c.</td>
<td>426</td>
<td>341</td>
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<tr>
<td>Recreation Workers</td>
<td>504</td>
<td>299</td>
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<tr>
<td>Social Workers</td>
<td>1,028</td>
<td>1,007</td>
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<td>Vocational &amp; Educational Counselors</td>
<td>254</td>
<td>570</td>
</tr>
<tr>
<td>Managers, Officials, Proprietors</td>
<td>25,953</td>
<td>19,091</td>
</tr>
<tr>
<td>Administrators, Public Inspectors</td>
<td>2,114</td>
<td>2,118</td>
</tr>
<tr>
<td>Sales Workers</td>
<td>15,354</td>
<td>16,705</td>
</tr>
</tbody>
</table>
Questions

1. Can we differentiate our graduates from those of other universities?

2. How important is the "career" component of an Ohio University education as perceived by:
   a. Students? Prospective students?
   b. Parents?
   c. Faculty?
   d. Administration?
   e. Others (Public, state, guidance counselors)?

3. a. Can career education be better integrated into current education at Ohio University without changing the fundamental character of:
      1. Curricula?
      2. Majors?
      3. Courses?
      4. Methods of instruction?
   b. Should we attempt to increase career education at Ohio University?

4. Can the Placement Office be solely responsible for placement? Who has the responsibility for career counseling? Is it a multiple responsibility? How can the faculty help? Others?

5. As many graduates are employed in fields other than those for which they are trained in college (major), to what extent will the future employment market for graduates rely upon career-related training as a component of the collegiate educational experience?
Dear Dean Silver:

Thank you for your letter of December 8 regarding information about placement trends for college graduates. I am currently doing some research about employment prospects in the '80's for addition to my career planning textbook. I have as yet not found any good source for projection of the demand for college graduates by academic subject area.

I know that the College Placement Council and other interested professional organizations are attempting to gather this type of data at the present time. We are receiving some assistance from the U.S. Office of Education and the U.S. Department of Labor, but as yet there has not been a meaningful combination of statistics. The best information that is published that I know of at the present time is the OCCUPATIONAL OUTLOOK FOR COLLEGE STUDENTS published by the Department of Labor and a publication titled OCCUPATIONAL MANPOWER AND TRAINING NEEDS also published by the Department of Labor.

I am sorry that we have been unable to provide the type of assistance that you probably need at this point and time. We do, however, see the demand for people with a background in business administration continuing to be fairly strong in the accounting and marketing areas. The outlook is particularly dismal as it relates to college students with a broad liberal arts type of training.

If you would like to discuss the situation further, please feel free to give us a call.

Very truly yours,

C. Randall Powell
Director
Dean Gerald Silver  
Ohio University  
College of Business Administration  
Copeland Hall  
Athens, Ohio 45701

Dear Dean Silver:

Your letter of inquiry elicits some hesitation on my part to reply as I am currently missing my crystal ball. We probably have the same resources for information such as the publications of the Department of Labor, and they do as well as can be expected in making projections for the future supply and demand. They were correct about the teaching profession, and it will do well for us to take their current comments seriously.

However, in my own particular opinion, it is how we use and apply the information that is important. Publicizing the layoffs of engineers a few years back caused students to drop out of their programs creating the present shortage. Even at that time there was a steady hiring pattern of engineers in some fields. Today we are seeing a drop in the number of students preparing for teaching careers, and yet there is an expected upturn in demand for the 1980's. Accounting has experienced a good employment market for some time, but the level of demand is tapering off while the enrollment in accounting courses is accelerating.

To avoid mistakes in trying to outguess hiring trends, I feel it is important to prepare our students with broader and more flexible education. Specialization that is too structured inhibits the ability of our graduates to change and fit into new situations. Much of education is adaptable and transferable unless the individual has a limited outlook...sometimes imposed by our institutions.

In another area, continuing education has just barely been tapped in its potential for re-education, re-vitalization, rehabilitation and refreshment. With the threat of under-employment and under-utilization of our college graduates the university will have to take the lead in developing programs to enrich the leisure time of these individuals.

We must not lose sight of the real challenge for the university of developing in the private and governmental sector those areas that could produce additional employment for our students. Utilization of leisure time, social behavioral problems, energy and the ecology are all fertile areas for possible employment of professionals, but as yet there is no evidence that the actual opportunities are there.
I realize that you asked for data. We use the Occupational Outlook Handbook and blend the information with our observations of the last 27 years in placement. I hope my comments are of some value to you.

Very sincerely yours,

ROBERT F. MENKE
Director of Career Services
Bibliography


ENVIRONMENTAL STATEMENT ON RECOMMENDATIONS FOR HIGHER EDUCATION

by

Edward Baum
SUMMARY
ENVIRONMENTAL STATEMENT #6

Recommendations for Higher Education

Flexibility, innovation, and planning directed by aggressive educational leadership in an era of institutional stability, level or declining enrollments, and financial tightness is the central message of the major studies on higher education during the past five years.

Of these studies, two have special relevance for Ohio University.

Carnegie Commission on Higher Education: focuses on priorities for action in its final report. These priorities are

1. Clarification of Purposes
2. Preservation and Enhancement of Quality and Diversity
3. Advancement of Social Justice
4. Enhancement of Constructive Change
5. Achievement of More Effective Governance
6. Assurances of Resources and Their More Effective Use.

Master Plan of the Ohio Board of Regents: identifies a number of areas calling for action but sees what may be termed a cautious pessimism for higher education in the next few years caused by a declining traditional student age base and little chance for expanded state support. It is an era which will see the following:

1. No additional state-assisted schools
2. Capital funding only for essential projects
3. No approval for new "research-oriented" degrees nor for expansion of current programs
4. No additional medical schools, university hospitals, dental schools, practical or registered nursing programs, or optometry programs
5. Emphasis on increased effectiveness in teaching
6. Expansion of part-time, off-campus programs
7. Enhancement of access to higher education for all.

For Ohio University it is a time of challenge, requiring a "renaissance of progressive leadership directed toward constructive change" within existing resource pools.
ENVIRONMENTAL STATEMENT #6

Recommendations for Higher Education:
Ohio Board of Regents Master Plan,
Carnegie Commission on Higher Education

Aggressive educational leadership involving skills in policy planning and an ability to "invent the future" (Goldman, 10-14) are demanded of higher education in general and Ohio University in particular as we approach the major task facing us. This is "the humanization of higher education--how to respond to the greater aspirations of more individuals for a higher quality of life, how to adjust to the social facts of more affluence and more leisure, how to incorporate into higher education the rise of the creative arts" (Carnegie, 22) in an era of stabilization and even decline in the traditional market of the university and a corresponding financial stability or decline.

Of the various reports, commissions, and task forces of relevance to higher education, two in particular are important for those charged with developing goals statements for Ohio University: The Master Plan of the Ohio Board of Regents and the Carnegie Commission on Higher Education.

Carnegie Commission on Higher Education

Between the end of 1966 when it was established and 1973, the Carnegie Commission on Higher Education undertook the most extensive study on the subject ever conducted in the United States. Among its 64 sponsored studies, 19 technical reports, 31 reprints, and 21 reports are a multitude of recommendations on every aspect of higher education.

In essence the Carnegie Commission believes that higher education has gone through a period of depression following a rapidly expanding era of higher student enrollments and increasing financial resources of the late 1950's and early 1960's. Higher education is emerging from the relative depression and will "reach new levels of achievement." (Carnegie, 92).


The Priorities for action for higher education are

1. Clarification of Purposes: the need to make explicit the purposes of higher education, nationally as well as institutionally.

2. Preservation and Enhancement of Quality and Diversity: including "higher quality in teaching, in curricular offerings, in campus environments, in research and service; and greater diversity among and within, and greater effectiveness of institutions." (p. 31)

3. Advancement of Social Justice: by expanding access to higher education to all.
4. Enhancement of Constructive Change: the pressures for change are becoming more intense. It is incumbent upon institutions of higher education to provide for change through internal leadership rather than external imposition.

5. Achievement of More Effective Governance: although adequate as they exist, governing structures need to be improved, which may be done through mixed forms of governance.

6. Assurances of Resources and Their More Effective Use: the need to reverse current trends in financing higher education lest serious consequences result in reduction in its quality.

Among the fourteen recommendations deserving special attention, (Carnegie, 91-2) the following have relevance for Ohio University:

1. Clarification of purposes, and re-creation of a great new sense of purpose.

2. Reaffirmation by faculty members of their responsibility for providing inspiring teaching.

3. Adoption of codes of conduct for members of the campus community that reflect the high purposes of the academic endeavor, particularly a Bill of Rights and Responsibilities.

4. Introduction of variable time options for students, especially a three-year degree program for the A. B. degree.

5. Renovation of general education, particularly in the direction of opportunities for broad learning experiences.

6. Greater participation of students in the decision-making process.

7. A renaissance of progressive leadership directed toward constructive change.

In sum, the Commission's final report is an optimistic document.

Master Plan of the Ohio Board of Regents

Of greatest relevance to Ohio University of all the external reports and documents is the Ohio Board of Regents' Master Plan. If the Carnegie Commission may be characterized as optimistic, the Master Plan might be called "cautiously pessimistic." It sees an era of program stability, declining enrollments, continued financial stringency, and little or no expansion of facilities (e.g. no additional four-year or two-year state-assisted schools) or programs in some areas (e.g. no increase in current Ph.D. programs except inter-institutional or inter-disciplinary programs). Nonetheless, it calls for a new flexibility, examination of under-developed educational activities (e.g. in-service professional development, part-time and off-campus programs), a willingness to promote diversity within existing resource pools, an expansion of access and quality, and improving teaching.
Renee Peterson, in a report to the Inter-University Council, notes that the Master Plan makes 162 recommendations. Of these, the following must be noted by Ohio University in its planning cycle: (these are not in priority order... the number is the number of the recommendation in the Peterson listing).

1. No additional four-year or two-year state-assisted schools.

20. Examine admission procedures to ensure that they are not unduly cumbersome or time-consuming.

26. Strengthen "affirmative recruitment programs," including (67) graduate programs.

27. Assure equality of employment opportunity for women and minority groups.

29. Review all programs on a five-year cycle and report to the Board.

32. Establish in-service professional development, set aside I & G funds for this purpose, develop measures of teaching effectiveness, and develop personnel policies that reward good teaching.

