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CONTENTS OF VOLUME 2: AMHERST ACADEMIC

COLLEGES AND SCHOOLS

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ARTS AND SCIENCES

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GRADUATE

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College of Agriculture

University of Massachusetts

Amherst

July 1, 1971 - June 30, 1972

To: The Chancellor of the University

From: Arless A. Spielman, Dean

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AMHERST, MASS.

LETTER OF TRANSMITTAL

To: Chancellor Randolph W. Bromery

I am pleased to submit the Annual Report of the College of Agriculture, and its successor as of June 28, 1972, the College of Food and Natural Resources.

The report year has been a blend of strengthened continuing programs with new thrusts in the area of environmental quality.

I invite your attention, particularly, to the "Highlight" sections on Instruction, Cooperative Extension and Research, and "Future Plans and Needs."

  
Arless A. Spielman, Dean



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## I. APPROPRIATIONS\*

	<u>1970</u>	<u>1971</u>	<u>1972</u>
A. INSTRUCTION	\$1,947,210.00	\$2,548,500.00	\$2,551,498.33
B. EXPERIMENT STATION			
State	1,414,652.00	1,215,810.00	1,028,343.08
Non-State	1,021,565.00	1,500,000.00	1,009,681.18
C. COOPERATIVE EXTENSION			
State	773,016.00	872,317.00	896,377.00
Non-State	1,042,442.00	1,595,434.00	1,660,894.00
County Funds			1,475,000.00
D. CONTROL SERVICE	<u>468,641.00</u>	<u>465,800.00</u>	<u>525,983.71</u>
<u>TOTALS</u>	\$6,667,526.00	\$9,697,861.00	\$9,147,777.30

\*Estimated from June 1, 1972 Allotment Control Register.

## II. PERSONNEL

A. ACADEMIC PERSONNEL	September 1969	September 1970	September 1971
Dean	1	1	1
Associate Dean and Director of Stockbridge School	1	1	0
Associate Dean and Associate Director of Experiment Station	0	1	1
Associate Dean and Associate Director of Cooperative Extension	1	1	1
Assistant Dean and Director of Stockbridge School	0	0	1
Assistant Dean, College of Agriculture	1	1	1
Commonwealth Head of Department	1	1	0
Head of Department "A"	11	10	10
Head of Department UM	2	2	2
Commonwealth Professor, UM	1	1	1
Professor "A"	41	50	51
Professor, UM	9	11	13
Associate Professor "A"	41	38	34
Associate Professor, UM	10	19	19
Assistant Professor "A"	27	24	22
Assistant Professor, UM	24	21	23
Instructor "A"	11	4	5
Instructor, UM	4	2	3
Visiting Lecturer	2	3	0
Visiting Lecturer, UM, part-time	0	0	2
Lecturer "A", UM	1	3	2
Lecturer, UM	2	1	1
Lecturer, UM, 1/2 time	1	1	1/2
TOTAL (does not include vacancies)	191	196	193-1/2
B. NON-ACADEMIC PROFESSIONAL PERSONNEL			
Assistant to Dean and Director	1	1	1
Staff Associate	1	1	1
Staff Assistant	3	3	3
	5	5	5

## C. APPOINTMENTS

1. Dr. Frederick J. Francis, Professor "A", UM and Head of Department "A", Food Science and Technology, August 1971

Ervin H. Zube, Professor, UM, Department of Landscape Architecture and Regional Planning and Director, Institute for Man and His Environment, April 1972

Paul N. Procopio, Professor, UM and Acting Head, Department of Landscape Architecture and Regional Planning, April 1972

2. New Faculty

Agricultural and Food Economics

Thomas M. Bell, Assistant Professor, UM

Food and Agricultural Engineering

Richard J. Smith, Assistant Professor, UM

Landscape Architecture and Regional Planning

Richard J. Costley, Professor, UM

Veterinary and Animal Sciences

James B. Marcum, Assistant Professor, UM

Janet H. Brubaker, Staff Assistant

3. Retirements

Entomology

Marion E. Smith, Associate Professor, UM

Plant and Soil Sciences

Louis F. Michelson, Associate Professor "A"

Hrant M. Yegian, Assistant Professor "A"

## D. FACULTY PROGRAM ASSIGNMENTS -- SPRING 1972

<u>Department</u>	<u>*FTEE INSTRUCTION</u>	<u>*FTEE EXP. STATION</u>	<u>*FTEE EXTENSION</u>	<u>*FTEE CONTROL</u>	
Administration	3.30	2.25	7.45	0	13
Agricultural and Food Economics	10.18	3.48	4.34	0	18
Cranberry Station	0	4.50	2.50	0	7
Entomology	5.40	1.90	1.20	0	8.5
Environmental Sciences	3.50	.50	0	0	4
Feed-Fertilizer- Seed-Dairy Law	0	0	0	5.00	5
Food and Agricultural Engineering	6.25	2.85	.90	0	10
Food Science & Technology	11.05	3.95	0	0	15
Forestry & Wildlife Management	10.55	6.45	1.00	0	18
Hotel, Restaurant & Travel Administration	5.40	0	.60	0	6
Landscape Architecture & Regional Planning	16.75	.25	0	0	17
Plant & Soil Sciences	16.70	5.95	2.35	0	25
Plant Pathology	2.10	2.10	1.30	1.50	7
Suburban Experiment Station	0	5.20	7.70	2.10	15
Veterinary & Animal Sciences	10.35	5.85	4.40	4.40	25
TOTALS	101.53	45.23	33.74	13.00	= 193.5

\*FTEE= Full Time Faculty Equivalent

## E. FACULTY BY DEPARTMENT -- FALL 1971

	<u>Professor</u>	<u>Associate</u>	<u>Assistant</u>	<u>Instructor</u>	<u>Part-time</u>		<u>Total</u>
		<u>Professor</u>	<u>Professor</u>	<u>&amp; Lecturer</u>	<u>No.</u>	<u>FTE</u>	<u>FTE</u>
Agriculture and Food Economics	6	7	2	1	-	-	16.00
Cranberry Station	3	3	1	-	-	-	7.00
Entomology	3	1	4	-	1	.50	8.5
Environmental Sciences	2	-	2	-	-	-	4.00
Food & Agricultural Engineering	1	4	5	-	-	-	10.00
Food Science & Technology	8	3	3	-	-	-	14.00
Forestry and Wildlife	6	7	4	1	-	-	18.00
Hotel, Restaurant & Travel Administration	1	3	-	2	-	-	6.00
Land Architecture	6	6	4	4	-	-	20.00
Plant and Soil Sciences	11	9	5	-	-	-	25.00
Plant Pathology	5	1	1	-	-	-	7.00
Regulatory Services	1	1	1	2	-	-	5.00
Suburban Experiment Station	5	2	6	2	-	-	15.00
Veterinary and Animal Sciences	13	3	7	2	-	-	25.00
Other	-	-	1	1	-	-	2.00
College Total	71	50	45	15	1	.50	182.50

## III. ORGANIZATIONAL CHART

DEPARTMENTS AND DIVISIONS	RESIDENT INSTRUCTION			EXPERIMENT STATION	COOPERATIVE EXTENSION	CONTROL PROGRAM
	Assoc. Degree	B.S. Degree	Grad. Degree			
Agricultural and Food Economics	X	X	X	X	X	
Cranberry Station				X	X	
Entomology		X	X	X	X	
Environmental Sciences	X			X	X	
Food and Agricultural Engineering			X	X	X	
Food Science and Technology	X	X	X	X	X	
Forestry and Wildlife Management	X	X	X	X	X	
4-H and Youth Programs					X	
*Home Economics Extension					X	
Hotel, Restaurant and Travel Administration	X	X			X	
Landscape Architecture and Regional Planning	X	X	X	X		
Plant Pathology		X	X	X	X	X
Plant and Soil Sciences	X	X	X	X	X	
Suburban Experiment Station				X	X	X
**Regulatory Services				X		X
Veterinary and Animal Sciences	X	X	X	X	X	X

\*In School of Home Economics

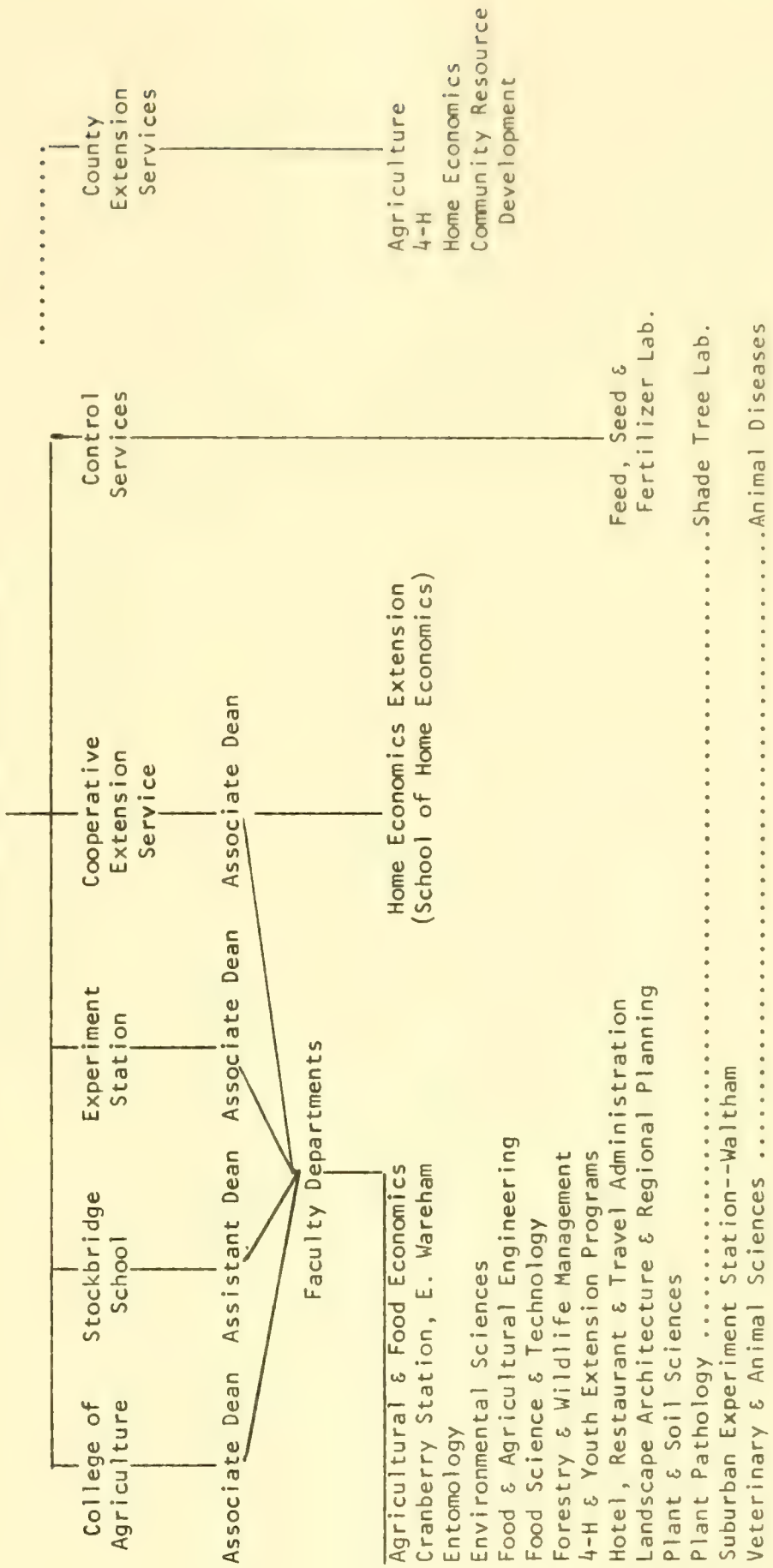
\*\*Feed, Fertilizer, Dairy Law, and Seed Laboratory



A. ORGANIZATIONAL AND PROGRAM RESPONSIBILITIES

College of Agriculture - Experiment Station, Cooperative Extension Service, and Control Services

Arless A. Spielman, Dean and Director



## IV HIGHLIGHTS - FOUR-YEAR, GRADUATE INSTRUCTION

1. Continued growth in undergraduate enrollments has become a characteristic of the College. Numbers of students (excluding Stockbridge students) increased 32% over 1970-71. The significance of this statistic is pointed out in the annual report of agricultural enrollments published by the National Association of State Universities and Land-Grant Colleges, wherein Massachusetts is cited as one of the five universities reporting largest increases in undergraduate enrollments in agriculture.

In terms of relative size of undergraduate student body in agriculture, the University ranks 19th nationally, with 70 institutions reporting. This does not include Stockbridge enrollment which would change the standing to 10th. Increased enrollments are a reflection of the College's adjustment to student and citizen interest in topics related to the conservation and management of natural resources and to the problems associated with maintaining a viable food resource, broadly defined.

2. Success has been achieved with an introductory course, Food Science 101, The Struggle for Food, designed for University Students-at-large and taught by the Department of Food Science and Technology. Since its inception in the Spring of 1970, the course has grown to the point where it is being taught to approximately 1,000 students each semester. Due to space limitations, enrollment in the Spring of 1972 was limited to 1,300 students and approximately 1,800 more pre-registered students had to be turned away. The department is investigating ways of meeting the demand for this course through the use of mass media techniques.

3. The success of Food Science 101 has tended to overshadow the fact that other departments also have developed highly successful courses

which were either designed specifically for students outside of agriculture or have attracted large numbers of students from outside the college.