34. Encourage participation in OCA's faculty exchange program by paying moving costs or in other ways.

36. Set aside funds for emergencies and for innovation.

39. Assign high priority to services to adult and part-time students if increased enrollment desired.

42. Institute flexible scheduling and lower fees for part-time students.

43. Continue to develop off-campus degree credit programs but without diverting students from established campus and without sacrifice in quality.

51. Ohio University correspondence program should meet statewide needs.

53. Use ETV for instruction, following recommendations of Advisory Council.

56. Establish Master's level practice-oriented programs in each sector of the state if need can be demonstrated.

57. Study and clarify degree titles.

58. Reevaluate entrance and exit criteria and programs for non-traditional students seeking practice-oriented Masters.

59. Establish few new research-oriented graduate programs.

60. Teach candidates for research-oriented degrees how to teach.

61. Develop opportunities outside teaching for graduates of research-oriented programs.
68. Provide more counseling and other "supportive services" to women, minority members, and non-traditional graduate students.

69. Review graduate programs for features that may bar access and provide alternatives.

70. Review admissions criteria to graduate schools to assure access to all qualified students.

71. Expand part-time and off-campus graduate programs.

74. Do not increase or expand current Ph.D. programs.

75. No new doctoral programs "likely" to be approved unless offered through consortia, inter-institutional or inter-disciplinary.

76. Use only existing resources in new programs for non-traditional students.

78. Develop better data about graduate students and their sources of funds.

79. Step up fund-raising for graduate programs.

82. Promote diversity and reward quality in graduate programs.

83. Share resources within the state and without.

90. Establish no new medical nor (97) dental school, nor (111) optometry programs nor (93) university hospitals.

92. Continue emphasis on primary medical care.

102. Do not expand registered and practical nursing programs.

118. Provide "increased clarity" in institutional financial practice about the income base for auxiliary services.

120. Auxiliary services funding through fees and other generated income to remain "trustees' responsibility.

122. Examine implications of enrollment decline with respect to "debt service costs.

123. Practice strong management as the likely "key" to "survival of institutional independence.

125. Control costs.

127. Use instructional income for instruction only and set other "fees and charges high enough to cover other costs. 
140. Raze obsolete buildings if enrollment decline is foreseen and existing other buildings can serve instead.

145. Keep student fees as low as possible.

146. Develop internal budgeting systems for cost control of individual programs.

148. Undertake no new locally financed capital construction if available.

149. ...Limit...access to health professions programs "beyond reasonable needs."

150. Study proper fees for high-cost professional programs.

154. Step-up fund-raising, especially for innovation in administration and instruction.

An examination of the above listing suggests that some of the recommendations are directed to Ohio University (e. g. No. 51 on Correspondence Programs) and some are largely out of the control of this institution (e. g. No. 145, keeping student fees as low as possible).

The most immediate questions which those responsible for establishing goals and priorities at Ohio University must consider with respect to both the Carnegie Report and the Ohio Board of Regents Master Plan are

1. To what extent are the recommendations directed at Ohio University?

2. To what extent is Ohio University already following the recommendation?

3. To what extent can Ohio University move beyond the cautious pessimism of the Master Plan as it faces the future?

If any single theme emerges from both studies, it can be summarized by the recommendation of the Carnegie Commission for a "renaissance of progressive leadership directed toward constructive change" and from this the final implicit recommendation for the need to develop and encourage educational leadership at all levels within the University.

REFERENCES CITED


Petersen, Renee. "OBR Master Plan." (Typeset memorandum from Renee Petersen to IUC Presidents and Board Members, dated December 17, 1976.)
Report to the Ohio Board of Regents on Training and Research in Energy-Related Programs at Ohio University

I. Training of Professional and Technical Personnel for Coal and Other Mining Operations
II. Energy-Related Research Programs
III. University Facilities Available or to be Converted
IV. Major Research Areas in the Production and Utilization of Coal

April 1977
Summary

Training Programs

In February, 1976, the College of Engineering and Technology at Ohio University approved a MINING SYSTEMS OPTION in the Department of Industrial and Systems Engineering. The program is designed to accept graduates of two-year programs in Mining Technology in a "2 + 2" program. After two additional years at Ohio University, successful students would receive a Bachelor's Degree in Industrial and Systems Engineering with Mining Systems Option. By 1982, the program can convert to a separate MINING ENGINEERING program.

Other types of engineers, geologists, and technically trained personnel are also needed in the mining and energy industry. Programs directly related to these needs are now offered in Chemical Engineering, Civil Engineering, Electrical Engineering, Mechanical Engineering, Industrial Technology, Botany, Chemistry, Physics, Management and Economics. Graduates of the Geology Programs receive training in surface and subsurface mapping, classification of coal reserves and determination of the minability of coal reserves.

Major elements of programming which might readily be augmented to develop technical curricula supporting the mining industry in Ohio include degree courses in Mining Engineering and Applied Geology and technical programs in Drilling Technology, Mine Water Quality Analysis, Surface Mine Reclamation, and Air Pollution Analysis and Abatement, all to be based on existing courses. An important activity at Ohio University has been continuing education for engineers, scientists, technologists, high school teachers, business managers and others. These programs can be expanded to meet any additional needs of the mining and energy industry in southeast Ohio.

Energy Related Research Programs

Active and recently completed programs in coal research at Ohio University include work on the strength of coal pillars in deep mines, constituents and characteristics of coal deposits, a rapid response method for analyzing stack gases, studies of sulfur-containing radicals, the emulsion of coal powder in fuel oil and the removal of sulfur dioxide from stack gases. Pending proposals include a process for the production of low-
sulfur char and industrial gas from Ohio coal, a process to remove sulfur dioxide from stack gas with the direct production of marketable concentrated sulfuric acid and a process to recover aluminum oxide from coal mine waste.

Research related to conservation and regulation emphasizes the multi-disciplinary nature of the problems. Work has been done on energy conservation for household applications, models of air pollution from sulfur dioxide, studies on the effect of acid mine drainage on water supplies and plant life, the effect of reclamation methods and timber cutting on plant and animal life and the impact on communities of mining and large power plants.

Other energy-related research represents an important area of activity at Ohio University, particularly in nuclear physics, solar energy and electric power distribution networks.

After intense competition with other universities, the AEC awarded a $1-million grant to Ohio University for the purchase and installation of a linear tandem accelerator. As a result of this program, members of the Physics Department are doing pioneering work on the nuclear physics related to fusion energy and its related areas.

In solar energy, university-supported work on a free-piston Stirling engine has resulted in substantial sponsored work at the University and has been the basis for approximately $3-million in 1977 ERDA funding at the General Electric Company and the Jet Propulsion Laboratory for commercial applications of the engine.

Recent "brown-outs" or "black-outs" of electric power in different sections of the country have demonstrated the vulnerability of electric power distribution systems to unusual load conditions. An internationally recognized expert and his colleagues at Ohio University have been working on this topic.
I. Training of Professional and Technical Personnel for Coal and Other Mining Operations

COAL MINE EMPLOYMENT BY COUNTY*
Each symbol represents approximately 20 employees

*1975 Division of Mines Report
I. Training of Professional and Technical Personnel for Coal and Other Mining Operations

INTRODUCTION

There are approximately 300 graduates annually from approximately 20 mining engineering programs in the United States, none in Ohio. Recent mining professional journals have said that "the coal industry could use all of the graduates" but many go into other types of mining. Demand for professional and technical personnel in the mining industry is very high as evidenced by high starting salaries for degree holders with little or no experience. Speaker Riffe of the Ohio House of Representatives indicates that "... Ohio will need about 100 mining engineers a year."

In response to this demand and at the suggestion of a coal company located in Southeastern Ohio, a mining systems engineering option was approved by the College of Engineering and Technology at Ohio University in February, 1976. This program could be implemented in the 1977-78 academic year.
Ohio University is located in the heart of the mining region of Ohio. Because of its location, students from the region are naturally attracted to the University, a factor which will produce personnel with mining education who will remain in Ohio. Local industries frequently ask for local students because they know them to be more likely to be long term employees.

ENGINEERING PROGRAMS FOR MINING

Although mining engineering is essential to the operation of mines, mining engineers comprise only a fraction of engineers employed by the mining industry, and many of the mining engineers move quickly into managerial positions. Therefore, all programs closely related to the needs of the mining industry are discussed here.

A. Mining Systems Option in Industrial and Systems Engineering

The Department of Industrial and Systems Engineering has developed a Mining Systems option. See Table I. Beginning in 1977 or 1978, the program at first is intended to accept graduates of two year institutions with programs in Mining Technology. Working relationships with Rio Grande College have been established and initial contacts with other institutions have been made for this purpose. Approximately six to eight students per year would be expected in the first year or so. As the program grows, new faculty would need to be added and a four-year option in Industrial and Systems Engineering would be established. This growth process is expected to culminate in a separate, accredited Department of Mining Engineering in about five years with a total enrollment of about 75 undergraduates, 10 graduate students, five faculty members, two staff, five graduate associates and an instructional budget of $154,000. See Table II.

From 11 to 22 Ohio University graduates of engineering and science programs have been employed each year for the past eight years by coal industries and utilities in Ohio. These students have gone to work for American Electric Power, American Gas Association, Cleveland Electric Illuminating, Columbia Gas of Ohio, Columbus and Southern Ohio Electric, Dayton Power and Light, McGraw Edison, Ohio Power and Southern Ohio Coal Company.
TABLE I
BACHELOR OF SCIENCE IN INDUSTRIAL AND SYSTEMS ENGINEERING
(Mining Systems Option)
"2+2" Program with Southeastern Ohio Technical Institutes

FIRST TWO YEARS
Mining technology program at such institutions as Rio Grande, Belmont Tech, West Virginia Tech.
Students who enter these institutions planning to finish their degree work here
would substitute higher level mathematics and science courses for technical mathematics
and technician training courses.