Noteworthy among these are:

Forestry 222, Conservation of Natural Resources

Plant Science 115, The Plant Environment

Plant Science 120, Organic Gardening and Farming

Environmental Science 201, Introductory Environmental Biology

Environmental Design 140, Visual Awareness of the Physical Environment

Agricultural and Food Economics 110, World Food and Natural Resources

4. A new undergraduate major in Natural Resource Studies was developed by the Department of Forestry and Wildlife Management. This major was designed for the student not yet ready to specialize in a professional area, who desires a general education with emphasis on the nature of the world in which he lives, and the environmental problems which man's activities create. The new program is unique in that it offers the student great flexibility in selection of courses.

5. The faculty continues to improve and up-date curricular offerings by developing new courses and modifying existing ones. During the past year, approximately 15 proposals for new undergraduate or graduate courses were processed and approved. Numerous course modifications were also processed.

6. The Department of Hotel, Restaurant, and Travel Administration continues to expand, both in terms of student numbers and curricular offerings. A Master's Degree in Hotel, Restaurant, and Travel Administration has received final approval by the Board of Trustees and inaugurates the department's graduate level training activities. Several new faculty

members have recently joined the department bringing with them a wide range of experience and expertise to broaden curricular offerings. Employment opportunities in this field continue to be especially good with most students receiving several offers and some being placed at salaries in the \$12,000-\$15,000 range.

7. Despite increased teaching loads and public service commitments, faculty in the College of Agriculture engage in various scholarly activities at a high rate. Achievements in terms of grants received publications, and honors are numerous and are reported elsewhere.

## V. STUDENTS

A. STUDENT MAJORS (Fall Semester):	<u>1969-1970</u>	<u>1970-1971</u>	<u>1971-1972</u>
Stockbridge School	<u>636</u>	<u>633</u>	<u>621</u>
Undergraduate			
Freshmen	<u>150</u>	<u>176</u>	<u>284</u>
Sophomores	<u>207</u>	<u>225</u>	<u>232</u>
Juniors	<u>259</u>	<u>277</u>	<u>447</u>
Seniors	<u>221</u>	<u>250</u>	<u>256</u>
Undergraduate Subtotal	<u>837</u>	<u>928</u>	<u>1,215</u>
Graduate			
Degree Students	<u>290</u>	<u>293</u>	<u>355</u>
Other	<u>24</u>	<u>28</u>	<u>42</u>
Graduate Subtotal	<u>314</u>	<u>321</u>	<u>397</u>
Total Majors	<u>1,787</u>	<u>1,882</u>	<u>2,233</u>

## STUDENT CREDIT HOURS TAUGHT (Fall Semester):

## In courses of this unit

Undergraduate including Stockbridge	<u>13,328</u>	<u>14,606</u>	<u>20,003</u>
Graduate	<u>1,667</u>	<u>2,133</u>	<u>2,427</u>

## In courses of other units\*

Undergraduate	<u>300</u>	<u>400</u>	<u>383</u>
Graduate	<u>45</u>	<u>56</u>	<u>57</u>

## OTHER CLIENTELE:

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\* Public Health  
Physical Education  
Marine Sciences

## B. ENROLLMENTS

## 1. Breakdown of Student Enrollment by Major or Program Area - Fall 1971

<u>Departments</u>	<u>Four Year</u>	<u>Two Year</u>	<u>Gradu- ate</u>	<u>Departmental Total</u>
1. <u>Agricultural and Food Economics</u>				
General Agricultural Economics	18		8	
Agricultural Business Management	18	16	7	
Food Distribution		12		
Food Marketing Economics	9		3	
Natural Resource Economics	19		12	
International Agricultural Studies	5		5	132
2. <u>Entomology</u>	19		17	36
3. <u>Environmental Sciences</u>				
Environmental Technology		35		35
4. <u>Food &amp; Agricultural Engineering</u>	0		14	14
5. <u>Food Science and Technology</u>				
Food Science	25		53	
Food Processing Technology		12		90
6. <u>Forestry and Wildlife Management</u>				
Fisheries Biology	58		17	
Forestry	175		40	
Wildlife	162		31	
Wood Science and Technology	36		8	
Wood Utilization (Terminated 1/1/72)		13		540
7. <u>Hotel and Restaurant Administration</u>	200	120		320
8. <u>Landscape Architecture &amp; Reg. Planning</u>				
Arboriculture and Park Management		98		
Environmental Design	209		54	
Landscape Architecture				
Landscape Operations		49		
Park Administration	16			
Regional Planning			38	464
9. <u>Plant and Soil Sciences</u>				
Floriculture		39		
Fruit and Vegetable Crops		24		
Plant Industry	33		30	
Plant Science	22			
Soil Science	8		10	
Turf Management		103		269
10. <u>Plant Pathology</u>	5		13	18
11. <u>Veterinary and Animal Sciences</u>				
Animal Science	178	68	37	
Laboratory Animal Management		32		315
TOTALS	1,215	621	397	2,233

## C. STUDENT MAJORS BY DEPARTMENT

September of		Undergraduate				Graduate		
		'69	'70	'71		'69	'70	'71
Agriculture (General)	L	19	5	12	D	---	---	---
	U	1	6	8	S	---	---	---
	T	20	11	20	T	---	---	---
Agriculture and Food Economics	L	22	24	25	D	31	25	34
	U	28	27	44	S	0	0	1
	T	50	51	69	T	31	25	35
Entomology	L	4	7	2	D	20	16	16
	U	1	3	17	S	2	0	1
	T	5	10	19	T	22	16	17
Food & Agriculture Engineering	L	---	3	---	D	18	17	14
	U	---	---	---	S	1	0	0
	T	---	3	---	T	19	17	14
Food, Science & Technology	L	7	8	10	D	42	45	48
	U	14	15	15	S	1	4	5
	T	21	23	25	T	43	49	53
Forestry	L	35	54	105	D	62	23	31
	U	46	54	68	S	7	6	9
	T	81	108	173	T	69	29	40
Wood Tech.	L	7	10	6	D	6	8	8
	U	16	26	30	S	0	0	0
	T	23	36	36	T	6	8	8
Hotel, Restaurant & Travel Admin.	L	69	68	62	D	---	---	---
	U	91	113	133	S	---	---	---
	T	160	181	195	T	---	---	---
Land Architecture	L	35	16	1	D	36	33	47
	U	93	32	15	S	7	4	7
	T	128	48	16	T	43	37	54
Regional Planning	L	12	35	61	D	---	16	35
	U	10	79	143	S	---	3	3
	T	22	114	204	T	---	19	38
Plant and Soil Sciences	L	12	18	26	D	37	31	37
	U	27	26	37	S	3	4	3
	T	39	44	63	T	40	35	40

## STUDENT MAJORS BY DEPARTMENT -- continued

<u>September of</u>		<u>Undergraduate</u>				<u>Graduate</u>		
		<u>'69</u>	<u>'70</u>	<u>'71</u>		<u>'69</u>	<u>'70</u>	<u>'71</u>
Plant Pathology	L	2	1	3	D	26	11	13
	U	1	0	2	S	0	0	0
	T	3	1	5	T	26	11	13
Veterinary & Animal Science	L	52	70	95	D	32	31	32
	U	47	44	68	S	2	2	5
	T	99	114	163	T	34	33	37
Preveterinary	L	0	0	0	D	---	---	---
	U	2	4	10	S	---	---	---
	T	2	4	10	T	---	---	---
Wildlife	L	58	62	84	D	29	24	26
	U	60	59	76	S	5	5	5
	T	118	121	160	T	34	29	31
Fisheries, Biology	L	27	20	24	D	15	13	14
	U	45	39	33	S	4	2	3
	T	72	59	57	T	19	15	17
College Subtotal	L	371	401	516	D	354	293	355
	U	508	527	703	S	32	28	42
	T	879	928	1,215	T	386	321	397

L: Freshmen and Sophomores, U: Juniors and Seniors, T: Total, D: Degree Students, S: Other

(Stockbridge majors not included)



## D. STUDENT CREDIT HOURS BY DEPARTMENT

Fall Semester of		1969	1970	1971
Agricultural and Food Economics	U	2,154	1,741	2,019
	G	96	176	189
Entomology	U	690	462	603
	G	112	96	96
Environmental Science	U	---	186	289
	G	---	98	18
Food and Agricultural Engineering	U	600	644	785
	G	182	119	123
Food Science and Technology	U	814	870	3,750
	G	247	325	301
Forestry	U	715	1,178	1,806
	G	91	126	245
Wood Technology	U	362	634	303
	G	32	54	80
Wildlife	U	250	976	773
	G	99	141	87
Fisheries Biology	U	170	163	149
	G	81	55	71
Hotel, Restaurant, and Travel Administration	U	1,626	1,864	1,997
	G	10	---	---
Landscape Architecture	U	1,616	1,092	940
	G	247	199	323
Environmental Design Regional Planning	U	805	1,348	1,853
	G	173	373	459
Plant Pathology	U	111	148	85
	G	---	40	57
Plant and Soil Science	U	2,236	2,253	2,940
	G	183	125	151
Veterinary & Animal Science	U	1,174	1,040	1,711
	G	121	164	227
College of Agriculture Subtotal	U	13,328	14,606	20,003
	G	1,667	2,093	2,427

U: Undergraduate including Stockbridge

G: Graduate

E. Breakdown of Graduate Students and Post-Doctoral Fellows by Departments

<u>Department</u>	<u>M.S.</u>	<u>PH.D.</u>	<u>Degrees Awarded</u>		<u>Post-Doctoral Fellows</u>
			<u>M.S.</u>	<u>PH.D.</u>	
Agricultural and Food Economics	23	12	10	2	-
Cranberry Station	-	-	-	-	2
Entomology	16	1	2	3	-
Environmental Sciences	-	-	-	-	2
Food and Agricultural Engineering	3	11	2	3	-
Food Science and Technology	22	31	3	5	-
Forestry and Wildlife Management	66	30	19	5	-
Landscape Architecture and Regional Planning	92	-	17	-	-
Plant and Soil Sciences	24	16	5	7	-
Plant Pathology	8	5	1	1	-
Veterinary and Animal Sciences	<u>16</u>	<u>21</u>	<u>2</u>	<u>3</u>	<u>-</u>
<u>TOTALS</u>	270	127	61	29	4

F. Number of Degrees Awarded ( College)

<u>Degrees</u>	<u>September 1969 to June 1970</u>	<u>September 1970 to June 1971</u>	<u>September 1971 to June 1972</u>
Bachelor of Science	167	235	159
Master of Science	55	58	61
Doctor of Philosophy	18	28	29
Stockbridge School	<u>240</u>	<u>218</u>	<u>253</u>
<u>TOTALS</u>	480	539	502

## G. ACADEMIC HONORS - CLASS OF 1972

1. B. S. Degree StudentsSumma Cum Laude

Lee O. Webb - Wildlife Biology

Magna Cum Laude

Janet E. Barge - Animal Science  
 Stephen R. Breyer - Fisheries Biology  
 Albert L. DeBonis - Wood Technology  
 Robert C. Lewpold - Forestry  
 Gary A. Nickerson - Agriculture and Food Economics  
 Richard W. Thomas - Environmental Design

Cum Laude

Forty seniors were graduated with academic distinction.

2. Stockbridge SchoolWith Honors

(Any graduate with a 3.8 or higher cumulative average)

Jean Elizabeth Valenti - Floriculture (Perfect 4.0)  
 Michael Francis Wood - Environmental Technology  
 Chris Van Kuhner - Hotel, Restaurant and Travel Administration  
 Geoffrey Robert Wilson - Hotel, Restaurant and Travel Administration  
 Walter Craig Taylor - Animal Science  
 John Remington Olander - Environmental Technology  
 Charles Edward Wilson - Hotel, Restaurant & Travel Administration  
 Alan Myron Goodwin - Fruit and Vegetable Crops  
 Roberta Ann Fosberry - Animal Science  
 Russell John Anderson - Animal Science

LEAR Honorary Scholastic Society

(3.4 or higher cumulative average required)

Forty-eight seniors were graduated with 3.4 or higher cumulative averages.

## H. STUDENT ACCOMPLISHMENTS AND RECOGNITION

### Department of Agricultural and Food Economics

Richard Lavoie, U '72, was awarded a \$1000 scholarship by the National Food Brokers' Foundation Association.

Albert Nicholls, Jr., U '72, received a \$500 scholarship from the National American Wholesale Grocers Association.

A scholarship of \$1000 was awarded to Frederick Dyka, Jr., U '73, by the Grocery Manufacturers Representatives of New England.

James N. Putnam II, U '73, was awarded a \$500 scholarship by the Ralston Purina Company.

Michael G. Heady, U '75, received a scholarship award from the General Foods Corporation Fund.

John S. Stowell, U '73, was awarded a \$600 Undergraduate Assistantship.

Other recipients of scholarship aid in 1971 were:

Daniel Dudek	U'73	Gary Nickerson	U'73
Kenneth Elliott	U'73	William Roberts	U'74
Edward George	U'74	Ronald Robillard	U'73
Phillip Harcovitz	U'74	David Solomon	S'72
Richard Lavoie	U'72	Michael Stachowicz	U'73
Sally Leslie	U'73	Nancy Wyman	U'73
Steven Mederios	S'72		
Linda Mulvey	S'72		

### Graduate Students

Mr. Tirath Gupta was inducted into Phi Kappa Phi.

Mr. Falih Al-Shaikhly was invited to join "Who's Who In The East."

### Department of Entomology

Alan Eaton was awarded the H. A. Rosenfeld Research Award. Eaton is the first undergraduate student to receive this annual award for research conducted while a student at the University. All prior recipients were graduate students.

### Graduate Students

Against competition with agriculture students throughout the New England states, John Capinera was awarded the New England Vegetable Grower's Association scholarship for 1972.

### Department of Environmental Sciences

Frank Murphy, Stockbridge '73 coauthored an article "Community Involvement in Water Pollution Control" with Dr. Robert Coler. This has been accepted for publication in the "Massachusetts Wildlife."

James P. McLaughlin, UM '74 Public Health, working under Dr. W. Litsky, presented a paper, "The Rapid Enumeration of Group D. Streptococci from Water Sewage Employing PSE Agar with the Membrane Filter" at the annual meeting of the American Society for Microbiology, Philadelphia, Penn., April, 1972.

#### Graduate Students

Mrs. Barbara Lewis, Public Health, working under Dr. W. Litsky, presented a paper, "A Comparison of Three Media for the Rapid Group Identification of Group D Striptococci" at the April ASM meeting.

Ann T. Rogers, who received a Master of Arts and Teaching degree in September 1971, received a second place award from the Massachusetts Association of Medical Technologists for her research paper entitled "Hemophilus Species in Throat Cultures of College Students". This work was performed as an independent study project under the direction of Dr. W. Litsky.

NDEA Fellowships were awarded to Mrs. Joan Kubic and Miss Mary Murray.

The following students were elected to Sigma Xi: Mark Segal, Christopher Libbey, Eugene Mariani and Nancy Miller.

### Department of Food Science and Technology

Three students were awarded undergraduate National Institute of Food Technology Scholarships. These were Clifford Starr, Michael Zweig and Noel Anderson. Three undergraduates, Vicki Dubin, Leona Kelliher and Michael McLaughlin, were awarded General Foods Scholarships. Clifford Starr and Michael Zweig were awarded scholarships from the Northeast Section of the IFT.

### Department of Forestry and Wildlife Management

Nineteen seniors and juniors were elected to Xi Sigma Pi, Forestry Honorary Society.

Lee Webb, Wildlife Biology, and Kevin Richardson, Forestry, were selected as the Seniors of the year by Xi Sigma Pi.

Thurston Burns, in Fisheries Biology, received scholarships from the National Fisheries Institute and the Salem Foundation.

Four students in Wood Technology received Outstanding Student awards from the Forest Products Research Society.

Glen Bailey, Fisheries Biology, served as leader of a student group that prepared a proposal subsequently awarded a grant of \$13,500. by the National Science Foundation to study possible uses of industrial waste in oyster aquaculture.

Kevin Richardson, a senior in Forestry, working under the supervision of Dr. R. Bond, participated in the University Year For Action in a program based at the Berkshire County Development Commission and involved with evaluating the potential of forest-based industry to improve the status of low-income residents in the rural towns of that county. His efforts complement objectives of the Berkshire-Franklin Resource Conservation and Development project and the Community Resource Development program described earlier.

Studies conducted over the last two or three years by Dr. F. Greeley and students have produced a habitat management plan for the Swift River Wildlife Management Area supervised by the Massachusetts Division of Fisheries and Game.

#### Department of Hotel, Restaurant and Travel Administration

A number of students have become active in student governance and affairs. John Hogan is President of the Student Senate, Robert Chiller is Treasurer of that group. At least four other students are in the Student Senate and three are on the Student Union Governing Board.

#### Department of Landscape Architecture and Regional Planning

Arthur Lupien, UM '72, won a Department of the Army Scientific and Engineering Schooling Program award. He was one of 15 winners across the country.

#### Graduate Students

Graduate design studio (Ld Arch 702) prepared plans and made a public presentation on the revitalization of Route 5 in West Springfield, for the Greater Springfield Chamber of Commerce and the West Springfield Planning Board.

Richard Smardon, M.L.A. '72, was awarded an A.S.L.A. Certificate of Merit.

#### Department of Plant and Soil Sciences

Frederic G. Cheney, '72, awarded \$500 scholarship by the Golf Course Superintendants Association of America.

Robert A. Pierpont, '73, awarded \$300 scholarship by the New England Vegetable Growers' Association.

Jean E. Valenti (Miss), Stockbridge '72 (Floriculture), awarded New York Farmers Scholarship of \$150.

Melissa Miarchi, Stockbridge '72, (Floriculture), awarded \$100 scholarship for 1972-1973.

Joseph Dymek, Stockbridge '72 (Floriculture), awarded \$100 scholarship for 1972-1973.

Erwin Nash, Stockbridge '72 (Turf), awarded \$350 scholarship by the Golf Course Superintendants Association of America.

Niels Olsson, Stockbridge '72 (Turf), awarded \$350 scholarship by the Golf Course Superintendants Association of America.

Frank Santos, Stockbridge '72 (Turf), awarded \$350 scholarship by the Golf Course Superintendants Association of America.

Alan, Fogarty, Stockbridge '72 (Turf), awarded the Lawrence S. Dickinson Memorial Scholarship of \$250.

#### Graduate Students

Michael A. Dirr was initiated into Sigma Xi and Phi Kappa Phi.

The following students presented papers (or were coauthors) at regional and/or national meetings of the scientific societies indicated:

R. E. Bir, Northeastern Section, American Society Horticultural Science.

M. A. Dirr, (2) Annual Meeting and Northeast Section, American Society of Horticultural Science.

L. D. Goldstein, American Society Plant Physiology.

S. A. Jubboori, Annual Meeting, National American Geophysical Union.

H. A. Mills, (3) Annual Meeting and Northeast Section American Society Agronomy; and Northeast Section, American Society Horticultural Science.

D. E. Robinson, Northeastern Section, American Society Horticultural Science.

Maria Sapuncakis, Northeastern Section, American Society Plant Physiology.

M. R. Shipway, (2) Annual Meeting, American Society Horticultural Science, Kansas State University, Manhattan, August 1-4, 1971.

J. M. Smagula, Northeastern Section, American Society Horticultural Science.

#### Department of Plant Pathology

#### Graduate Students

Five students attended the National American Phytopathological Society Meetings in Philadelphia, and 10 attended the Northeastern Division, APS Meetings in Yonkers, New York where Natalie Feng, Joseph Makarski and Richard Niles read research papers.

Alice Callaway, a Master's degree candidate, has achieved a research result unusual for students involved in Dutch elm disease studies. She has shown levels of two enzymes in the tree as well as just in cultures. Both health and diseased trees yielded the findings. Most Dutch elm disease researchers are unable to find their (usually unstable) toxins in the tree itself. Miss Callaway is completing a paper for submission to "Phytopathology" entitled PHOSPHATIDASE AND POLYGALACTURONASE IN EXTRACTS FROM HEALTHY AND DUTCH ELM DISEASED AMERICAN ELMS AND CULTURES OF CERATOCYSTIS ULMI.

Department of Veterinary and Animal Sciences

American Society of Animal Sciences Scholarship Awards:

(Students must rank scholastically among the top 10% of their class in the College of Agriculture.)

Seniors:

Janet E. Barge  
Joanna Maher Bitter  
Carol Collyer

Juniors:

Thomas Chihocki	Carolyn Jensen
Teresa Bartiromo	Katherine Cavanaugh
Jane Elkind	Carey Bare
Frederick Kelley	Paul Moody
Joanna Shumway	

Sophomores:

Samuel P. Carson	Lee Flodin
Elizabeth O'Brien	Richard Byam
Kristine Domian	Darlene Sandman
Carmine Cacciapuoti	Philip Hult

Bay State Livestock Classic A student-organized and operated livestock show. This show had the most participants of any show in recent years.

Mounted Equestrian Drill Team Participation in six exhibitions highlighted by outstanding performances at the New York State Fair in Syracuse, New York and the Massachusetts All-Morgan Horse Show.

Intercollegiate Horse Shows Association Participation in nine intercollegiate horse shows with a successful show held on campus in October with 234 students from 23 schools.



## VI STUDENT - FACULTY INTERACTION

DEPARTMENT OF AGRICULTURAL AND FOOD ECONOMICS: An Employment Opportunities Committee was active throughout the year. Posting of professional job opportunities and maintenance of a current list of openings by type of employers were notable activities performed. The weekly Department newsletter, 'Marginal Memos' was distributed to faculty, staff and students each Friday.

The Agricultural Economics Society was reactivated in the Fall. This Society, open to Stockbridge, undergraduate and graduate students, had about 20 active members. The program of activities during the year included a Fall get-together for students and faculty, a talk on placement opportunities, a discussion, slide and movie session on the Peace Corps, and a Spring Social. William King, UM '73 is president and Dr. David Storey is faculty advisor.

The Accounting Club again was active during the year with representatives from Internal Revenue Service, stock brokerage companies, etc. participating. During the spring semester the club members took a bus trip to the New York Stock Exchange and the Federal Reserve Bank of New York. Mr. Herbert Spindler is the faculty advisor.

DEPARTMENT OF ENTOMOLOGY: Student-faculty interaction is encouraged through two separate programs. One, the Fernald Entomological Club, has been functioning for 44 consecutive years. It sponsored presentations by distinguished entomologists from New York, Florida and Connecticut, as well as campus faculty. A second program brings together students and faculty for a weekly informal lunch and discussion of research and current trends in the discipline.

DEPARTMENT OF FOOD SCIENCE AND TECHNOLOGY: There is student representation on the departmental undergraduate and the departmental graduate faculty liaison committees, as well as the undergraduate curriculum committee. Two undergraduate and two graduate students attend all faculty meetings in the department.

DEPARTMENT OF FORESTRY AND WILDLIFE MANAGEMENT: The student chapter of the Wildlife Society with Dr. Frederick Greeley as advisor undertook a particularly active program during the past year, climaxed by the participation of eight members in the Eastern Intercollegiate Wildlife Student Conclave held at the State University of New York, Stonybrook, Long Island. The conclave will be hosted next year by the Amherst chapter.

This spring Dr. James Johnson and Dr. Roger Reed supervised a volunteer student trip to observe fisheries management and research projects in the mid-Atlantic states, and Dr. Charles Cole led a group of students in fisheries, microbiology, plant and soil science, and zoology on a week's training cruise at sea.

DEPARTMENT OF HOTEL, RESTAURANT AND TRAVEL ADMINISTRATION: The Academic Affairs Committee of the Department has involved students in their discussions, especially those that bear on curriculum development and placement of graduates. Students took an active role in presenting the Department at the National Hotel and Motel Exposition in New York City and at the New England Hotel & Restaurant Show in Boston.

Students were also active in the Alumni/Student Brunch which was hosted by the American Restaurant Association in Boston in April. The attendance at this affair exceeded 150.

DEPARTMENT OF LANDSCAPE ARCHITECTURE AND REGIONAL PLANNING: Graduate students have recently organized a "Graduate Union" and have several committees which interact with faculty committees.

All departmental committees, except the Personnel Committee have student representation.

DEPARTMENT OF PLANT AND SOIL SCIENCES: Two undergraduate Student-Faculty evening meetings were held just prior to or during Counseling week in the Fall and Spring semesters. They were designed to discuss the course offerings of the department. Following a brief outline of a course, by the instructor, time was allowed for students to ask any questions. Up to 40 per cent of the students attended.

Twenty-two seminars were conducted during the year by the Departmental Seminar Committee, Dr. A. V. Barker, chairman. Speakers included five graduate students and 10 off-campus persons.

DEPARTMENT OF PLANT PATHOLOGY: A weekly luncheon meeting for faculty and students within the department has led to discussion of curriculum and career plans and to field trips and social gatherings. Ten graduate students were taken to the Northeastern Division meetings at Boyce Thompson Institute for Plant Research.

DEPARTMENT OF VETERINARY AND ANIMAL SCIENCES: Faculty members have maintained and improved their rapport with students through continued student-faculty discussions both formal and informal. Students serve on the working committees of the department concerned with curricula and educational Policy, and add a new and important dimension to these discussions.

Several new programs involving modular credit, special problems and extra-curricular activities have resulted in faculty-student involvement that has lead to a feeling by students of being a part of our programs. The Bay State Livestock Classic was conducted this year by Janet Barge, Class of '72 and under her leadership was one of our outstanding events.

Mr. Bernard Hilton, farm superintendent, and members of our farm operations staff have spent many hours helping our majors gain valuable experience working with our animal populations and gaining an appreciation of the unique problems of animal behavior that each of these specie represent.

## VII HIGHLIGHTS - STOCKBRIDGE SCHOOL

### 1. ADMISSIONS

There is an interesting but disconcerting trend in applications. An increasing number of applicants are seeking transfer from other institutions for higher learning. This raises a number of questions. Should the Stockbridge School accept these transfers? How many should be accepted? How should they rate in priority compared to applicants from Massachusetts high schools? Approximately 6 percent of the Class of 1973 has educational backgrounds from other colleges.

### 2. TRANSFERS

The trend to transfer to the University of Massachusetts or other four-year institutions has increased since 1969. In 1969, less than 8 percent of the senior class were recommended for transfer by the Stockbridge Educational Policies Committee, whereas, in 1971, approximately 30 percent of the senior class were recommended.

There are many reasons for this such as: (a) the military situation; (b) society's high priority on advanced degrees and; (c) student desires for better positions and additional education.