THIRD YEAR – OHIO UNIVERSITY

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<td>ET 240 FORTRAN</td>
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<td>ISE 304 Statistics</td>
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<tr>
<td>ME 321 Thermodynamics</td>
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</tr>
<tr>
<td>Hum or Soc Science</td>
<td>Hum or Soc Science</td>
<td>4</td>
</tr>
<tr>
<td>Math 340 Diff Equations</td>
<td>Differential Equations</td>
<td>5</td>
</tr>
<tr>
<td>CE 222 Strength of Matl</td>
<td>Strength of Materials</td>
<td>4</td>
</tr>
<tr>
<td>ISE 305 Statistics</td>
<td>Statistics</td>
<td>3</td>
</tr>
<tr>
<td>Geology Elective</td>
<td>Geology Elective</td>
<td>4</td>
</tr>
<tr>
<td>Hum or Soc Science</td>
<td>Hum or Soc Science</td>
<td>3</td>
</tr>
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</table>

SUMMER
Internship

FOURTH YEAR – OHIO UNIVERSITY

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISE 330 Engineering Econ</td>
<td>Engineering Economics</td>
<td>3</td>
</tr>
<tr>
<td>ISE 432 Inventory</td>
<td>Inventory</td>
<td>3</td>
</tr>
<tr>
<td>ISE 441 Opertn Research</td>
<td>Operations Research</td>
<td>3</td>
</tr>
<tr>
<td>Math 211 Lin Algebra</td>
<td>Linear Algebra</td>
<td>5</td>
</tr>
<tr>
<td>Geology Elective</td>
<td>Geology Elective</td>
<td>4</td>
</tr>
<tr>
<td>ISE 330 Engineering Econ</td>
<td>Engineering Economics</td>
<td>3</td>
</tr>
<tr>
<td>CE 321 Dynamics</td>
<td>Dynamics</td>
<td>4</td>
</tr>
<tr>
<td>*CE Rock Mechanics</td>
<td>Rock Mechanics</td>
<td>4</td>
</tr>
<tr>
<td>ISE 433 Simulation</td>
<td>Simulation</td>
<td>3</td>
</tr>
<tr>
<td>Engineering Elective</td>
<td>Engineering Elective</td>
<td>3</td>
</tr>
<tr>
<td>*ISE 419 Explosives</td>
<td>Explosives</td>
<td>3</td>
</tr>
</tbody>
</table>

* New courses required

TABLE II
ESTIMATED ENROLLMENTS, DEGREES GRANTED, FACULTY, STAFF AND BUDGETS
FOR MINING SYSTEMS OPTION (1977-82) AND MINING ENGINEERING (1982-)

<table>
<thead>
<tr>
<th>Year</th>
<th>Enrollment</th>
<th>Degrees Granted</th>
<th>Number of Faculty</th>
<th>FTE* Faculty</th>
<th>Staff and GA</th>
<th>Instructional Budget</th>
</tr>
</thead>
<tbody>
<tr>
<td>77-78</td>
<td>8</td>
<td>-</td>
<td>1</td>
<td>.5</td>
<td>1</td>
<td>$16,000</td>
</tr>
<tr>
<td>78-79</td>
<td>18</td>
<td>-</td>
<td>2</td>
<td>1.0</td>
<td>2</td>
<td>39,000</td>
</tr>
<tr>
<td>79-80</td>
<td>25</td>
<td>6</td>
<td>3</td>
<td>1.5</td>
<td>3</td>
<td>59,000</td>
</tr>
<tr>
<td>80-81</td>
<td>50</td>
<td>15</td>
<td>3</td>
<td>1.5</td>
<td>3</td>
<td>65,000</td>
</tr>
<tr>
<td>81-82**</td>
<td>72</td>
<td>18</td>
<td>5</td>
<td>2.5</td>
<td>6</td>
<td>108,000</td>
</tr>
<tr>
<td>82-83</td>
<td>75</td>
<td>10</td>
<td>8</td>
<td>4.5</td>
<td>6</td>
<td>154,000</td>
</tr>
</tbody>
</table>

* Faculty would be involved in and supported partially by coal research.
** Four-year mining engineering program is instituted here.
B. **Chemical Engineering**
   Programs include courses in engineering materials, corrosion, plant design, process control, atmospheric pollution control and coal conversion technology. (12-25 graduates per year)

C. **Civil Engineering**
   Programs provide expertise in the construction of access roads, buildings and other structures, analysis of the strength of coal pillars, and waste water treatment. (25-40 graduates per year)

D. **Electrical Engineering**
   Electricity is used to power mining machinery and associated equipment. Electric controls and the design of lighting systems are also relevant. (28-45 graduates per year)

E. **Mechanical Engineering**
   Programs are applicable in machinery design, maintenance, metal processing, heating and ventilating. (17-35 graduates per year)

F. **Industrial Technology**
   Programs provide instruction in production supervision, maintenance, hydraulics, metal machining and fabrication and welding. (27-40 graduates per year)

**PROGRAMS IN RELATED SUBJECT AREAS**

Educational programs designed for the training of students for professional careers related to coal geology and the determination of coal reserves, evaluation of the economics and management of coal resource utilization, and the resolution of reclamation and environmental concerns.

A. **Coal Resource Evaluation**
   BS, AB, and MS programs in Geology and the MS program in Geophysics prepare students for work in surface and subsurface mapping, classification of coal reserves, and determination of the minability of these reserves.

   Specific programmatic emphasis in coal-related topics includes:
   1. Comprehensive evaluation of Ohio coal reserves
   2. Correlation of Ohio coal seams
   3. Stratigraphy and paleoecology of the Pennsylvanian System
   4. Evaluation of limestone resources for environmental control measures.

   (Graduates of these programs currently hold important positions in coal-
related agencies: Director, Ohio Division of Geological Survey; Associate Director, Kentucky Institute of Mining and Minerals Research.)

B. Coal Resource Characterization

Undergraduate and graduate degree programs in Botany (BS, MS, Ph.D.), Chemistry (BS, MS, Ph.D.), and Geology prepare students for work related to the origin, composition, and behavior of coals. Pertinent to Ohio coal resources are education and research programs in the following:

1. Coal characteristics and reaction properties
2. Floristic analyses of Ohio coals

C. Energy Resource Management

D. Economics of Energy Resource Utilization

E. Reclamation and Environmental Concerns

Undergraduate training leading to the BS degree in Environmental Biology, Environmental Chemistry, and Environmental Geology and the BGS degree in Environmental Studies prepares students for careers in such areas as resource conservation, natural resource evaluation, environmental law, and pollution control. The MS degree in Environmental Studies is an interdepartmental program providing students with strong professional preparation for careers in environmental protection and reclamation.

Degree programs in Geography (AB, MA) and Sociology/Anthropology (AB, MA) prepare students for work in cultural and demographic aspects of coal mining in Ohio.

DEVELOPMENT OF MINING INDUSTRY CURRICULUM

A. Accredited Baccalaureate Degree in Mining Engineering

An accredited program in Mining Engineering can be developed from the existing faculty expertise and facilities. Currently, the College of Engineering and Technology has as members of its faculty a mining engineer who has been employed in coal, a former executive of an Ohio-based coal company, a researcher who has the only grant funded by the U. S. Bureau of Mines which has been made to an Ohio Institution in recent years, and a competent faculty to back them in complementary areas. Additional facilities and new faculty will be needed to attain a mature program.
B. Engineering Geology

The existing service program in Engineering Geology can be expanded to provide a viable degree option in Geology at the undergraduate level. An MS degree option in Applied Geology has been proposed, and can, with minimal modification, be designed for the training of applied geologists working in the coal industry.

C. Drilling Technology

The existing one-year certification program in Well Drilling Technology can be modified and expanded to train students in drilling and logging procedures essential to core drilling programs in coal resource evaluation.

D. Reclamation and Environmental Concerns

1. Mine water quality analysis - a one-year certification program combining existing capabilities in Geology, Chemistry and Civil Engineering.

2. Surface mine reclamation - a certification program in reclamation is currently taught in conjunction with the Belmont County campus. This program could be developed into a 2 + 2 program, with modification and expansion.

3. Air pollution analysis and abatement - a one-year certification program to be developed from existing curricula in Chemistry and Chemical Engineering.

E. Other Related Programs

Programs could be developed for study leading to certification in Mining, Electricity and Certification in Systems Maintenance.

CONTINUING EDUCATION

Ohio University has been involved in continuing education for engineers, scientists, technologists, high school teachers, business managers, and many other people for many years. During any given week, thirty or more faculty members from Athens go to other Southeastern Ohio locations and many working adults come to campus at night and on weekends to further their education and enhance their work skills. Ohio University also has correspondence programs for this purpose. Graduate programs in Business Administration, Chemical Engineering, Education, Industrial and Systems Engineering, and Nursing are being conducted at several locations ranging from Portsmouth
through Chillicothe, Lancaster, Zanesville, Marietta, to Belmont County. Mining personnel, among others, participate.

Other programs are conducted for undergraduate credit and many are taken by the participants for no credit but only to learn the content. Among the programs which have been or are being conducted are the following:

- Coal Refuse Disposal and Utilization
- The Future of Surface Mined Lands
- Control of Water Pollution in Mining Operations
- Marketing of Ohio Coal
- Demographics of Ohio Coal Manpower
- Principles of Electricity for Coal Mining Application
- Coal Mining Supervisory Development Programs

STUDENT ENRICHMENT AND SUPPORT

Students in Electrical, Industrial and Systems, Mechanical Engineering, and others are and have been working in coal companies before graduation, some during the summer and others during the school year on internships and part-time assignments.

Cooperative education (CO-OP) programs are available in Industrial Technology and under development in Industrial and Systems Engineering (first student placed March, 1977). It is expected that the coal companies will wish to participate, along with other industrial concerns in Southeastern Ohio.

Scholarships should be established to attract students into mining education programs. Often high school students have a somewhat distorted view of the mining industry based on newspaper accounts of mining disasters and environmental issues. The positive aspects of the industry usually are not emphasized. Until the time when the attractive opportunities in mining are generally recognized, incentives in the form of scholarships, low-cost loans, work-study and grants will be needed to fill the demand for skilled mining personnel.
II. Energy-Related Research Programs

OIL FIELDS, GAS FIELDS, AND COAL-FIRED POWER PLANTS*

- Oil Fields
- Gas Fields
- Power Plants

*Department of Natural Resources; Moody's Public Utility Manual, 1976
II. Energy-Related Research Programs

COAL-RELATED RESEARCH

Among the many coal related research programs at Ohio University the two which will have the most direct impact on using Ohio coal in the near future are the work on deep mine coal pillars and the work on coal measures in Ohio by the civil engineering, geology and botany departments.