### 3. SIGNIFICANT CHANGES

- a. The appointment of Gilbert E. Mottla as Associate Director hopefully will enable the Director to spend more time in educational planning and counselling.
- b. Increasing enrollment has resulted in attendant activity and problems connected with admissions, the maintenance of proper records, the individual scheduling of over 600 students, and the coordinate scheduling of 86 Stockbridge Courses with the more than 100 four-year courses now being taught.

## A. STOCKBRIDGE SCHOOL STUDENT MAJORS -- BY DEPARTMENT

<u>September, 1971</u>	<u>CLASS</u>		<u>TOTALS</u>	<u>DEPT.</u> <u>TOTALS</u>
	<u>1973</u>	<u>1972</u>		
<u>Agricultural &amp; Food Economics</u>				
Agric. Bus. Mgt.	9	7	16	
Food Dist.	2	10	12	28
<u>Animal Science</u>				
An. Sci.	39	29	68	
Lab. An. Tech.	12	20	32	100
<u>Environmental Sciences</u>				
Environmental Tech.	22	13	35	35
<u>Food Science &amp; Technology</u>				
Food Processing Tech.	6	6	12	12
<u>Landscape Architecture</u>				
Arbor. & Park Mgt.	55	41	98	
Land Opr.	28	19	49	143
<u>Plant &amp; Soil Science</u>				
Floriculture	25	13	38	
Fruit & Veg.	12	12	24	
Turf Mgt.	64	40	104	166
<u>Hotel, Restaurant &amp; Travel Administration</u>				
Hotel, Restaurant & Travel Adm.	61	54	115	115
<u>Forestry</u>				
Wood Utilization	will end May, 1972	12	12	12
CLASS TOTALS		335	276	615
TOTAL, ALL MAJORS		335	276	615
SPECIAL STUDENTS*			6	
GRAND TOTAL		335	276	621

\*Specials calculated on credit equivalent basis of 12 cr. = 1 student

B. Applications for Entrance - September 1971 (STOCKBRIDGE SCHOOL - Class of 1973)

<u>Major</u>	<u>No. Received</u>	<u>No. Accepted</u>	<u>No. Rejected</u>	<u>No. Cancellations</u>	<u>No. Enrolled</u>
Agricultural Business Management	21	14	7	5	9
Animal Science	136	62	74	23	39
Arbiculture and Park Management	184	70	114	15	55
Environmental Technology	77	30	47	8	22
Floriculture	44	32	12	7	25
Food Distribution	9	5	4	3	2
Food Processing Technology	12	8	4	2	6
Fruit and Vegetable Crops	21	14	7	2	12
Hotel and Restaurant Administration	170	86	84	25	61
Laboratory Animal Management	33	18	15	6	12
Landscape Operations	67	37	30	9	28
Turf Management	103	71	32	7	64
<u>TOTALS</u>	<u>877</u>	<u>447</u>	<u>430</u>	<u>112</u>	<u>335</u>

## C. STOCKBRIDGE SCHOOL ENROLLMENTS BY MAJOR (FALL) - 1964-1971

Major	1964	1965	1966	1967	1968	1969	1970	1971
Agricultural Business Management	-	-	5	16	21	21	20	16
Animal Science	73	69	67	111	101	89	70	68
Arboriculture and Park Management	100	100	100	99	112	116	94	98
Dairy Technology	26	21	16	21	14	9	-	-
Environmental Technology	-	-	-	-	-	-	23	35
Floriculture	33	34	33	43	39	34	32	39
Food Distribution	17	23	26	29	31	23	16	12
Food Distribution - 1 year	6	6	4	-	-	-	-	-
Food Processing Technology	-	-	-	-	-	-	7	12
Fruit and Vegetable Crops	11	15	18	15	16	15	18	24
Hotel, Restaurant and Travel Adm.	-	-	-	-	-	129	129	120
Laboratory Animal Management	-	-	6	*	15	15	24	32
Landscape Operations	44	48	48	51	48	51	52	49
Lumber and Building Materials	-	-	-	-	-	-	-	-
Business Management	-	-	-	7	11	13	4	-
Poultry Science	8	2	-	-	-	-	-	-
Turf Management	85	84	85	70	69	88	92	103
Wood Utilization	20	28	39	34	24	22	27	13
<b>TOTALS</b>	<b>486</b>	<b>500</b>	<b>532</b>	<b>586</b>	<b>601</b>	<b>625</b>	<b>608</b>	<b>621</b>

\*Included in Animal Science.

# VIII. FACULTY

## A. SUMMARY OF FACULTY PUBLICATIONS

<u>Department</u>	<u>Scientific and Technical Publications</u>	<u>Extension Publications</u>	<u>Books</u>	<u>Book Reviews</u>
Agricultural and Food Economics	16	12	-	-
Food and Agricultural Engineering	15	6	-	-
Cranberry Station	9	-	2	-
Entomology	10	19	1	-
Environmental Sciences	11	3	-	-
Food Science	36	3	-	1
Forestry and Wildlife Management	23	7	2	1
Hotel, Restaurant and Travel Administration	5	1	2	-
Landscape Architecture	11	-	-	2
Plant and Soil Sciences	32	33	-	-
Plant Pathology	15	18	-	-
Suburban Experiment Station	31	16	-	1
Veterinary and Animal Sciences	26	19	1	-
<u>TOTALS</u>	<u>240</u>	<u>137</u>	<u>8</u>	<u>5</u>

B. FACULTY AWARDS, CITATIONS AND PROFESSIONAL RECOGNITIONDepartment of Agricultural and Food Economics

Robert A. Fitzpatrick

Nominee for Distinguished Undergraduate Teacher Award of the American Agricultural Economics Association

John H. Foster

Recipient of Fulbright Award for 1972-73 to teach in India

Elmar Jarvesoo

Appointed resident faculty in the University of Massachusetts Freiburg Program in Freiburg, Germany for the fall semester 1972

"Progress Despite Collectivization--Observations of Soviet Estonian agriculture during 1945-1971", Paper presented at the Third Conference on Baltic Studies, University of Toronto, Canada, May 1972

"Economic Debilities of Small Countries--The case of Estonia", Ibid

Deane Lee

Appointed to succeed Archibald MacLeish as trustee of the Field Memorial Library, a private corporation established by Marshall Field, in Conway

Donald R. Marion

Invitational paper, "Operating A Business for Predominantly Limited-Resource People", National Conference on Cooperatives and Other Businesses Serving Limited-Resource People, New Orleans, February 1972

Department of Entomology

T. M. Peters

Invitational paper, at the National meeting of The Entomological Society of America, December, 1971, "Compensatory Response to Stress: Differential Reactions in Larval Aedes aegypti Populations to Overcrowding"

Department of Environmental Sciences

Robert W. Walker

Invitational paper, San Francisco Joint Japan/American Tuberculosis Research Conference

Robert A. Coler

Formation of an Environmental Technology Consortium, American Technical Education Association, April 1972

Warren Litsky

Invitational paper, 6th International Conference on Water Pollution Research, Jerusalem, Israel June 1972. Dr. Maria Pavlova, a co-author, presented



## Warren Litsky

- Invited to present an educational exhibit on skin degerming at the American Medical Association Meeting in San Francisco, June 1972
- Invited as a consultant to the 7th National Shellfish Sanitation Workshop, Food and Drug Administration, Washington, D. C. October 1971
- Appointed to Research Grant Study Section, U.S. Environmental Protection Agency, Washington, D. C.
- Appointed Special Consultant to Bureau of Hospital Facilities, Department of HEW, Washington, D. C.
- Invited to present paper on "Bacteriologic Studies of Surgical Hand Scrubbing Procedures at the 3rd Symposium on Control of Surgical Infections, American College of Surgeons, January 1972, Washington D. C.
- Invitational paper, "Solid Waste Disposal", Florida Academy of Sciences, Winter Park, April 1972

Department of Food and Agricultural Engineering

## C. S. Chen

- Awarded a scholarship to an NSF-sponsored summer course on Energy and Moisture Balance Climatology, University of Delaware, June 21-July 16, 1971.

## J. T. Clayton

- Awarded a Sigma Xi Travel Award to participate in the Sixth Congress of the International Society of Biometeorology to be held at Noordwijk, The Netherlands, September 3-9, 1972

## E. S. Pira

- Recognized for accomplishments in the Stockbridge School. The 1971-72 Stosag Yearbook was dedicated to him and he was awarded a plaque for his services as advisor to the Stosag staff

## ChoKyun Rha

- Invitational faculty lecture on "Synthetic and Simulated Foods" at the Medical School, Seoul National University, Seoul, Korea, May 1972. She was awarded a citation for her presentation

## L. F. Whitney

- Elected chairman of the North Atlantic Region, American Society of Agricultural Engineers, the largest regional component of the 7,000 member American Society of Agricultural Engineers.
- Invitational paper, (E. S. Pira, co-author) Symposium of International Experts on Irrigation, Tel Aviv, Israel, September 1971

Department of Food Science and Technology

## F. M. Clydesdale

- Invitational papers: "The Colorimetry of Translucent and Solid Food Materials", New York Section of Institute of Food Technologists, January, 1972
- "Instrumental Color Measurement", First Annual Food and Beverage Instrumentation Symposium, Montreal, Canada, June 1972, Sponsored by the Instrument Society of America

- F. M. Clydesdale  
 "Pigment Analysis in Meat by Reflectance Colorimetry", presented at the Meat Quality Research Conference, May 1972, Market Quality Research Division of the U.S. Dept. of Agriculture  
 "Color Measurement of Foods", U.S. Army Natick Labs.- Natick, December 1971
- F. J. Francis  
 "Color in Foods", Symposia at U.S. Army Natick Labs.  
 "Quality of Thermally Processed Foods, U.S.D.A. Northeast Collaborators Meeting, Philadelphia  
 "Color Measurement of Foods by Transmission", N.Y. Institute of Food Technologists
- D. J. Hankinson  
 Awarded 1971-72 Outstanding Professor Annual Award by the students of Stockbridge School of Agriculture
- K. M. Hayes  
 Visiting food scientist, Department of Food Science & Technology, University of Hawaii, July 1971  
 Invitational speaker, "Common Sense in Freezing and Refrigeration", Ninth Annual Conference, North Eastern Turkey Producers  
 Invited Speaker, "Quality Cider Production", 76th Annual Meeting of Vermont State Horticultural Society
- H. O. Hultin  
 Invitational paper, "Biochemical Control Systems in Food Tissues", Institute of Food Technologists
- R. E. Levin  
 Invited to participate in roundtable discussion of the bacterium Pseudomonas aeruginosa at the Annual Microbiology Meeting, April 1972
- W. W. Nawar  
 Selected as Institute of Food Technologists scientific lecturer for 1972-73  
 Invitational paper, "Flavor Research on Fats", American Oil Chemists Society Meeting, Atlantic City, October, 1971  
 Invited speaker, Nutmeg section, Institute of Food Technologists in Connecticut, March, 1972  
 Invited to present paper at symposium on "Flavors and Lipids", 11th World Congress of International Society for Fat Research in Goteborg, Sweden, June, 1972
- C. R. Stumbo  
 Invitational paper, "Modern Concepts of Sterilization", 70th meeting of American Institute of Chemical Engineers, September, 1971

Department of Forestry and Wildlife Management

- R. B. Hoadley  
 Invitational paper, "Moisture Cycling Performance of Elastomeric Adhesives in Wood Joints", Forest Products Research Society

- J. H. Noyes  
Invitational paper, "Silviculture and the Urban Environment", Society of American Foresters
- A. D. Rhodes  
Invitational paper, "Resource Use in an Urban State -- Changing Priorities", Society of American Foresters
- W. W. Rice  
Visiting Scientist at Pennsylvania State University, sponsored by the Society of Wood Science and Technology
- B. F. Wilson  
Invitational paper, "Modeling Developmental Processes in Trees", International Biological Program on Tree Growth
- Department of Hotel, Restaurant and Travel Administration
- Clifford J. Robertson  
Invitational speaker, "Altered Dairy Products", Mid Atlantic States Milk Conference  
Invitational speaker, "Food for the Cardiac Concerned", Food Update meeting  
Invitational speaker, "The Education of a Food Service Professional" and "Nutritional Fortification of Foods with Fats and/or Oils", Institute of Food Technologists
- Donald E. Lundberg  
Invited speaker, New England Innkeepers Association, Montpelier, Vermont
- Department of Landscape Operations and Regional Planning
- Richard Costley  
Elected Fellow, Society of American Foresters
- Julius Fabos  
Invitational paper, "An Analysis of Environmental Quality Ranking Systems", U. S. Forest Service
- Barrie Greenbie  
Invitational paper, "Sentic and Biocybernetics in the Search for an Optimum Human Habitat", American Association for the Advancement of Science
- Gordon King  
Represented College of Agriculture and Peace Corp's, Liberia, West Africa
- John Martin  
Invitational lectures: University of Waterloo, Ontario, Canada;  
University of Maryland  
Visiting critic, Hampton Institute
- Ervin H. Zube  
Invitational paper, "Visual Landscape Dimensions for Design and Planning Decisions", Resources for the Future-interdisciplinary workshop

Department of Plant and Soil Sciences

- A. V. Barker  
Visiting Scientist, American Society of Agronomy
- J. R. Havis  
Invitational paper, "Cold Hardiness of Woody Plants", Arnold Arboretum Centennial Program, Harvard University
- D. N. Maynard and A. V. Barker  
Invitational paper, "Nitrate Accumulation in Vegetables", American Society for Horticultural Science
- F. W. Southwick  
Appointed Member, Review Panel of the Programs of the Pomology Department, Cornell University (Ithaca and Geneva, New York), Cooperative State Research Service
- G. L. Stewart  
Invitational paper, "Behavior of Tritium in the Soil", Tritium Symposium
- J. Troll  
Re-appointed member of the United States Golf Association - Green Section
- J. M. Zak  
Invitational papers, "Crownvetch for Eroded Slopes Along Highways", Highway Research Board, National Research Council, National Academy of Sciences; National Academy of Engineers  
"Direct Seeding of Woody Plant Species under Woodchip Mulch Along Highways", Ibid

Suburban Experiment Station

- William A. Feder  
Co-Host, 4th Annual Air Pollution Workshop, Triangle Park, N. C., Environmental Protection Agency  
U. S. Associate Editor, International journal 'Environmental Pollution'
- Walton C. Galinat  
Reprinting of paper, 'The Evolution of Corn and Culture in North America' in a book 'Prehistoric Agriculture', The Natural History Press
- Adrian G. Gentile  
Invitational to participate in National Workshop on Pest Management  
Invitational "Insect Plant Resistance: a dynamic challenge", Eastern Branch of the Entomological Society of America

William J. Manning

Invitational paper, "Air Pollution/Plant Disease Interactions" American Phytopathological Society

John A. Naegele

Distinguished Service Certificate from Garden Club Federation of Massachusetts

Robert E. Young

Awarded Thomas Roland Gold Medal for skill in horticulture, presented by the Massachusetts Horticultural Society

Department of Plant Pathology

G. N. Agrios

Invited to join the New York Academy of Sciences

Invitational paper, "The Place of Nematology in the Teaching of Introductory Plant Pathology", American Phytopathological Society

F. W. Holmes

Elected corresponding member of the 'Royal Netherlands Botanical Society'

R. A. Rohde

Invited participant, U.S.D.A. symposium on "Mechanisms of Resistance in Plants"

Department of Veterinary and Animal Sciences

D. L. Black

Chairman, Physiology Section, Northeastern Division of Animal Science  
Session Chairman, Society for Study of Reproduction

A. Borton

Recipient, Faculty Growth Grant, University of Massachusetts

S. N. Gaunt

Invitational Paper, Conference of the Animal Production, Yugoslav Association of the Scientific Institutions in Animal Sciences, Bled, Yugoslavia

Invitational Paper, Cattle Breeding Program, Conference of the American Farm School, Thessaloniki, Greece

C. OFFICES AND COMMITTEE MEMBERSHIPS IN PROFESSIONAL SOCIETIESDepartment of Agricultural and Food Economics

Thomas M. Bell

Member, American Agricultural Economics Association  
 Member, American Economic Association  
 Member, Southern Economic Association  
 Member, Econometric Society  
 Member, American Statistical Association

Robert L. Christensen

President, Northeastern Agricultural Economics Council  
 Ex Officio Member, Executive Board of the American Agricultural Economics Association  
 Member, Outstanding Teaching Award Selection Committee of the American Agricultural Economic Association.

Bradford D. Crossmon

Secretary-Treasurer, ELFAC, Northeast States Cooperative Extension Services Electronic Accounting Firm

N. Eugene Engel

Secretary, New England Federal Milk Orders Committee  
 Executive Committee, Northeastern Agricultural Economics Council  
 Member, Northeast Rural Sociology Committee  
 Member, Northeast Public Policy Committee  
 Appointed to Task Force on Agriculture and Land Use by Secretary of Environmental Affairs Foster, Commonwealth of Massachusetts  
 Chairman, Marketing Subcommittee, Task Force on Agriculture and Land Use  
 Member, Task Force on Environmental Stresses on Agriculture  
 Invited participant, National Public Policy Conference sponsored by Farm Foundation

John H. Foster

Member, New England International Agriculture Committee  
 Member, Tri-University (University of Massachusetts, Connecticut and Ife, in Nigeria), Advisory Committee for AID supported Program Evaluation Project in Nigeria

Elmar Jarvesoo

Chairman, Marketing Committee, American Society for Horticultural Science

Donald R. Marion

Member, Northeast Regional Marketing Committee

David A. Storey

Member, Committee on Agricultural Marketing and Food Distribution Sessions, Northeastern Agricultural Economics Council

Herbert G. Spindler

Member, National Accounting Association  
Director, Educational Activities of Pioneer Valley Chapter of National Accounting

#### Cranberry Station

Bert M. Zuckerman

Chairman, Translation and Exchange Committee, American Society of Nematologists

#### Department of Entomology

W. B. Becker

Member, Northeast Forest Pest Council and Forest Insect Workshop

G. L. Jensen

Member, Committee on Insect Surveys and Losses Eastern Branch of Entomological Society of America

T. M. Peters

Member, Executive Committee and Chairman of Auditing Committee of Eastern Branch, Entomological Society of America

#### Department of Environmental Sciences

Robert W. Coler

Chairman, Water Resources Committee, Franklin County Resource Conservation and Development

Haim B. Gunner

Associate Editor, Canadian Journal of Microbiology

Robert W. Walker

Abstractor, Journal American Oil Chemist's Society

Warren Litsky

President, Connecticut Valley Branch of American Society for Microbiology  
Member, Governing Council, American Society for Microbiology  
Member of the Council, Laboratory Section, American Public Health Association

## Warren Litsky

- Chairman, Committee on Education, Society for Industrial Microbiology
- Member, Hospital Environmental Committee, American Association for Contamination Control
- Member, Sub-Committee on Standard Methods for the Analysis of Water and Waste Water, 14th ed.
- Member, of the Publication Committee, Food Protection Committee and the Committee on Microbial Contamination of Surfaces, American Public Health Association
- Member, Editorial Boards of: The Journal of Environmental Health, The Journal of Applied Microbiology, Journal of Health Laboratory Sciences

Department of Food and Agricultural Engineering

## C. S. Chen

- Member, Standards Committee, Food Engineering Division, American Society of Agriculture Engineers (ASAE)

## J. T. Clayton

- Vice Chairman, program chairman, chairman of subcommittees on Divisional Coordination and National/International Symposium Planning, Bioengineering Committee, ASAE
- Career Guidance Committee, ASAE, also permanent subcommittee on Women in Engineering
- Curriculum and Course Content Committee, ASAE
- Department Chairmen Committee, ASAE
- Executive Committee, Connecticut Valley Chapter, ASAE
- Executive Committee, New England Farm Electrification Institute

## S. W. Fletcher

- Chairman, Program Committee, Food Engineering Division, ASAE
- Secretary, Continuing Education Committee, ASAE
- Member, Education Committee, Food Engineering Division, ASAE
- Member, Executive Committee, Food Engineering Division, ASAE
- Member, Steering Committee, Food Engineering Division, ASAE
- Chairman-Elect, Food Engineering Division, ASAE
- Member, Meetings Committee, ASAE
- Member, Food Distribution Committee, Food Engineering Division, ASAE
- Member, Research Committee, N. E. Farm Electric Institute

## C. A. Johnson

- Chairman, Nominating Committee, Connecticut Valley Chapter, ASAE

## R. G. Light

- Secretary, Steering and Executive Committee, Structures and Environment Division, ASAE
- Member, Dairy Housing Committee, ASAE
- Member, Ad Hoc Building Code Committee, ASAE



- R. G. Light  
 Member, Environment of Plant Structures Committee, ASAE  
 Chairman, Proceedings Committee, National Dairy Housing Symposium, ASAE  
 Member, Water Treatment and Use Committee, ASAE
- E. S. Pira  
 Second Vice-Chairman, Connecticut Valley Chapter, ASAE
- C. K. Rha  
 Member, Career Guidance Committee, ASAE
- L. F. Whitney  
 Chairman, North Atlantic Region, ASAE  
 Executive Committee, North Atlantic Region, ASAE  
 Chairman-Elect, Power and Machinery Division, Professional Development Committee, ASAE  
 Chairman-Elect, Subsurface Irrigation Committee, Soil and Water Division, ASAE  
 Co-Chairman, Food Engineering Film Forum, Food Engineering Division, ASAE  
 Vice Chairman, Food Engineering Publications, Food Engineering Division, ASAE

Department of Food Science and Technology

- F. M. Clydesdale  
 Regional spokesman, Committee on Public Information and Delegate, Intersociety Color Council, National Institute of Food Technologists  
 Chairman, Educational Committee, Northeast Section, Institute of Food Technologists
- D. A. Evans  
 Chairman, Committee on Cleaning and Sanitizing, Northeast Area Dairy Practices Committee
- F. J. Francis  
 Chairman, Committee on Nominations and Elections; Member Committee on National Lectureships; Member Editorial Board; Member Program Committee; Delegate to Intersociety Color Council; National Councilor; Program Chairman for Sections East II; Institute of Food Technologists.
- D. H. Hankinson  
 Editorial Board, Journal of Dairy Science
- K. H. Hayes  
 Chairman, Scientific Development, Research and Development Associates, U. S. Army Natick Labs.  
 Chairman, Board of Massachusetts Board of Registration of Sanitarians  
 Chairman, Examination Committee Council of State Sanitarian Agencies

- K. M. Hayes  
Member, IFT Industrial Achievement Jury, Institute of Food Technologists
- H. O. Hultin  
Member, Editorial Board; Vice Chairman, Program Committee; Elected Chairman, Program Committee 1972-73; Institute of Food Technologists
- W. W. Nawar  
Member, Committee on Communications and Awards Administrative Committee, American Oil Chemists Society
- F. W. Sawyer  
Member, Executive Committee on Sensory Evaluation, Institute of Food Technologists

Department of Forestry and Wildlife Management

- C. F. Cole  
Member, Committee on Student Affairs, American Fisheries Society
- R. B. Hoadley  
Treasurer, Northeast Section, Forest Products Research Society  
Member, Technical Personnel Training Committee, Northeast Section, Forest Products Research Society  
Member, Thesis Abstract Committee, Society of Wood Science and Technology
- J. E. Johnson  
Joint editor, Newsletter, Northeastern Division, American Fisheries Society
- J. S. Larson  
Chairman, Professional Education Committee, Wildlife Society
- D. L. Mader  
Member, Forest Fertilization Committee, Northeastern Forest Soils Conference
- J. C. Mawson  
Chairman, Yankee Chapter, New England Section, Society of American Foresters
- J. A. McCann  
President-Elect, Northeastern Section, American Fisheries Society
- J. H. Noyes  
Member, National Convention Program Committee; member, Committee on Long Range Planning; member, Committee for the Gifford Pinchot Building, Society of American Foresters

R. J. Reed

Editor, Newsletter, Northeastern Division, American Fisheries Society; secretary-treasurer and chairman, Nomination Committee, Southern New England Chapter, American Fisheries Society

W. W. Rice

Chairman, News-Digest Committee, Processes Division, Forest Products Research Society

Department of Hotel, Restaurant and Travel Administration

Charles E. Eshbach

President, Western Massachusetts Branch, Food Service Executives Association  
 Editor of the Proceedings, Society for the Advancement of Food Service Research  
 Chairman, Public relations Committee, Society for the Advancement of Food Service Research  
 Member, Annual Seminar Committee, Massachusetts Food Service Educational Council

Clifford J. Robertson

Vice-chairman Board of Governors, Food Update, Educational arm of the Food and Drug Law Institute  
 Chairman, Industry Action Committee, American Health Foundation  
 Chairman, International Food Technologists Council in Regional Sections and affiliate organizations

Donald E. Lundberg

Chairman, Nominating Committee, Council on Hotel, Restaurant and Institutional Education

Department of Landscape Architecture and Regional Planning

Richard Costley

Chairman, Division of Forest Recreation, Society of American Foresters  
 Member, Committee on Park Practices, National Council on State Parks

Nicholas Dines

Member, Task Force on Landscape Technology, American Association of Landscape Architects

Robert Kent

Vice President Connecticut Chapter American Association of Landscape Architects

Gordon King

Chairman, Safety Committee, American Institute National Standards and U. S. Department of Labor

Gordon King

Member, Educational Committee, Massachusetts Tree Wardens  
and Foresters Association

Andrew Scheffey

Member, Board of Trustees, National Parks and Conservation  
Association

Member, Advisory Council in Future Trends, National Chamber  
of Commerce

Member, Task Force on National Parks for the Future, National  
Park Service, USDI

Harry Schwarz

Chairman, Water Resources Systems Research Committee, Hydrology  
Section, American Geophysical Union Member

Member, Executive Committee, Hydrology Section, American  
Geophysical Union

Member, Work Group for Water Resources Systems, International  
Association for Scientific Hydrology

Ervin H. Zube

Member, Council in Education, and chairman, Educational Policy  
and Planning Committee, American Association of Landscape  
Architects

Member, I.C.E.D. Task Force in Education

Director, Hubbard Educational Trust

Department of Plant and Soil Sciences

W. G. Colby

Member, Nominating Committee, Northeast Branch of the  
American Society of Agronomy

M. Drake

Consulting Editor, Soil Science

Elected representative, Northeast Region to the American  
Society of Agronomy Board

Chairman, Hokkaido International School of Sapporo, Japan  
Corporation

D. W. Greene

Member, Growth Regulators Nomenclature Committee, American  
Society for Horticultural Science

J. R. Havis

President, Northeast Region, American Society for Horticultural  
Science

D. N. Maynard

American Society for Horticultural Science: Chairman, Science  
Funding Policy Committee; Member, Mineral Nutrition  
Committee; Review Editor, Journal of the American Society  
for Horticultural Science; Program Chairman, Northeast  
Regional Meetings, 1972; Secretary, Northeast Region.