The results of a project for the U. S. Bureau of Mines (Table III, projects #1-2) show that a coal pillar is unevenly stressed. Collapse of mining tunnels are sometimes the result of high stress. Failure strengths have been determined and will be useful in coal recovery, mine design and mine safety.

Ohio University's work on coal measures quantify precisely the well known fact that coal reserves in Ohio are great. At present, ninety percent of active coal operations are surface mines and the major portion of coal extracted each year in Ohio is taken from only 13 of more than 50 known coal seams. Large tonnages of deep coal reserves exist, but more needs to be
known about them. The immediate potential benefit of more complete knowledge would be to locate and mine lower sulfur coal until processes can be worked out to remove sulfur from the high sulfur coals economically. Because of their location and interests, the Departments of Geology and Botany at Ohio University have done significant studies in the measure of Ohio coal. (Table III, projects #3-#10). These departments have recognized the importance of acquiring this information and much of the research has been conducted with a minimum of external funding.

Petrographic analysis is an important tool in characterizing Ohio coals

Research projects on the conversion of coal to gas or liquid, analysis and/or removal of sulfur containing compounds, suspension of coal powder in fuel oil and the recovery of valuable by-products from coal mine wastes have been completed, are in progress or have proposals prepared for further funding. (Table III, projects #11-#21). Those projects marked pending either are continuations of previous work or have been submitted to or discussed with prospective funding agencies. Other projects are in various stages of preparation or revision, but are not listed here.
### TABLE III
COAL-RELATED RESEARCH AT OHIO UNIVERSITY

<table>
<thead>
<tr>
<th>Project Title</th>
<th>Sponsor</th>
<th>Funding</th>
<th>Duration</th>
<th>Principal Investigator</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Practical Pillar Design Problem Encountered under Deep Mine Cover and with Different Block Geometric Pillar (should lead to safer mine design)</td>
<td>Bureau of Mines</td>
<td>$ 37,776</td>
<td>6/28/74</td>
<td>G. Hazen</td>
</tr>
<tr>
<td>2. Stresses in Limestone Roofs of Coal Mines (Results will be useful in improving mine safety)</td>
<td>Ohio University Research Committee</td>
<td>$ 1,895</td>
<td>7/1/75-9/30/75</td>
<td>G. Hazen</td>
</tr>
<tr>
<td>3. Botanical Constituents of Late Paleozoic Coal Deposition</td>
<td>American Chemical Soc. Petroleum Res. Fund</td>
<td>$ 9,000</td>
<td>7/1/75-8/31/78</td>
<td>G. Rothwell</td>
</tr>
<tr>
<td>4. Middle and Upper Pennsylvania-Age Petrified Plants from Southeastern Ohio</td>
<td>The Ohio Biological Survey</td>
<td>$ 700</td>
<td>4/24/75-6/30/76</td>
<td>G. Rothwell</td>
</tr>
<tr>
<td>5. Marine Macrofossil Communities as Compared to Contemporaneous Microfossil Communities</td>
<td>Ohio University Research Committee</td>
<td>$ 1,400</td>
<td>12/12/74-12/31/75</td>
<td>K. Chamberlain</td>
</tr>
<tr>
<td>6. Geology, Physiology, and Mineral Resources of the Central Ohio District</td>
<td>The Ohio Biological Survey</td>
<td>$ 5,218</td>
<td>10/30/72-10/30/73</td>
<td>G. Smith</td>
</tr>
<tr>
<td>7. A Study of Coal Ball Floras in Ohio and Adjacent Regions of the Appalachian Basin</td>
<td>The Ohio Biological Survey</td>
<td>$ 1,047</td>
<td>7/1/73-6/30/74</td>
<td>T. Taylor</td>
</tr>
<tr>
<td>8. Electron Microscopy of Fossil Pollen and Spores</td>
<td>Ohio University Research Committee</td>
<td>$ 1,980</td>
<td>12/6/72-9/30/73</td>
<td>T. Taylor</td>
</tr>
<tr>
<td>9. Continued Systematic Investigation of Pennsylvania Fossil Invertebrates</td>
<td>Ohio University Research Committee</td>
<td>$ 2,998</td>
<td>3/16/72-6/30/73</td>
<td>M. Sturgeon</td>
</tr>
<tr>
<td>10. Pennsylvania Fossil Invertebrates (Gastropoda, Chitons and Seaphopoda) of Ohio</td>
<td>Ohio University Research Committee</td>
<td>$ 2,511</td>
<td>3/3/71-6/30/72</td>
<td>M. Sturgeon</td>
</tr>
<tr>
<td>11. Applications of Infrared Fourier Transform Spectroscopy to Some Problems in Chemical Analysis (concentrations of carbon monoxide used as reference for measuring all other components in stack gas)</td>
<td>NSF</td>
<td>$ 100,100</td>
<td>6/15/73-11/30/76</td>
<td>P. Griffiths</td>
</tr>
<tr>
<td>12. Increasing the Sensitivity of the GC-IR Interface</td>
<td>EPA</td>
<td>$ 4,700</td>
<td>11/1/74-10/31/75</td>
<td>P. Griffiths</td>
</tr>
<tr>
<td>14. Spectroscopic Studies of Sulfur-Containing Cation Radicals</td>
<td>Research Corp.</td>
<td>$ 3,000</td>
<td>3/1/72-6/30/74</td>
<td>P. Sullivan</td>
</tr>
<tr>
<td>16. Study of Coal Powder and Fuel Oil Suspension Mixture</td>
<td>ERDA</td>
<td>$ 40,000</td>
<td>9/15/77-9/14/79</td>
<td>S. Yun</td>
</tr>
<tr>
<td>17. Ultrasonic Emulsification Study of Fuel Oil and Water Systems</td>
<td>Ohio University Research Committee</td>
<td>$ 2,788</td>
<td>4/1/75-6/30/76</td>
<td>S. Yun</td>
</tr>
</tbody>
</table>
### TABLE III (continued)

<table>
<thead>
<tr>
<th>Project Title</th>
<th>Sponsor</th>
<th>Funding</th>
<th>Duration</th>
<th>Principal Investigator</th>
</tr>
</thead>
<tbody>
<tr>
<td>20. Process for the Concurrent Production of Low-volatile, Low-sulfur Char and Synthesis Gas by Flash Carbonization</td>
<td>ERDA</td>
<td>$100,000 (pending)</td>
<td>10/1/77-</td>
<td>R. Savage</td>
</tr>
<tr>
<td>21. Process for the Removal of SO₂ from Hot Flue Gas and the Direct Production of Concentrated Sulfuric Acid</td>
<td>TVA and/or ERPI</td>
<td>$ 45,000 (pending)</td>
<td>10/1/77-</td>
<td>R. Savage</td>
</tr>
</tbody>
</table>
A. Research Facilities

Rock preparation laboratories with crushing, sizing, and thin section equipment are available. A full range of instruments for petrographic and paleontologic microscopy, an X-ray diffraction laboratory, and transmission and scanning electron microscopes are in use.

Support facilities for sophisticated chemical and minerological analyses of coals and associated materials include: Varian HA-100 and EM-360 spectrometers; a Varian E15 EPR spectrometer; a Jasco J20 circular dichroism spectrometer; various UV spectrophotometers, including Cary models 14 and 16 and a Phillips Pye Unicam visible-UV instrument; various IR spectrophotometers, including a Perkin Elmer model 621 and a Digilab Fourier transform IR spectrometer; an Hitachi-Perkin Elmer mass spectrometer; X-ray diffraction equipment including an Enraf Nonius automated single crystal X-ray diffractometer; a Cary 81-L laser Raman spectrometer; a Laser Energetics nitrogen-pumped dye laser; numerous analytical and preparative scale gas chromatographs; a Regis programmed multiple development thin-layer chromatograph; a Waters high-performance liquid chromatograph; various recording polarographs, including a Princeton Applied Research model 174 polarographic analyzer; a Beckman amino acid analyzer; a Zeiss polarized fluorescence microscope with Nomarski optics; and a Perkin Elmer DSC-2 differential scanning calorimeter. Other instruments include: high-field electromagnets; cryogenic equipment; electrophoresis equipment; an ultracentrifuge; a liquid scintillation counter; a well-equipped radio-chemistry laboratory; a spectropolarimeter; and an atomic absorption spectrometer.

The University Computer Center operates an IBM 370/158, and several departments maintain remote computer terminals for use with it. Alden Library contains over 850,000 catalogued and indexed volumes, including more than 5,000 periodicals, and is an official repository for U.S.G.S. and U. S. Army maps and other publications. The Departments of Botany, Chemistry, and Geology maintain research libraries containing current issues and back volumes of journals related to coal research. Drafting support for research and publication is available through the Department of Geography's Cartographic Center and the Office of University Publications. Well equipped precision machine shops are operated at the University for the fabrication of research equipment.
B. Potential Research Capabilities

Existing faculty expertise can be directed, with appropriate funding, to the following research activities:

1. Evaluation of coal resources of Ohio - to provide for the planned, most beneficial use of coal resources now and in the future. Programs would include surface mapping; core drilling; delineation of mined-out areas; classification of reserves in terms of seam thickness, amount of non-productive rock, degree of reliability of seams, quality of the coal.

2. Correlation of Ohio coal seams - analytical and geological correlation of coal seams to permit more reliable reserve and recovery estimates of Ohio coal.

3. Evaluation of coal-related resources - surface and subsurface mapping and petrographic and x-ray analyses of limestones and clays associated with Ohio coals. Evaluation and characterization of limestones as potential sources of suitable stone for environmental control measures used by coal-producing and coal-consuming industries.

4. Detailed analysis of basic coal properties - petrographic, botanical, and chemical characterization of Ohio coals. To include: petrographic study of character and distribution of pyrite in coal; floristic analysis of coal composition; analytical chemistry of coal composition.

5. Multi-component analysis of coal pyrolysis products - proposed research involves on-lime identification of pyrolysis products produced during gasification of coal. Special emphasis is to be placed on the identification of organo-sulfur compounds produced from high-sulfur Ohio coals.

6. Application of ESR techniques to the study of coal gasification - recent development of high-temperature probes for electron spin resonance (ESR) spectrometers permit study of free radical reactions in coal gasification. Following solid phase reactions by ESR would provide insight into the nature of the reaction mechanism of coal pyrolysis, and would likely lead to more efficient coal gasification processes.

7. A thermodynamic evaluation of the feasibility of using high-sulfur Ohio coal as a feed stock of chemical manufacture - such utilization precludes removal of contaminating minerals since they could either be recovered as a by-product or be made a part of the chemical process.
8. Theoretical investigation of the mechanism of hydrogen absorption by transition metals and their alloys - metal hydrides promise to be a compact and safe method of storing hydrogen produced from coal and used as a substitute for gasoline.

9. Detection of radioactive impurities in coal and trace element analysis of coal samples (Accelerator personnel in cooperation with geologists).

10. Factors contributing to the increasing U. S. dependency on imported residual fuel rather than domestic fossil fuels.

11. Economic analysis - the contribution of economic analysis to a program of coal research lies primarily in relating the technical research to a complex national market system and to the public policy affecting that market. While costs and revenues can be computed easily from technical data and a given level of existing prices, the prices themselves are subject to drastic shifts as they interact with changes in resource supply, technology, output levels, and consumer adaptations.

Existing government regulations have strongly influenced some prices, and the consideration of alternative technologies and alternative policy options involves additional complexities of analysis. It will require some of the most sophisticated theoretical and statistical tools of economic analysis. The analysis may be needed at all stages of technical research in order to select and adjust the directions of research that are most fruitful and to test the feasibility and explore the policy implications of technical research results, e.g.:

a. the substitution of coal for other sources of energy. The relative costs and prices, as well as adjustments by producers and consumers, must be explored.

b. Both producers and consumers of energy will face problems of capital requirements necessitated by changes in energy sources. An examination of such requirements, and of the financing and timing of investments, is required.

c. Modification in technology and energy source use changes the demand for labor and will have varying sector and geographical effects. Statistical analysis is necessary to track such consequences.
12. Mining management research - a primary factor influencing productivity and costs is the management of the mine. Research would be designed to determine effective management procedures and practices.

**NATURAL GAS EXTRACTION RESEARCH**

Proposed research involves petrographic study of primary and secondary microfractures in oil- and gas-producing sandstones and shales.

**CONSERVATION AND REGULATION RESEARCH**

Projects (Table IV) relating to conservation and regulation research again emphasize the multidisciplinary nature of considering all aspects of the problem. Work has been done in energy conservation for household applications, on methods for predicting energy requirements and environmental damage and on models of air pollution from $\text{SO}_2$. Useful information needed to establish reasonable regulations on the mining industry will result from studies the effect of acid mine drainage on water supplies and on plant life. Data on the impact of reclamation methods and timber cutting programs on vegetation, birds and small animals has been developed. Two projects have studied the impact on the community of the effects of underground and surface mining of coal or the building of a large power plant and its captive coal mines.
### TABLE IV

**CONSERVATION AND REGULATION RESEARCH AT OHIO UNIVERSITY**

<table>
<thead>
<tr>
<th>Project Title</th>
<th>Sponsor</th>
<th>Funding</th>
<th>Duration</th>
<th>Principal Investigator</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Irreversible Thermodynamics and Value (Method for predicting energy requirements and environmental damage)</td>
<td>Ohio University Research Committee</td>
<td>$2,930</td>
<td>3/16/72-6/30/73</td>
<td>N. Dinos</td>
</tr>
<tr>
<td>3. Three Dimensional Grid Model of Air Pollution</td>
<td>Ohio University Research Committee</td>
<td>$805</td>
<td>3/16/72-6/30/73</td>
<td>L. Holtzmeier</td>
</tr>
<tr>
<td>4. Subsoil Properties and Soil Engineering Practice in Athens, Ohio (Information for road and mine design and construction)</td>
<td>Ohio University Research Committee</td>
<td>$3,195</td>
<td>3/15/72-6/30/73</td>
<td>J. Wang</td>
</tr>
<tr>
<td>5. Temperature Survey of Mines Producing Acid Pollution</td>
<td>Ohio University Research Committee</td>
<td>$2,953</td>
<td>3/5/70-6/30/71</td>
<td>M. Ahmad</td>
</tr>
<tr>
<td>6. Automated Measurements of the Infrared Spectra of Chromatographically Separated Materials Identification of trace amounts of compounds in drinking water.</td>
<td>EPA</td>
<td>$42,992</td>
<td>10/1/77-9/30/78</td>
<td>P. Griffiths</td>
</tr>
<tr>
<td>7. Radioactivity in Coal Mine Drainage</td>
<td>Water Resources Center-Department of Interior</td>
<td>$13,540</td>
<td>10/1/77-9/30/78</td>
<td>M. Ahmad</td>
</tr>
<tr>
<td>8. Acid Mine Pollution: Effects on Survival, Reproduction and Aging of Stream Bottom Microinvertebrates</td>
<td>Water Resources Center-Department of Interior</td>
<td>$14,996</td>
<td>7/1/76-10/1/77</td>
<td>W. Hummon</td>
</tr>
<tr>
<td>9. Investigation of Effects of Acid Mine Drainage upon the Distribution Patterns of Lambsilis</td>
<td>The Ohio Biological Survey</td>
<td>$810</td>
<td>7/1/71-6/30/72</td>
<td>C. Lent</td>
</tr>
<tr>
<td>10. Herbaceous Plant Communities Associated with Betula nigra L. Communities (Acid mine affected flood plains and adjacent streams.)</td>
<td>The Ohio Biological Survey</td>
<td>$800</td>
<td>6/24/74-7/1/75</td>
<td>I. Ungar</td>
</tr>
<tr>
<td>11. Ecology of Ohio Halophyte Communities. To collect data which will provide detailed information about fluctuations in soil salinity and its direct effect on halophyte populations</td>
<td>The Ohio Biological Survey</td>
<td>$900</td>
<td>6/24/74-3/15/75</td>
<td>I. Ungar</td>
</tr>
<tr>
<td>12. Salinity and Temperature Effects on Seed Germination of Halophytes</td>
<td>NSF</td>
<td>$14,000</td>
<td>9/1/74-2/29/76</td>
<td>I. Ungar</td>
</tr>
<tr>
<td>13. The Effects of Salinity-Hormonal Interactions on Seed Germination and Growth of Halophytes</td>
<td>NSF</td>
<td>$27,500</td>
<td>1/15/76-6/30/78</td>
<td>I. Ungar</td>
</tr>
<tr>
<td>Project Title</td>
<td>Sponsor</td>
<td>Funding</td>
<td>Duration</td>
<td>Principal Investigator</td>
</tr>
<tr>
<td>-------------------------------------------------------------------------------</td>
<td>--------------------------------</td>
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<td>------------------------</td>
</tr>
<tr>
<td>15. Ecology of Betula nigra L. Communities (This species appears to be the pioneer woody species along streams affected by acid mine water)</td>
<td>The Ohio Biological Survey</td>
<td>$ 1,100</td>
<td>7/1/70-6/30/71</td>
<td>I. Ungar</td>
</tr>
<tr>
<td>16. Analysis of the Nature of Plant Community Organization as a Function of Time in an Early Oldfield System</td>
<td>William Penn Foundation</td>
<td>$ 2,778</td>
<td>6/15/74-9/14/74</td>
<td>W. Wistendahl</td>
</tr>
<tr>
<td>17. Analyses of Vegetational Changes and of Sample Sizes on an Oldfield in Southeastern Ohio</td>
<td>The Ohio Biological Survey</td>
<td>$ 639</td>
<td>6/20/75-6/30/76</td>
<td>W. Wistendahl</td>
</tr>
<tr>
<td>18. Interpretation of Ten Years of Change on Experimental Oldfield Plots in Eastern Pennsylvania</td>
<td>Jack McCormick and Associates</td>
<td>$ 2,000</td>
<td>5/21/74-9/30/74</td>
<td>W. Wistendahl</td>
</tr>
<tr>
<td>19. Suitability of Salt-Tolerant Species for Revegetation of Saline Areas Along Selected Ohio Highways. Information will be applicable to coal mine roadways</td>
<td>Ohio Department of Transportation</td>
<td>$ 8,556</td>
<td>3/13/73-9/12/73</td>
<td>F. Drysdale</td>
</tr>
<tr>
<td>22. Plans Awry?: A Study of Population Distribution and Settlement Choices Associated with the Gavin Power Complex in Southeastern Ohio (to determine the planned vs. actual development of the community)</td>
<td>Ohio University Research Committee</td>
<td>$ 1,518</td>
<td>3/15/74-6/30/75</td>
<td>N. Bain</td>
</tr>
<tr>
<td>23. Community Environmental Impacts of Technology (comparison of the effects of underground and surface mining of coal)</td>
<td>NIMH</td>
<td>$ 27,936</td>
<td>11/1/74-4/30/76</td>
<td>G. Krebs</td>
</tr>
</tbody>
</table>
RESEARCH ON OTHER ENERGY RESOURCES

A. Nuclear Energy

In 1968, the AEC awarded $1-million to the Department of Physics for the purchase and installation of an 11-million electron volt tandem accelerator. Ohio University had already constructed an accelerator building as part of its new science research facilities and, in addition, agreed to operate the accelerator for a minimum of four years from University funds. The cost of operation during this period was more than $1-million. As a result of this investment in nuclear physics and related fields of nuclear research, the Physics Department has sponsored projects on many aspects of nuclear energy including basic research related to fusion energy. (Table V, projects #1-#18).