- C. L. Thomson  
Project Chairman, Research Coordinating Committee, Northeastern  
Weed Science Society
- M. E. Weeks  
Chairman, Activities Committee, Northeast Branch Meetings, Amer-  
ican Society of Agronomy  
Member, Program Committee, Northeast Branch Meetings, American  
Society of Agronomy  
Member, Soil Test Committee, Northeast Branch, American Society  
of Agronomy
- J. M. Zak  
Member, Cape Cod National Seashore Scientific Advisory Committee

Department of Plant Pathology

- G. N. Agrios  
Member, Teaching Committee, American Phytopathological Society
- C. J. Gilgut  
Councilor, American Phytopathological Society
- F. W. Holmes  
Member, Archives Committee, American Phytopathological Society
- M. A. McKenzie  
Member, Northeastern Forest Pest Council  
Secretary, Committee 26th Annual Conference on Dutch Elm  
Disease, Massachusetts Forest and Park Association  
Advisory Council TREES "The Journal of American Arboriculture"  
Consultant, Executive Committee, Massachusetts Tree Wardens  
and Foresters Association  
Advisory Membership, Massachusetts Council for Trees and Horti-  
culture  
Honorary member, International Shade Tree Conference
- R. A. Rohde  
President, Northeastern Division, American Phytopathological  
Society  
Member, Honors and Awards Committee, Society of Nematologists  
Associate Editor, Journal of Nematology

Regulatory Services

(Feed, Fertilizer, Seed Laboratories and Dairy Law Control)

- Carl Eiben  
Member, Referee and Bluegrass Blowing Committees, Association  
of Official Seed Analysts
- Waldo Lincoln  
Member, Referee Committee, Association of Official Seed Analysts

Ralph Morgan

Representative, Collaborative Test Programs, Association of Official Analytical Chemists, Association of Feed Control Officials and Association of Plant Food Control Officials  
Member, Laboratory Methods and Analytical Services and Tolerances Committees, Association of Feed Control Officials  
Laboratory representative, Food and Drug Administration

William M. Rice

Secretary-treasurer, and member of Rules and Budget Committees, Association of Official Seed Analysts  
Chairman, Noxious Weed Seed, and Member, Administrative Committees, American Association of Seed Control Officials

John Stewart

Member, American Association of Feed Microscopists

#### Suburban Experiment Station

George P. Faddoul

Member, Educational Committee, Massachusetts Veterinary Association  
Member, Committee on Communicable Diseases, Division of Animal Health

William A. Feder

Member, Agricultural Effects Committee, Air Pollution Control Association

Gordon W. Fellows

Member, Nominating Committee, Epidemiology Section, Massachusetts Public Health Association

Walton C. Galinat

Secretary, Society for Economic Botany  
Editorial Board, Society for Economic Botany

William J. Manning

Member, Soil Microbiology Subject Matter Subcommittee, American Phytopathological Society

William D. McEnroe

Secretary, New England Society of Population Biologists

John A. Naegele

Member, Task Force Environmental Quality, Executive Offices for Environmental Affairs

#### Department of Veterinary and Animal Sciences

D. L. Black

President, University of Massachusetts Chapter, Society of Sigma Xi

- A. Borton  
Chairman, Horse Committee, American Society of Animal Science
- R. A. Damon  
Representative, American Society of Animal Sciences, Biological  
Science Information Storage and Retrieval  
Representative, American Society of Animal Science Task Force  
on Communications and Information Services in Biology,  
American Institute of Biological Sciences
- H. Fenner  
Member, Program Committee, North Atlantic Region, American  
Society of Animal Science
- S. N. Gaunt  
Chairman, Milk Composition and Payment Committee, American  
Dairy Science Association  
Secretary, Northeast Section, American Dairy Science Asso-  
ciation
- W. K. Harris  
Chairman, Library Committee, Massachusetts Veterinary Association
- Linda Jaskiel  
Steward and Member of Governing Board, Intercollegiate Horse  
Shows Association
- S. J. Lyford  
Chairman, Northeast Milk Testing Conference  
Chairman, Resolutions Committee, Northeast Section, American  
Dairy Science Association  
Chairman, Resolution Committee, American Society of Animal  
Science
- M. Sevoian  
Associate Editor, American Journal of Veterinary Research
- R. E. Smith  
Committee on Leptospirosis, United States Animal Health Asso-  
ciation  
Member, Committee on Fetoplacental Diseases, American Associa-  
tion of Laboratory Diagnosticians  
Delegate to Executive Board, American Association of Veterinary  
Laboratory Diagnosticians  
Chairman, Committee on Prophylaxis and Therapeutics, Leptospirosis  
Research Conference  
Member, Conference of Research Workers in Animal Disease
- C. Smyser  
Member, Salmonella Testing Committee, Northeastern Conference  
on Avian Diseases
- G. H. Snoeyenbos  
Vice President, and member, Board of Directors, American Asso-  
ciation of Avian Pathologists

G. H. Snoeyenbos

Ex officio (15 committees) American Association of Avian  
Pathologists

Editorial Board, Avian Diseases

Secretary and member Antigen Committee, Northeast Conference  
on Avian Diseases

Member, Salmonella Committee, American Association of Veter-  
inary Laboratory Diagnosticians

State Delegate, American Association of Veterinary Laboratory  
Diagnosticians

O. Weinack

Chairman, Mycoplasma Committee, Northeastern Conference on  
Avian Diseases



#### D. PUBLIC SERVICE ACTIVITIES

Robert L. Christensen is serving as chairman of the Town of Sunderland Zoning Board of Appeals.

Karl H. Deubert is a member of or cooperator with the following municipal and governmental agencies or departments: Cape Cod Planning and Economic Development Commission; Otis Air Force Civil Engineering Department; Water and Sewage Commissions of the towns of Wareham, Orleans, Chatham.

W. M. Hunting serves as chairman for the Greenfield Community College Advisory Board, New Salem Board of Education, School Union #28 comprised of five towns and is a cooperator with the Greenfield Community College Foundation.

R. S. Bond is secretary of the Agriculture and Land Resources Task Force, Massachusetts Executive Office of Environmental Affairs; and chairman of the Amherst School Committee and Elementary School Building Committee.

C. F. Cole is a member, Administrative Technical Committee for Plymouth Nuclear Power Plant Stations Investigation.

W. E. Dodge serves on the Amherst Conservation Commission.

H. B. Gatstick is chairman, Forestry Advisory Committee, Berkshire-Franklin Resource Conservation and Development project and serves on the Organizational and Steering Committee, New England Forest Land Use Symposium.

F. Greeley is a member of Advisory Committee, Berkshire-Franklin Resource Conservation and Development Project; and chairman, Leverett Conservation Commission.

R. B. Hoadley is a member of the Leverett Conservation Commission.

J. E. Johnson is a member of the Pelham Conservation Commission.

J. S. Larson is chairman of Pelham Conservation Commission and member of the Pelham Planning Board, Committee to Review Environmental Impact Statements; Lower Pioneer Valley Planning Commission; and Massachusetts Wetlands Advisory Committee

D. L. Mader is a member, Amherst Landlord-Tenant Relations Committee.

W. S. McNamara is secretary of New England Kiln Drying Association, and President, Amherst Jaycees.

John H. Noyes is vice-chairman, Subcommittee, Agriculture and Land Resource Task Force, Massachusetts Executive Office of Environmental Affairs; member, Massachusetts Tree Farm Committee; Massachusetts Forest Industries Committee; Massachusetts Committee on Soil, Water and Related Resources; Massachusetts Rural Development Committee; Advisory Committee, Berkshire-Franklin Resource Conservation and Development project.

A. D. Rhodes is chairman, Amherst Planning Board; and a member, Amherst Select Committee on Goals; and Massachusetts Natural Resources Board.

W. W. Rice is Executive Secretary, New England Kiln Drying Association.

W. G. Sheldon serves on the Amherst Conservation Committee.

Theodore Bacon is a member of the: Amherst Planning Board, Chairman of the Lower Pioneer Valley Regional Planning Committee, and a member of Special Legislative Committee on Connecticut River, Task Force on Recreation and Open Space, Office of the Secretary of Environmental Affairs and Director, Connecticut River Watershed Council.

Hugh Davis is Undersecretary of Environmental Affairs.

Tom S. Hamilton is chairman, Pelham Planning Board.

John Martin is a member, Amherst Planning Board.

Harold Mosher is chairman, Shutesbury Planning Board.

Andrew Scheffey is a member, Advisory Board, Massachusetts Comprehensive Health Planning program; and Chairman, Task Force on Open Space and Recreation Office of the Secretary of Environmental Affairs, and Governor's Advisory Council on Open Space and Outdoor Recreation.

J. F. Anderson is editor, Annual Proceedings of the Massachusetts Fruit Growers' Assoc., Inc.; and Assisted in the preparation and conduct of a horticultural judging contest for the State FFA program.

A. V. Barker provides bulletins, course outlines and other information to members of the public who requested information on organic gardening.

A. W. Boicourt is involved in arranging tours for 11 elementary school classes through French Hall and Durfee Greenhouses.

W. J. Bramlage was at the Central American Research Institute for Industry, Guatemala City, Guatemala, to participate in the Multinational Project on Food Technology of the Organization of American States; and served as judge of the Science Fair at the 1972 State Future Farmers of America Convention.

W. G. Colby served as chairman of the Committee to Select the 1971 Massachusetts Dairyman of the Year and was a member of the Committee in charge of the New England Green Pastures Recognition Program held as part of the Governors' Day Program at the Eastern States Exposition.

W. J. Lord is chairman, Massachusetts Fruit Growers' Association, Inc.

W. A. Rosenau is representative to Massachusetts Flower Growers' Research Committee. Addressed a group at the Suburban Experiment Station concerning "Careers in Horticulture."

F. W. Southwick is secretary-treasurer, Massachusetts Fruit Growers' Association, Inc.

J. T. Troll provides public consultation services to athletic fields, golf courses, country clubs and cemetery maintenance.

M. E. Weeks is a member of the New England Green Pastures Committee and the Massachusetts Dairyman of the Year Selection Committee.

J. M. Zak is agronomic advisor to the Charlton Masonic Home, Charlton.

Adrian G. Gentile reviewed entomological research with visiting students from Boston University and Wellesley College, spoke on pesticides to various high school Biology Clubs, and conducted an entomology workshop for Essex Agricultural and Technical Institute in cooperation with other staff members.

E. COOPERATIVE PROGRAMS WITH OTHER SCHOOLS AND COLLEGES WITHIN AND WITHOUT THE UNIVERSITY

Department of Agricultural and Food Economics

Robert L. Christensen

With Pinchot Institute for Environmental Forestry -- Series of research planning seminars

Cranberry Station

Bert M. Zuckerman

With Boston Biomedical Research Institute -- research program on "Physiological Fine Structure Changes Associated With Aging, Using Free-Living Nematodes As A Model"

Department of Entomology

W. B. Becker

With N. E. Forest Experiment Station, For. Serv. -- joint research on the effects of Bacillus thuringiensis on Gypsy Moth

With Mass. Dept. of Nat. Resources -- joint research on the effects of Bacillus thuringiensis on certain forest and shade tree insects

Department of Environmental Sciences

Robert A. Coler

With Tunghai University, International Center -- an international exchange program in which the Department will structure a leadership training experience (environmental) for Dr. Wesley Sun, Professor of Entomology and Director of Tunghai's Life Science Center

Warren Litsky

With School of Education, Department of Public Health and Environmental Protection Group of Hampshire College; teaching and advising students, program assistance

Technical Guidance Center

This Extension Service program serves as information source for University faculty, staff and students in the following schools, centers and departments: Institute for Man and His Environment, Water Resource Center, Daily Collegian, Coalition for Environmental Quality, Commonwealth Technical Resource Service, School of Business, School of Engineering, and departments of Political Science, Economics, Physics, German Language and Literature, Zoology, Public Health

Department of Food and Agricultural Engineering

Departmental

With departments of Chemical Engineering, and Food Science and Technology, joint Seminar on Problem-Focused Research of the National Science Foundation: Research Applied to National Needs

- C. A. Johnson  
With Orchard Hill Residential College Spring Colloquium
- E. A. Johnson and L. F. Whitney  
With Orchard Hill Residential College, organization and Teaching  
of courses
- R. G. Light  
With Cooperative Extension Services of the New England States, coordin-  
ator of Extension Programs in Dairy Manure and Milking Center Waste

Department of Food Science and Technology

- D. A. Evans  
With state extension personnel throughout northeast region, promoting  
activity of Northeast Dairy Practices Committee
- F. J. Francis  
With University of West Indies, Trinidad outside examiner for three  
courses
- H. O. Hultin  
With Chemical Engineering Department, research project on a multi-  
enzyme immobilized system  
With Department of Biochemistry, study on control of lactate dehy-  
drogenase by subcellular localization
- R. E. Levin  
With Texas Medical Center, Houston, cooperative viral therapy and  
research program for patients with cystic fibrosis