B. Solar Energy

During the period from 1964-70, Ohio University supported research work which led to the invention, patenting and development of a free-piston Stirling engine. This is an engine which uses external heat sources such as solar energy with unusually high efficiency and low pollution. In addition, the work done at Ohio University on the Stirling engine has been the
background for several ERDA programs at other organizations, totaling approximately $3-million in 1977 funding, including an isotope powered space power plant, a fuel conserving heat pump being worked on for commercial production by General Electric Company, and a solar-electric generator by Jet Propulsion Laboratory. (Table V, projects #19-#21). A process developed for the melt extrusion of highly oriented sheets of polymeric materials imparts transparency to materials that normally are either translucent or opaque to solar radiant energy wavelengths. (Table V, project #22).

Solar powered free-piston engine developed at Ohio University

C. Electric Power Distribution

As was painfully demonstrated in several sections of the country in recent years, the method of interconnection of power supply systems dictates the reliability of the power available to any area. Work on this problem has been done at Ohio University for many years. Dr. Wai-Kai Chen is an internationally recognized expert in network theory. Work by Dr. Chen and his colleagues is an important part of the program in power systems and energy conversion. Projects in this important energy field are listed in Table V (projects #23-#30).
D. Other Energy and Resource Related Research

Catalysts are used in many reactions for the formation of new chemicals or the conversion of petroleum raw materials to more useful and desirable forms of fuel. As oil from coal becomes available, some of these same catalysts will be used. A unique and very effective group of catalysts, various forms of inorganic ion exchange compounds, have been developed at Ohio University with both federal and industrial sponsorship. (Table V, projects #31-#36).

Natural energy utilization can be improved if inorganic nitrogen compounds can be converted to a form which can be utilized by plant cells. Work on this subject has resulted in projects sponsored by NSF and NIH. (Table V, project #37-#38). Waste water purification, including mine water discharges, will become necessary in the future and work has been done at Ohio University on this subject (Table V, project #39).
TABLE V
OTHER ENERGY-RELATED RESEARCH AT OHIO UNIVERSITY

<table>
<thead>
<tr>
<th>Project Title</th>
<th>Sponsor</th>
<th>Funding</th>
<th>Duration</th>
<th>Principal Investigator</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Research in Nuclear Physics (Purchase and Installation of van de Graaff accelerator)</td>
<td>Atomic Energy Commission</td>
<td>$1,000,000</td>
<td>6/1/67-10/1/77</td>
<td>R. Lane</td>
</tr>
<tr>
<td>2. Study of the Structure of Light Nuclei with Neutrons</td>
<td>ERDA</td>
<td>$157,000</td>
<td>9/1/74-11/30/76</td>
<td>R. Lane</td>
</tr>
<tr>
<td></td>
<td></td>
<td>77,000</td>
<td>11/30/76-11/30/77</td>
<td>R. Lane</td>
</tr>
<tr>
<td>4. Studies of Magnetic Flux and Critical Current Distributions Near the Surface in Type II Superconductors</td>
<td>Air Force Office of Scientific Research</td>
<td>$81,079</td>
<td>1/1/75-9/30/77</td>
<td>R. Rollins</td>
</tr>
<tr>
<td>5. Properties, Structure and Dynamics of Earth Materials</td>
<td>NASA - Goddard Space Flight Ctr.</td>
<td>$37,631</td>
<td>11/18/74-10/31/77</td>
<td>T. Tanaka</td>
</tr>
<tr>
<td>7. Isospin Effects in Neutron Induced Charged Particle Reactions</td>
<td>NSF</td>
<td>$66,100</td>
<td>5/1/76-10/31/77</td>
<td>R. Finlay</td>
</tr>
<tr>
<td>8. Isospin Effects in Nucleon Inelastic Scattering</td>
<td>NSF</td>
<td>$25,000</td>
<td>6/1/75-11/30/76</td>
<td>R. Finlay</td>
</tr>
<tr>
<td>9. Assembly of Prototype NMR Spectrometer</td>
<td>Bell Laboratories</td>
<td>$7,973</td>
<td>6/30/75-9/30/75</td>
<td>E. Hunt</td>
</tr>
<tr>
<td>10. Magnetic Resonance of Nuclei in Exchange-Coupled Magnetic Ions</td>
<td>Ohio University Research Committee</td>
<td>$2,534</td>
<td>7/1/75-9/30/75</td>
<td>E. Hunt</td>
</tr>
<tr>
<td>11. Theory of Reactions with Three Body Final States and Direct Reaction Theory</td>
<td>NSF</td>
<td>$30,100</td>
<td>6/1/74-11/30/77</td>
<td>R. Koshel</td>
</tr>
<tr>
<td>12. Neutron Sputtering Ratios on Controlled Thermonuclear Reactor Materials</td>
<td>Ohio University Research Committee</td>
<td>$2,067</td>
<td>5/6/76-6/30/77</td>
<td>C. Brient</td>
</tr>
<tr>
<td>13. Superconductivity and Specific Heat Measurements in Isoelectronic V-Ta-Nb Ternary Alloys</td>
<td>Ohio University Research Committee</td>
<td>$2,350</td>
<td>7/1/75-9/30/75</td>
<td>R. Cappelletti</td>
</tr>
<tr>
<td>14. Neutron Radiation Environment Study</td>
<td>Electrometer Corp.</td>
<td>$9,343</td>
<td>1/3/75-9/2/75</td>
<td>D. Carlson</td>
</tr>
<tr>
<td>15. Studies of the Order-Disorder and Insulator-Metal Transformations in Magnetite</td>
<td>Ohio University Research Committee</td>
<td>$2,405</td>
<td>12/12/74-12/31/75</td>
<td>C. Chen</td>
</tr>
<tr>
<td>22. Melt Extrusion of Highly Oriented Polymers [To produce materials transparent to solar radiant energy wavelengths]</td>
<td>NSF</td>
<td>$65,000</td>
<td>3/77-7/79</td>
<td>J. Collier</td>
</tr>
<tr>
<td>Project Title</td>
<td>Sponsor</td>
<td>Funding</td>
<td>Duration</td>
<td>Principal Investigator</td>
</tr>
<tr>
<td>------------------------------------------------------------------------------</td>
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</tr>
<tr>
<td>23. Theory of Broadband Electrical Matching Networks</td>
<td>NSF</td>
<td>$18,000</td>
<td>6/1/76-11/30/77</td>
<td>W. K. Chen</td>
</tr>
<tr>
<td>24. The Hybrid Formulation and the Degrees of Freedom of Electrical Networks</td>
<td>Ohio University Research Committee</td>
<td>$3,181</td>
<td>3/2/73-6/30/74</td>
<td>W. K. Chen</td>
</tr>
<tr>
<td>25. The Invariant Theory and Its Application in Unifying Problems of Wave in Anisotropic Media</td>
<td>Ohio University Research Committee</td>
<td>$1,902</td>
<td>3/15/74-6/30/75</td>
<td>H. Chen</td>
</tr>
<tr>
<td>26. The Invariance of the Return Difference of the Feedback Amplifiers</td>
<td>Baker Fund Award</td>
<td>$4,466</td>
<td>5/20/74-6/30/75</td>
<td>W. K. Chen</td>
</tr>
<tr>
<td>27. Topological Considerations of Electrical Networks</td>
<td>Ohio University Research Committee</td>
<td>$2,745</td>
<td>3/3/71-6/30/72</td>
<td>W. K. Chen</td>
</tr>
<tr>
<td>28. Electromagnetic Radiation from an Antenna Embedded in a Moving, Compressible and Anisotropic Plasma</td>
<td>Ohio University Research Committee</td>
<td>$2,611</td>
<td>3/16/72-6/30/73</td>
<td>H. Chen</td>
</tr>
<tr>
<td>31. Structural Studies on Synthetic Inorganic Ion Exchange Compounds (used as catalysts)</td>
<td>NSF</td>
<td>$123,300</td>
<td>10/1/72-3/31/77</td>
<td>A. Clearfield</td>
</tr>
<tr>
<td>32. Basic Research into the Chemistry of Crystalline Zirconium Phosphates</td>
<td>Gulf Oil founded</td>
<td>$16,000</td>
<td>9/24/69-6/30/72</td>
<td>A. Clearfield</td>
</tr>
<tr>
<td>33. Thermodynamics and Kinetics of Ion Exchange Processes on Inorganic Ion Exchangers</td>
<td>NSF</td>
<td>$0 U.S. (Cooperative Foreign Res. Program w/ Yugoslavia)</td>
<td>1/1/72-6/30/74</td>
<td>A. Clearfield</td>
</tr>
<tr>
<td>34. Factors Influencing Ion Exchange Selectivity</td>
<td>NIH</td>
<td>$45,000</td>
<td>1/1/72-12/31/73</td>
<td>A. Clearfield</td>
</tr>
<tr>
<td>35. Thermodynamic Study of Inorganic Ion Exchangers</td>
<td>Petroleum Research Fund</td>
<td>$22,495</td>
<td>9/1/71-8/31/74</td>
<td>A. Clearfield</td>
</tr>
<tr>
<td>36. Formation and Function of Nitrate Reductase in Aspergillus (Conversion of inorganic nitrogen into a form which can be used in plant cells)</td>
<td>NSF</td>
<td>$50,000</td>
<td>6/1/75-11/30/77</td>
<td>R. Downey</td>
</tr>
<tr>
<td>37. Formation and Function of the Enzymes Involved in Nitrogen Metabolism</td>
<td>NIH</td>
<td>$14,000</td>
<td>1/1/73-4/30/74</td>
<td>R. Downey</td>
</tr>
<tr>
<td>40. On Waves Approaching an Island with a Cylindrically Symmetric Topography (Results can be used to estimate wave heights on the beach of an island)</td>
<td>Ohio University Research Committee</td>
<td>$1,883</td>
<td>7/1/75-9/30/75</td>
<td>S. Wen</td>
</tr>
</tbody>
</table>
UNIQUE EXPERTISE NOT PRESENTLY FUNDED
THAT COULD BE MOBILIZED FOR ENERGY RESEARCH

Part of the expertise not presently funded already has been presented in relation to pending proposals. In a university of the size and with the diverse programs of Ohio University, there are many capable and talented persons who have either technical expertise, previous experience in research, industrial experience or consulting experience to offer. Some examples follow:

Three staff members conducted a research and development project at North American Coal Corporation for the recovery of aluminum oxide from coal mine wastes. The project was carried through pilot plant operation and to a demonstration plant of commercial size. At that time, the supply of aluminum oxide from imported bauxite was plentiful and cheap enough to hold back the development of the new process. These conditions are changing rapidly and the process should be reactivated. The "know how" is at Ohio University and could be mobilized to work on the production of an important by-product from coal. (Table III, project #19)

There are two people who have considerable background in mining management. One has served as a consultant to American Electric Power, Southern Ohio Coal Company, and North American Coal Company during the past five years. He has developed and conducted training and development programs for all levels of mine management. In addition, he has conducted research on mining management, focusing primarily on the role of the first line supervisor in mining management. The other has also served as a consultant to North American Coal Company. He has designed and conducted training programs for mine supervision. His research has centered on the motivation of UMWA workers. These two individuals would coordinate the research on Mining Management.