Department of Forestry and Wildlife Management

- C. F. Cole  
With the University's interdisciplinary program in Marine Sciences,  
as vice-chairman and major participant
- Joseph C. Mawson  
With School of Business Administration, in developing a modified course  
combining forestry and business which allows students to receive a  
B. S. in forestry and a M. B. A. at the end of the fifth year
- Wood Technology Section  
With School of Engineering and Department of Chemistry, teaching  
service-course Seminar
- Departmental  
With the Massachusetts Cooperative Wildlife Research Unit, the Massa-  
chusetts Cooperative Fishery Unit, the Forest Service Research Unit,  
and Consortium for Environmental Forestry Research

Department of Landscape Architecture and Regional Planning

Departmental

With Hampton Institute, Hampton, Va., exchange program with first year graduate design studio students with fifth year architecture students of Hampton

Andrew Scheffey

With Institute for Man and His Environment, developing interdepartmental course in environmental policy and planning

Department of Plant and Soil Sciences

J. F. Anderson

With the U.S. Department of Agriculture and several state Experiment Stations, in the evaluation of small fruit varieties and selections  
With Register of New England Fruit and Nut Varieties, as Massachusetts representative

W. G. Colby

With Narrowwotch Chapter of Massachusetts Archeological Society and Department of Anthropology, as soils consultant carrying on archeological excavations on Connecticut River by Turners Falls

P. H. Jennings and H. V. Marsh

With the Botany Department, in teaching course in Plant Metabolism

W. J. Lord

Prepared two weed control charts in cooperation with other Extension Specialists in New England  
With New England Fruit Meetings and Trade Show, as program chairman

H. V. Marsh

With Biochemistry Department, on the effects of sterols on flowering of plants  
With Biochemistry Department, Connecticut Agricultural Experiment Station, Biological Sciences, Smith College, on the control of phenylalanine ammonia-lyase activity

G. L. Stewart

With Department of Civil Engineering, on joint preparation of research papers

M. E. Weeks

With agronomists in the 12 Northeastern States to establish more uniform soil testing procedures and recommendations

Department of Plant Pathology

G. N. Agrios

With Chemistry Department, in the use of ion exchange microelectrodes in the study of systemic plant virus infections

F. W. Holmes

With Cornell University, on elms resistant to Dutch Elm Disease  
With English Forestry Commission and Forestry Experiment Station of the Netherlands on aggressive strains of the Dutch Elm Disease fungus

Suburban Experiment Station

Lyle E. Craker

- With Radiation Biology Laboratory, Smithsonian Institute, research on light action spectrum for ethylene action in plants
- With Air Pollution Laboratories, USDA, study on ethylene as an air pollutant
- With Loma Linda University, Loma Linda, California, research on Role of Zn <sup>2+</sup> In ethylene action in plants
- With Department of Biology, Wellesley College, research on ethylene action in anthocyanin synthesis of flower petals

William A. Feder

- With University of Massachusetts, Boston, on air pollution effects on pollen germination
- With area high schools, on setting up ecologically-oriented programs for students and acting as resource for information

Walton C. Galinat

- With Biology Department, University of Massachusetts, State University College, Oswego, N. Y., Bussey Institution of Harvard University and Chicago Horticultural Society, on corn (maize) research

Adrian G. Gentile

- With Massachusetts Institute of Technology, study on the evaluation of the effect of artificial obstacles on the natural distribution of aphids
- With Universidad Nacional Agraria, La Molina, Lima, Peru, on a taxonomic study of the thrips of South America

Department of Veterinary and Animal Sciences

Laboratory for Reproductive Physiology

(D. L. Black, G. Howe and R. Duby)

- With the following schools, departments or offices, in joint research or other programs: Departments of Zoology and Biochemistry, Cornell University, Yale University, USDA Fur Animal Experiment Station (Cornell, Worcester Foundation for Experimental Biology)

A. Borton

- With University Supervising Committee, in developing Bachelor's Degree with Individual Concentration

H. Fenner

- With the U. S. Regional Pasture Research Laboratory, in research

M. Sevoian

- With Department of Microbiology, on Tumor virus project

C. Smyser

- With World Health Organization, in the assay of proposed international standards for anti-Salmonella pullorum sera

- J. R. Smyth, Jr.  
With Massachusetts Department of Fish and Game, on pheasant genetics
- O. Weinack  
With University of Connecticut, on Mycoplasma research
- B. E. Colby  
With the New England states, in conducting a Winter Beef Cattle Educational Program, and youth and 4-H programs related to the beef and sheep industries
- S. N. Gaunt  
With Northeast Artificial Breeding Cooperatives, in dairy cattle breeding program  
Member, Dairy Breeding Program, Northeast Artificial Breeding Cooperatives. Cooperation with Faculty of the University of Ljubljana, Yugoslavia and the American Farm School, Thessolinki, Greece
- S. J. Lyford  
With New England State universities, to establish Dairy Testing, Inc., a non-profit milk testing organization to serve New England
- R. M. Grover  
With New England, New Jersey and New York extension personnel, to conduct egg marketing field studies



## IX HIGHLIGHTS - COOPERATIVE EXTENSION SERVICE

### A. 4-H AND YOUTH PROGRAMS

Massachusetts 4-H Center - The first building will be completed and ready for use by October 1972. The \$1,500,000, year-round facility funded from private sources will add a new dimension to the 4-H and Youth Programs within the Commonwealth. It will also be used as a conference facility for many other Extension Programs.

International - Anne Marie Chapdelaine of Hampden County was an International Farm Youth Exchangee (IFYE) delegate to France during the summer of 1971. Maryellen Maloney also of Hampden County was the IFYE delegate to Venezuela the summer of 1972.

A group of 90 young farmers from Kent, England, visited Middlesex County in mid-April of 1972.

Citizenship Awards - Six Massachusetts 4-H Clubs were selected to receive 1972 4-H Citizenship In Action Grants to launch Community Service projects in their local areas.

The grants were made available by the Reader's Digest Foundation through the National 4-H Foundation, and are used for citizenship projects ranging from the restoration of nature trails to the involvement of youth in community relations.

In Worcester County, the 4-H Paxton Community Group received \$150 for its Paxton Beautification in Action project. The Lunenburg 4-H Town Committee, also in Worcester County, received \$100 for its project to develop Clark's Hill Reservation.

The Middlefield 4-H Citizenship Club of Chester and the Sappy Sumacs Conservation Club of Southampton, both in Hampshire County, received \$150 and \$50 grants, respectively. The Middlefield club was awarded the grant for its Maplecroft 4-H Program to involve boys in the community. The Sappy Sumacs Club received the grant for its project to improve the Manhan Meadows Sanctuary and Parsons Memorial Forest.

Two 4-H clubs in Springfield (Hampden County) also received grants. The Crusaders Club received \$150 for its work with the Hampden County Environmental Action Group to restore trails throughout the area. The Young Investigators Club received \$60 for its youth in action project to help youth and their community relationships.

Suffolk County - During the summer of 1971 the State 4-H staff and the Suffolk County Extension staff trained 150 Boston-Neighborhood Youth Corps (N.Y.C.) teenage boys and girls to do community service work. Some of the training was done by students of Landscape Architecture, University of Massachusetts, Amherst. After 90 hours of training in landscaping, woodworking, clothing construction, and arts and crafts, the N.Y.C. members were assigned as teenage leaders in a number of community settlement houses where they taught the skills they had acquired to 7-13 year old youngsters.

Hampden County - During 1971 the State 4-H staff and Hampden County 4-H staff initiated meetings with Spanish-American community leaders at the Spanish-Apostolate, Springfield. As a result of these meetings 4-H programs were initiated at the Spanish-Apostolate for girls in the community. Nuns from the Sacred Heart School cooperated in training Spanish-American volunteer leaders.

The Spanish-American community of Springfield has given the 4-H Program its full support. Recently 12 new adult leaders have been trained in 4-H projects. Each new club formed averages about eight girls per club, making a total of about 100 youth at this location.

Expanded Food and Nutrition Program - Funds for youth component of the Nutrition Education Program were appropriated in December 1969. Seven 4-H units were established in 1970, following by three more in the Spring of 1971.

Ninety-nine paraprofessionals have been trained for work with youth. Sixty-three are presently at work.

The youth worked with range in age from 7-17. Through their experiences in the program, they learn basic information about nutrition and its relation to good health and appearance. In the two years the program has been operating 16,764 youth have been reached with nutrition information. Also, 356 volunteer leaders have been associated with the program in service and/or teaching roles.

The 4-H staff designed and placed into operation a mobile unit to serve as a classroom for teaching food and nutrition to inner city youth. The response to this innovation has been exceptional. After five months in low-income areas of Worcester County, the unit reached 2,300 people with a series of nutrition lessons.

The unit is now being used countywide throughout the state.

Approximately 68,000 young people are participating in the 4-H and Youth programs which include the TV photographic series, Expanded Food and Nutrition Program and the regular on-going projects.

## B. HOME ECONOMICS

Expanded Food and Nutrition Program - This program will complete its fourth year of operation January 1, 1972. Funds are provided by the United States Department of Agriculture. The Cooperative Extension Service in each state has been delegated the leadership. Educational efforts are directed to both adults and youth.

Fifteen professional home economists have been hired to provide leadership and training in the cities where nutrition units have been established. Approximately 275 part-time program assistants have been recruited, trained, and hired to work with low income families and youth. The majority of the program assistants are low income homemakers. The program is being conducted in 24 cities and towns throughout the state. The objective is to help low income homemakers and youth plan, buy, and use food more effectively. An estimated 25,000 low income people are participating in the program.

Consumer Education - Nearly half of the Extension programs which originate in the counties are in the area of consumer education, which comprises 10% of the state initiated programs.

Worcester County - has over a period of years held a yearly all-county workshop on topics of consumer education. This is attended by lay and professional persons. In the Fall of 1971 a consumer program on clothing titled, "Clothing Caravan," was held in 14 locations of the state. Topics were the same at each and county home economists gave the instruction. The planning was coordinated by State Specialist Virginia Davis, plus the development of the teaching materials. Plans are now to

again cover the state with a second Caravan in the Fall of 1972.

Topics will include the family clothing dollar and discussions related to clothing selection and construction.

Berkshire County started a weekly column, "Defending Your Dollar" in late 1971. Also, a call-in radio program, each done by Stefan Grotz. The response to both has been beyond expectations. Several of the recent columns on "No Fault Insurance" drew telephone calls and letters. Remarks were that the explanations in the column made the rather complex topic the plainest of anything the party had read. The paper, The Berkshire Eagle, is exceedingly pleased with the contribution.

Regionalization - Nearly 10 years ago the four western counties began to work across county lines in assisting each other in certain programs. The enthusiasm for this method has increased. With the permission of the County Trustees and the County Advisory Councils to the Home Economics Program this past program year, there has been one program in the four counties. Also, a common monthly letter on educational material is being sent to the cooperating families in the four counties.

In the Southeastern counties, regional plans are in developmental stage.

### C. COMMUNITY RESOURCE DEVELOPMENT

During the past five years a new program was initiated and has been designated as Community Resource Development. It is beamed to the needs of such clientele groups as planning and zoning boards, conservation commissions, local decision makers and those concerned with environmental problems. Examples of significant accomplishments include the following:

Seminars and Workshops on the Impact of Pollutants on Community Development have been held throughout the state. Two of the most recent were in Foxboro on April 5, 1972, which was entitled "Solid Waste Disposal-Impact from Pollutants on Sanitary Land Fills." Over 300 people participated. A second workshop on environmental quality designed for science instructors was held April 12, 1972 in Lenox, Massachusetts and was well attended by science instructors.

Governor's Conference on Housing and Environment was held April 18, 1972. The planning of this highly successful event was done largely by Cooperative Extension staff in the counties and at the University. Again, attendance exceeded all expectations with over 600 participants.

An environmental planning workshop was held June 4 and 5, 1971 in Duxbury. It was designed to promote an understanding of public agency problems in environmental planning and management. About 130 people registered for the 2-day workshop.

William Erwin, Deputy Under Secretary for Rural Development, U.S.D.A. visited the University of Massachusetts June 23, 1972 and met with members of the State Rural Development Committee. Secretary Erwin pointed out that "the four basic goals of the Department's Rural Development efforts are: people building, community facilities, environmental improvement and economic development". He was shown some of the state's resources in a flight over Western Massachusetts. The committee session was held at the University of Massachusetts, Amherst. After briefings from representatives of the various agencies the Secretary was transported to LaFleur Airport and toured the area in a low-altitude flight over western Massachusetts to observe projects associated with rural development.

The Technical Guidance Center was merged with the Cooperative Extension Service on July 1, 1971. The Center included a staff of four technical people and a fine library. The merger has greatly strengthened our Community Resource Development programs. The monthly publication entitled TGC Bulletin is sponsored by the Cooperative Extension Service and is mailed to approximately 3500 subscribers in support of the above program.

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An estimated 4,500 people are participating in the foregoing Community Resource Development programs.

#### D. AGRICULTURE

Tree Fruit - A two-day New England Fruit and Trade Show was held in January 1972. Topics were presented by a number of professionals and specialists from the Land-Grant Universities throughout new England and elsewhere in the United States and Canada. Subjects discussed were new approaches to insect disease control, the use of growth regulators, labor saving orchard equipment, nutrition problems, size controlling root stocks, and changes in fruit marketing methods. An estimated 500 people attended.

Flowers - The Butterfield Florists' Field Day was held in July 1971. It was sponsored by the Massachusetts Flower Growers Association and the Massachusetts Cooperative Extension Service. The latest information of cultural practices, pesticides and equipment was discussed by specialists in their respective fields. Over 300 growers attended.