A faculty member in the Department of Geology is a widely used consultant on hydrology and his students have studied the geothermal gradient map of Ohio. Several areas of high temperature gradients were located as possible sites for the construction of geothermal power plants.
III. University Facilities Available or to be Converted
III. University Facilities Available or to be Converted

Many of the research facilities have been listed in connection with the on-going programs. Ohio University has unique facilities which could be used in an energy research program.

The coal-fired heating plant for Ohio University has one spare boiler and one empty bay for further expansion. A demonstration heating unit of new design could be installed in the extra space and the output of the unit used in the university heating system.

Unused dormitory buildings have been converted to research and classroom facilities at a fraction of the cost of new construction. This could also be done for a coal research center.

Ohio University has a hilltop site with two research buildings and antenna towers already in place which could be used for solar energy research.
IV. Major Research Areas in the Production and Utilization of Coal

PRODUCING COAL MINES BY COUNTY*

*1975 Division of Mines Report
IV. Major Research Areas
in the Production and Utilization of Coal

In response to the initial request from the Board of Regents for recommendation for an effective approach in utilizing Ohio University's resources for research on coal, the following proposed program was prepared in June, 1976.

DIRECT USE OF COAL

The most important use of coal is as a source of energy. Any process which will permit the continued use of coal in combustion processes or any new process to convert coal to energy will result in the maximum utilization of this resource. However, because of the environmental impact of burning high sulfur coal, the objective of many projects will be to reduce sulfur with a minimum of energy loss.

A. Removal of Sulfur and/or Ash from Coal before Combustion or Conversion
   1. Conventional coal cleaning
   2. Multistage coal cleaning and blending
   3. Chemical extraction of sulfur
   4. Biochemical processing of coal

B. Combustion of Coal
   1. Coal and limestone mix to burners, including methods of handling waste disposal
   2. Fluid bed or other combustion processes
   3. Design of burners for coal/oil slurry
   4. Generation of electric current from ionized gas
   5. Twin cycle generators
   6. Stack gas clean-up (SO₂ removal, ash removal)

COAL GEOLOGY AND RESERVES

Ohio has large coal reserves. The surface resources are fairly well documented but there is inadequate data on the deep coals. The discovery of low-sulfur minable coal deposits would make possible the continued use of Ohio coal until processes are available to reduce the amount of sulfur in high-sulfur coal. For future planning, we need to know what level of production could be supported and with what quality of coal. Projects to supplement our existing knowledge should include
1. Reevaluation of known reserves
2. Core drilling to complete the data on reserves and provide information about the minability of the coal
3. Characterization studies of Ohio coals
4. Studies of size and distribution of sulfur in Ohio coals
5. Petrographic and paleographic analyses of Ohio coals

CONVERSION OF COAL

A. Partial gasification - to produce a low-sulfur char and gas.

B. Solvent refined coal - research on cheaper or better solvents and cheaper or better methods of filtering the undissolved ash and sulfur.

C. Coal liquefaction - studies of the kinetics and catalysts for known or new processes of coal liquefaction are needed.

D. Coal gasification - information on kinetics and catalysts is needed to reduce the capital and operating costs of known and future processes.

E. Low temperature carbonization - low sulfur chars can be produced by a number of processes. Research is needed to convert the tars and liquids to suitable fuels.

F. Hydrogen from coal - needed to replace hydrogen from natural gas or cracked naphtha. Increased use as a raw material for chemicals will require more hydrogen production and its potential use as a clean burning fuel should be investigated.

G. In-place liquefaction or gasification - would reduce the environmental impact of mining and processing coal.

MINING OF COAL

At a time when the use of coal is expected to increase greatly, the productivity in the mining of coal is steadily decreasing.

A. Higher extraction of coal - conventional mining methods should be investigated.

B. Higher productivity mining - equipment and/or methods are needed.

TRANSPORTATION OF COAL

Rail and truck transportation of coal will need to be supplemented by other methods.

A. Solids pipelines
   1. Slurries
   2. Pneumatic
B. **Liquids** pipelines from a mine-mouth coal conversion plant to the consumer to deliver
   1. Solvent refined coal
   2. Liquefied coal

C. **Gas** pipelines from a central coal gasification plant to the consumer to deliver
   1. High Btu gas
   2. Medium Btu gas
   3. Low Btu gas

**FUNDAMENTAL STUDIES OF COAL**

A. Mineral and petrographic studies of coal, pyrite and trace elements.
B. Chemical and physical structure of coal.
C. Properties and classification of coal.
D. Computerized information center for properties and technology of coal.

**COAL WASTE UTILIZATION**

As increasing amounts of coal are used, there will be corresponding increases in the waste materials from the mining, conversion and combustion of coal. Processes need to be developed to utilize these waste materials to reduce their disposal requirements and, in some cases, to provide new domestic sources of raw materials as in the case of the production of aluminum oxide from coal shale.

A. **Production of chemicals from mine wastes**
   1. Aluminum oxide
   2. Aluminum sulfate

B. **Manufacture of light weight aggregate** from coal mine wastes and/or fly ash.

C. **Utilization of coal mine wastes** and/or fly ash for the manufacture of cement.

D. **Production of sulfur or sulfuric acid** from sulfur compounds (pyrite or $SO_2$) recovered from the cleaning or combustion of coal.

E. **Production of synthetic-mullite** for refractory brick manufacture.

F. **Use of fly ash** as a pozzolanic material to supplement cement.
SOCIO-ECONOMIC MODELS

The interrelationship of the production and use of all forms of energy in the State of Ohio and especially the production and use of coal needs to be modeled in a form which will permit the prediction of future needs and which will help set priorities for research and development programs.
WHEREAS, the leave proposals on the attached lists have been reviewed in accordance with University policy and found to be meritorious,

NOW, Therefore, Be It Resolved that the faculty improvement leaves for 1977-78 and 1978-79 are approved.

Be It Further Resolved that the Provost can approve changes in the times leaves may be taken but not the length of the leave.
<table>
<thead>
<tr>
<th>FACULTY NAME</th>
<th>DEPARTMENT</th>
<th>PROJECT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shirley Slater</td>
<td>Home Economics</td>
<td>Work on a book on Creative Teaching and Learning Strategies</td>
</tr>
<tr>
<td>Joyce A. King</td>
<td>HPER</td>
<td>Pursue graduate work in Therapeutic Recreation</td>
</tr>
<tr>
<td>Ray Skinner</td>
<td>Curriculum &amp; Instruction</td>
<td>Study oceanography and relate the field to environmental education</td>
</tr>
<tr>
<td>Melvin Witmer</td>
<td>SABSEL</td>
<td>Complete a manuscript on affective education</td>
</tr>
<tr>
<td>Loyde Hales</td>
<td>SABSEL</td>
<td>Complete a manuscript dealing with educational statistics</td>
</tr>
<tr>
<td>Douglas Adie</td>
<td>Economics</td>
<td>Engage in a research project (An Evaluation of Public Housing Rental Policy) at the Hoover Institution on War, Revolution, and Peace.</td>
</tr>
<tr>
<td>Lee Soltow</td>
<td>Economics</td>
<td>Work on a manuscript in the area of wealth distribution in the U.S.</td>
</tr>
<tr>
<td>Lowell Gallaway</td>
<td>Economics</td>
<td>Complete manuscript on labor exploitation and labor market discrimination against minority groups in the U.S.</td>
</tr>
<tr>
<td>Arthur J. Marinelli</td>
<td>Organizational Science</td>
<td>As a lawyer, Professor Marinelli will investigate recent administrative law and case law developments taking place in the Occupational Safety and Health Act of 1970.</td>
</tr>
<tr>
<td>Lawrence Miller</td>
<td>Organizational Science</td>
<td>Research into Federal laws and regulations that affect the information systems of organizations in the public and private sectors.</td>
</tr>
<tr>
<td>FACULTY NAME</td>
<td>DEPARTMENT</td>
<td>PROJECT</td>
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</tr>
<tr>
<td>John Stinson</td>
<td>Organizational Science</td>
<td>A study of the situational factors which influence the leadership</td>
</tr>
<tr>
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<td></td>
<td>effectiveness of first-line supervision in underground coal mining.</td>
</tr>
<tr>
<td>S. Benjamin Prasad</td>
<td>Administrative Sciences</td>
<td>A study of authority patterns and subordinate behavior in a selected</td>
</tr>
<tr>
<td></td>
<td></td>
<td>number of private business firms.</td>
</tr>
<tr>
<td>Ellsworth Holden</td>
<td>Accounting and Quantitative</td>
<td>Study with a CPA firm to gain practical experience in computerized</td>
</tr>
<tr>
<td></td>
<td>methods</td>
<td>accounting and information systems and in statistical sampling in</td>
</tr>
<tr>
<td></td>
<td></td>
<td>auditing.</td>
</tr>
<tr>
<td>Hugh Culbertson</td>
<td>Journalism</td>
<td>To undertake a study of working newsmen's assumptions and policies</td>
</tr>
<tr>
<td></td>
<td></td>
<td>related to cloaked attribution.</td>
</tr>
<tr>
<td>Ralph Izard</td>
<td>Journalism</td>
<td>Work with a major daily newspaper and begin writing a book dealing with</td>
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<tr>
<td></td>
<td></td>
<td>public affairs reporting.</td>
</tr>
<tr>
<td>Robert Goyer</td>
<td>Interpersonal Communication</td>
<td>Assess the state of current research in communications at leading</td>
</tr>
<tr>
<td></td>
<td></td>
<td>research centers.</td>
</tr>
<tr>
<td>William Miller</td>
<td>Radio-TV</td>
<td>Complete a book on screenwriting and do study in film and television</td>
</tr>
<tr>
<td></td>
<td></td>
<td>theory, aesthetics and criticism.</td>
</tr>
<tr>
<td>Charles Overby</td>
<td>Industrial and Systems</td>
<td>Work with a federal agency in Washington D.C. in which the assignment</td>
</tr>
<tr>
<td></td>
<td>Engineering</td>
<td>will involve science, technology, engineering and public policy.</td>
</tr>
<tr>
<td>Roy Lawrence</td>
<td>Mechanical Engineering</td>
<td>Spend a quarter at the Electric Power Research Institute, Palo Alto, Col.</td>
</tr>
<tr>
<td>FACULTY NAME</td>
<td>DEPARTMENT</td>
<td>PROJECT</td>
</tr>
<tr>
<td>--------------------</td>
<td>---------------------</td>
<td>-------------------------------------------------------------------------</td>
</tr>
<tr>
<td>James Gilfert</td>
<td>Electrical Engineering</td>
<td>Work with the device applications group of a major semi-conductor manufacturer with a view to updating the electronics curriculum in the Department of Electrical Engineering</td>
</tr>
<tr>
<td>Hollis Chen</td>
<td>Electrical Engineering</td>
<td>Refine theory developed by Dr. Chen involving the relationship between electromagnetic waves and plasmas.</td>
</tr>
<tr>
<td>David Hostetler</td>
<td>Art</td>
<td>Research into Scrimshaw carving in New England and continuation of work in wood sculpture.</td>
</tr>
<tr>
<td>William Kortlander</td>
<td>Art</td>
<td>Develop more fully the landscape theme in his painting.</td>
</tr>
<tr>
<td>Karen Nulf</td>
<td>Art</td>
<td>Study latest developments in optical printing and animation.</td>
</tr>
<tr>
<td>Barry Katz</td>
<td>Comparative Arts</td>
<td>Undertake first English translation and analysis of Lorenzo Ghiberti's fifteenth century treatise The Commentaries (I Commentarii).</td>
</tr>
<tr>
<td>Shirley Wimmer</td>
<td>Dance</td>
<td>Edit and complete a manuscript begun by Arch Lauterer, a pioneer in the field of contemporary dance.</td>
</tr>
<tr>
<td>David Lewis</td>
<td>Music</td>
<td>Improve teaching and performing skills on the clarinet through study with the principal clarinetist of the Cleveland Orchestra.</td>
</tr>
<tr>
<td>Robin Lacy</td>
<td>Theater</td>
<td>Work on a manuscript dealing with scenographers.</td>
</tr>
<tr>
<td>Seabury Quinn</td>
<td>Theater</td>
<td>Complete a manuscript involving certain problems in comedy.</td>
</tr>
<tr>
<td>FACULTY NAME</td>
<td>DEPARTMENT</td>
<td>PROJECT</td>
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<tr>
<td>James P. Braselton</td>
<td>Botony</td>
<td>To study the ultrastructure and temporal aspects of Meiosis in plants.</td>
</tr>
<tr>
<td>James Cavender</td>
<td>Botony</td>
<td>To undertake a revision of the taxonomy of the Dictyostelliaceae (Cellular slime molds)</td>
</tr>
<tr>
<td>Howard W. Latz</td>
<td>Chemistry</td>
<td>Undertake research in the use of dye lasers for analytical measurements.</td>
</tr>
<tr>
<td>Gary Pfeiffer</td>
<td>Chemistry</td>
<td>To work with a research team at the University of California Berkeley on problems of quantum chemistry.</td>
</tr>
<tr>
<td>Frank Cronin</td>
<td>English</td>
<td>To study technical writing and professional writing at Renssalaer Polytechnic Institute for the purpose of improving Ohio University's technical writing program.</td>
</tr>
<tr>
<td>Robert DeMott</td>
<td>English</td>
<td>To undertake a major new study of John Steinbeck using newly available material.</td>
</tr>
<tr>
<td>Roy Flannagan</td>
<td>English</td>
<td>To complete a manuscript on the poetry of Milton.</td>
</tr>
<tr>
<td>John Hollow</td>
<td>English</td>
<td>To complete a book about the poetry and prose of William Morris.</td>
</tr>
<tr>
<td>William Kuhre</td>
<td>English</td>
<td>To study dramatic arts at the U. of Cincinnati and relate this experience to the teaching of drama.</td>
</tr>
<tr>
<td>Stanley Lindberg</td>
<td>English</td>
<td>To work on a book-length reappraisal of Dr. Samuel Johnson.</td>
</tr>
<tr>
<td>Dean McWilliams</td>
<td>English</td>
<td>A study of the growing number of important writers who have become filmmakers.</td>
</tr>
<tr>
<td>FACULTY NAME</td>
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<tr>
<td>Calvin Thayer</td>
<td>English</td>
<td>To complete a manuscript on the political implications of Shakespeare's historical plays.</td>
</tr>
<tr>
<td>Ronald Isaac</td>
<td>Geography</td>
<td>To refine simulation models for the assessment of relationships between climate and productivity of arid grasslands.</td>
</tr>
<tr>
<td>Robert Yeats</td>
<td>Geology</td>
<td>To study earthquake prone active faults, particularly in North Anatolian fault of Turkey.</td>
</tr>
<tr>
<td>Paul van der Veur</td>
<td>Government</td>
<td>Complete translation of writings of a major Indonesian Nationalist and prepare a Political Gazetteer of Southeast Asia.</td>
</tr>
<tr>
<td>Richard Bald</td>
<td>Government</td>
<td>Research involving the Free Democratic Party (FDP) of the Federal Republic of Germany.</td>
</tr>
<tr>
<td>David Dabelko</td>
<td>Government</td>
<td>Completion of a study analyzing the relationship between military expenditures and expenditures for social services.</td>
</tr>
<tr>
<td>Richard Harvey</td>
<td>History</td>
<td>To undertake a study of poverty in seventeenth century England.</td>
</tr>
<tr>
<td>William Kaldis</td>
<td>History</td>
<td>To complete a manuscript on the exchange and settlement of Greek and Turkish minorities following WWI.</td>
</tr>
<tr>
<td>Lyle McGeoch</td>
<td>History</td>
<td>Completion of a manuscript on Lord Lansdowne.</td>
</tr>
<tr>
<td>A. Compton Reeves</td>
<td>History</td>
<td>To complete a manuscript on &quot;Lancastrian Englishmen&quot;.</td>
</tr>
<tr>
<td>FACULTY NAME</td>
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<tr>
<td>Shih-Liang Wen</td>
<td>Mathematics</td>
<td>To study the mathematical aspect of problems of equilibrium, stability and diffusion related to controlled thermonuclear fusion.</td>
</tr>
<tr>
<td>Robert Atalla</td>
<td>Mathematics</td>
<td>To work on the theory of Matrix summability.</td>
</tr>
<tr>
<td>Lois Vines</td>
<td>Modern Languages</td>
<td>To continue a study of the French writer Paul Valery.</td>
</tr>
<tr>
<td>Lawrence LaJohn</td>
<td>Modern Languages</td>
<td>To undertake an analysis and criticism of plays written by Spanish dramatists while in exile.</td>
</tr>
<tr>
<td>Ursula Lawson</td>
<td>Modern Languages</td>
<td>To study the contemporary literature of the German Democratic Republic.</td>
</tr>
<tr>
<td>Richard Danner</td>
<td>Modern Languages</td>
<td>To complete a study on the Fables of La Fontaine.</td>
</tr>
<tr>
<td>Douglas Hinkle</td>
<td>Modern Languages</td>
<td>To complete a manuscript on The Jew in Medieval and Renaissance Spain: A Literary Appraisal.</td>
</tr>
<tr>
<td>Manuel Serna-Maytorena</td>
<td>Modern Languages</td>
<td>To continue and complete a critical study of the novels of Sergio Galindo.</td>
</tr>
<tr>
<td>Marie-Claire Wrag</td>
<td>Modern Languages</td>
<td>An investigation of the influence of Rabelais on the writing of Herman Melville.</td>
</tr>
<tr>
<td>Donald Borchert</td>
<td>Philosophy</td>
<td>An analysis of the value of violence in Marxism and Christianity.</td>
</tr>
<tr>
<td>Stanley Green</td>
<td>Philosophy</td>
<td>To write a monograph analyzing and evaluating the significance of the religious philosophy of the 20th century Russian thinker, Lev Shestov.</td>
</tr>
<tr>
<td>FACULTY NAME</td>
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<tr>
<td>Folden B. Stumpf</td>
<td>Physics</td>
<td>To complete a manuscript on analytical acoustics and investigate innovations in teaching physics.</td>
</tr>
<tr>
<td>Svenn Lindskold</td>
<td>Psychology</td>
<td>To complete a book in experimental psychology.</td>
</tr>
<tr>
<td>Orville Gursslin</td>
<td>Sociology &amp; Anthropology</td>
<td>To complete a manuscript dealing with organizational stratification.</td>
</tr>
<tr>
<td>William Harlan</td>
<td>Sociology &amp; Anthropology</td>
<td>To conduct a study in India of information utilization in State and Central Government decision-making.</td>
</tr>
<tr>
<td>Arthur Saxe</td>
<td>Sociology &amp; Anthropology</td>
<td>To study recent advances in method, theory and data in paleoanthropology.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ADDENDUM</td>
</tr>
<tr>
<td>William Burkhard</td>
<td>Sociology &amp; Anthropology</td>
<td>Add one quarter which was omitted from previously approved leave. (Preparation for developing a teaching and scholarship ability in the sociology of the family.)</td>
</tr>
<tr>
<td>Elizabeth Smith</td>
<td>Philosophy</td>
<td>To undertake a study of the justification of legal obligation.</td>
</tr>
<tr>
<td>Robert Roe</td>
<td>English</td>
<td>To develop expertise in the area of folklore in order to develop courses not now offered.</td>
</tr>
</tbody>
</table>