The Winter Growers' Conference in January 1972 was co-sponsored by the above organizations. The program featured presentations on marketing, laws pertaining to Occupational Safety & Health Act, plus current information on cultural practices. The Conference was attended by over 250 growers.

Dairy - An educational tour to Florida was sponsored by the Cooperative Extension Service in March 1972. A total of 135 dairymen participated with the great majority coming from Massachusetts but also included representatives from other New England states. The group had an opportunity to observe the latest in milking parlors and systems, solid waste disposal facilities, dairy housing facilities for herds ranging up to as many as 6000 cows.

The Massachusetts Dairy Seminar was held in February 1972. The latest in dairy techniques was featured at the 2-day conference which was attended by over 300 dairymen.

Solid waste disposal is a major problem and is receiving a great deal of attention in both the dairy and poultry commodity programs. Considerable adaptive and applied research is being conducted by the University. Results of these studies are being made available to dairymen and poultrymen.

Turf - A Turf Conference was held in March 1972. It featured information on pesticides, fertilizers, personnel management and cultural practices pertaining to turf maintenance. Approximately 800 people attended the 3-day conference.



## X HIGHLIGHTS - RESEARCH

### Air-Pollution Damage to Plants

At the Suburban Experiment Station in Waltham, an interdisciplinary team of scientists has developed a unique research facility for studying chronic effects of low levels of air pollutants on vegetable and floricultural plants and on trees and shrubs. Deleterious effects of air pollutants such as ozone and sulfur dioxide have been demonstrated for many species of both commercial and aesthetic value, as increasing levels of air pollution in and near urbanized areas become ever more damaging to plant life.

For the past several years, much of the research effort has been devoted to (1) monitoring for ambient levels of air pollutants and relating these to effects on field and greenhouse plants in the area, and (2) studying plant physiology and pathology under controlled exposures to pollutants, especially ozone. These phases of the work (done through an Experiment Station project which is one of several contributing to a Northeast regional project on air pollution) have yielded much new basic information on the nature of pollution damage and on natural variation in susceptibility among species and varieties--and, in addition, have brought forth valuable new research techniques for studying a problem unknown to earlier generations of scientists.

During the past two years, the Waltham group has expanded its research to include (1) effects of environmental stresses on plant susceptibility to air-pollution damage, (2) effects of air pollutants on plant susceptibility to pathogenic microorganisms, and (3) a survey of air-pollution damage to vegetation in New England. These efforts are supported by federal Experiment Station funds and by the U.S. Environmental Protection Agency (two contracts and one grant).

Levels of ozone and other oxidant pollutants are steadily increasing along the eastern seaboard, with a concomitant increase in plant damage. Certain susceptible varieties of tobacco and potatoes can no longer be profitably grown, and pollution damage is becoming serious in greenhouse-grown tomatoes in eastern Massachusetts and in spinach grown on Cape Cod. Other food plants, as well as certain ornamentals, are also adversely affected. What, then, can be recommended as a practical solution?

Ideally, we should remove the source of the problem; but there appears to be no real prospect of a decrease in air pollution in the foreseeable future. For greenhouse crops, some protection against ozone can be realized by filtering incoming air; but air filtration is not effective in removing ethylene, a pollutant which drastically upsets plants' physiology. Research at Waltham and elsewhere offers some hope that certain chemical treatments may be useful in protecting against some pollutants; but practical, safe, and economically feasible applications are not yet available.

Genetic protection may be the best long-term answer, and the Suburban Experiment Station has started new experiments aimed at development of pollution-resistant varieties of vegetables through selection and breeding under deliberate exposure to air pollution. Scientists at the station will also continue their contribution to the Northeast regional research effort on air pollution through a new regional project starting July 1, 1972-- "The Influence of Air Pollution on Plant Productivity in the Northeast."

A. RESEARCH PROJECTS

Department of Agricultural and Food Economics

Brown, A.A.

The Efficiency of Alternative Railroad Costing Methods as a Basis of Rate Determination (Exp. Sta.).

Christensen, R.L.

Selected Interrelationships Between Poultry Marketing and Other Sectors of the Economy (Exp. Sta.).

Agricultural Land Use in Relation to Environmental Quality (Exp. Sta.).

Agricultural-Urban Competition for Land and Water Resource Use in the Northeast (Economic Research Service, U.S.D.A.).

Crossmon, B.D.

Economic Impacts of Extending Unemployment Insurance to Agricultural Workers in Massachusetts (U.S. Dept. of Labor).

Engel, N.E.

An Input-Output Analysis of Sectors of the Massachusetts Economy (Exp. Sta.).

Agricultural Land Use in Relation to Environmental Quality (Exp. Sta.)

Community Services for Non-Metropolitan People in the Northeast (Exp. Sta.).

Natural Resource Policies and Planning for Rural Development (Exp. Sta.).

Foster, J.H.

Valuation of Benefits and Costs of Wetland Preservation (OWRR, USDI).

Alternative Strategies for Flood Control on the Connecticut River (OWRR, USDI).

Knapp, E.K.

Community Services for Non-Metropolitan People in the Northeast (Exp. Sta.).

Marion, D.R.

Economic Analysis of Food Retailing in Low-Income Areas (USDA).

Russell, S.

Impact of Labor Unions on Performance in the Milk Industry (Exp. Sta.)

Storey, D.A.

Impact of New Production, Harvesting and Procurement Methods on the

Market Structure of the Fishing Industry in the Northeast (Exp. Sta.)

Development of Multiple Objective Economic Planning Models for

Allocation of Estuarine Resources (WRRC, U. Mass.).

Cranberry Station

Cross, C.E.

The Ecology of Selected Submersed Aquatic Weeds (Exp. Sta.).  
Culture and Improvement of Cranberries (Ocean Spray, Inc.).

Demoranville, I.E.

Culture and Improvement of Cranberries (Ocean Spray, Inc.).  
Evaluation of Herbicides for Weed Control on Cranberry  
Bogs (Exp. Sta.).

Deubert, K.H.

Translocation of Pesticides from Cranberry Bogs to Their  
Surroundings (Exp. Sta.).  
The Chemistry of Cranberry Bog Soils (Exp. Sta.).  
Impact of the Cranberry Industry on the Quality of Groundwater  
in the Cape Cod Area (WRRRC, U. Mass.).

Devlin, R.M.

The Ecology of Selected Submersed Aquatic Weeds (Exp. Sta.).  
Influence of Growth Regulators on Pesticide Uptake (PHS-NIH).  
Effectiveness of Morcran as an Herbicide for use on Cranberry  
Bogs (Sandoz-Wander, Inc.).  
Translocation and Metabolism of Fluorinated Pyridazinones Used  
on Weeds of Cranberry Bogs (Sandoz-Wander, Inc.).

Norton, J.S.

Mechanization of Cultural, Harvesting and Market Preparation  
Operations in Cranberries (Exp. Sta.).

Tomlinson, W.E., Jr.

Control of Insects Affecting Cranberries and Cultivated  
Blueberries (Exp. Sta.).

Zuckerman, B.M.

Biology of the Plant Parasitic Nematode, Pratylenchus penetrans  
(Exp. Sta.).  
Breakdown of Water-Harvested Cranberries (Ocean Spray, Inc.).

Department of Entomology

Edwards, L.J.

Pesticide Residues in or on Raw Agricultural Commodities (Exp. Sta.).  
Tricarboxylic Acid Cycle Intermediates in Normal and Anesthetized  
Insects (Exp. Sta.).

Hall, D.W.

Pathogens and Parasites for the Control of Insects of Medical  
and Veterinary Importance (Exp. Sta.).

Jensen, G.L.

The Role of Parasites and Predators in the Control of the Alfalfa  
Weevil (Exp. Sta.).  
Integrated Control as an Improved Method of Reducing Pest Populations  
on Apples (Agway, Inc.).

Peters, T.M.

Interactions Between Insect Populations and Their Environment  
(Exp. Sta.).

Stoffolano, J.G., Jr.

Associations Between the Plant Pathogen, Pseudomonas melophthora,  
and Rhagoletis pomonella (Exp. Sta.).

Department of Environmental Sciences

Coler, R.A.

Duckweed Project (WRRRC, U. Mass.).

Gunner, H.B.

Biological Degradation of Agricultural Pesticides (Exp. Sta.).  
Factors Affecting the Accumulation of Nitrates in Soils, Water  
and Plants (Exp. Sta.).

Selective Effect of Diazinon on the Soil Microflora, with  
Reference to Control of Soil-Borne Pathogens (Geigy Chemical Corp.).

Litsky, W.

Fluorescent Antibody for Determination of Fecal Streptococci  
Source (EPA).

Bactericidal and Bacteriostatic Activity of a Chemical against  
Selected Microorganisms (Glycerine Producers Assn.).

Bacterial Shedding (Kimberly Clark Co.).

Bacteriologic Evaluation of Cepacol (Wm. S. Merrell Co.).

Heat Resistance of Various Bacterial Cultures (3M Co.).

Microbiological Aspects of Water Quality of Selected Riverine and  
Reservoir Waters in Massachusetts (New England Research, Inc.).

Walker, R.W.

Investigations of Fatty Acids from Neutral Lipid and Phosphatide  
Fractions of Atypical Mycobacteria (Exp. Sta.).

Studies of Mycobacterial Lipids (PHS-NIH).

I.N.H. Drug Resistance in the Mycobacteria (Mass. Tuberculosis and  
Respiratory Disease League).

Department of Food and Agricultural Engineering

Chen, C.S.

Engineering Systems for Forage Crop Production and Use (Exp. Sta.).

Clayton, J.T.

Physiological Responses of Chickens to Varying Environments  
(Exp. Sta.).

Modular Roof Structures (Agway, Inc.).

Fletcher, S.W.

Mechanical Injury to Processed Fruits and Vegetables During  
Handling (Exp. Sta.).

Engineering Properties Related to Heat and Mass Transfer in  
Food Preservation Operations (Exp. Sta.).

Johnson, C.A.

Economical Structural Modules for Rural and/or Suburban Homes  
(Exp. Sta.).

Light, R.G.

Economical Structural Modules for Rural and/or Suburban Homes  
(Exp. Sta.).

Rha, C.

Mechanical Injury to Processed Fruits and Vegetables During Handling  
(Exp. Sta.).

Thermal and Rheological Properties of Proteinaceous Material (NSF).  
Engineering Properties Related to Heat and Mass Transfer in Food  
Preservation Operations (Exp. Sta.).

Whitney, L.F.

Engineering Systems for Forage Crop Production and Use (Exp. Sta.).

Department of Food Science and Technology

Clydesdale, F.M.

Quality Maintenance, Measurement, and Control in the Marketing of  
Vegetables (Exp. Sta.).

Post-Harvest Physiology of Pomological Fruits (Exp. Sta.).

Color and Quality in Cranberry Products (Ocean Spray, Inc.).

Improvement and Stability of Quality in Processed Foods  
(Glass Container Mfrs. Inst.).

Application of Color Scales to Foods (Hunterlab, Inc.).

Measurement of Meat Color (Agricultural Research Service, USDA).

Colorimetry of Cereals (Quaker Oats Co.).

Evans, D.A.

Microbiological Quality of Air and the Environment of Dried Milk  
Processing Plants (American Dried Milk Institute).

Fagerson, I.S.

Role of Some Trace Organic Compounds in Foods (Exp. Sta.).

Minor Components in Grain Spirits (Heublein Co.).

Carbohydrate Composition of Hard Candy (Beechnut, Inc.).

Francis, F.J.

Quality Maintenance, Measurement, and Control in the Marketing of  
Vegetables (Exp. Sta.).

Post-Harvest Physiology of Pomological Fruits (Exp. Sta.).

Color and Quality in Cranberry Products (Ocean Spray, Inc.).

Improvement and Stability of Quality in Processed Foods  
(Glass Container Mfrs. Inst.).

Application of Color Scales to Foods (Hunterlab, Inc.).

Measurement of Meat Color (Agricultural Research Service, USDA).

Colorimetry of Cereals (Quaker Oats Co.).

Pigments of Miracle Fruit (The Mirlin Co.).

Hultin, H.O.

Enzymatic Control of Quality Factors in Edible Plant and Animal Materials (Exp. Sta.).

Control of Lactate Dehydrogenase by Reversible Binding to Subcellular Structures (NSF).

Studies of a Catalytic Reactor Using an Immobilized Enzyme System (NSF).

Effect of Additives on Color Changes in Fresh Meat (Agricultural Research Service, USDA).

Control of Phosphofructokinase by Subcellular Association (U. Mass. Biomedical Sci. Grant).

Levin, R.E.

Effect of Low Temperatures on Quality and Marketability of Food Products (Exp. Sta.).

Aseptic Processing of Foods in Glass Containers (Glass Container Mfrs. Inst.).

Nawar, W.W.

Effects of Thermal Processing on the Chemical Composition of Foods (Exp. Sta.).

Health Significance of Radiolytic Products in Foods (PHS-NIH).

Headspace Analysis in Beverages (Heublein Co.).

Sawyer, F.M.

Effect of Low Temperatures on Quality and Marketability of Food Products (Exp. Sta.).

Flavor Evaluation of Alcoholic Beverages (Heublein Co.).

Stumbo, C.R.

Sterilization and Inhibitors in Food Processing (Exp. Sta.).

Department of Forestry and Wildlife Management

Abbott, H.G.

Direct Seeding, and the Influence of Birds and Mammals on Forest Regeneration in the Northeast (Exp. Sta.).

Bond, R.S.

Economic Analysis of the Campground Market in the Northeast (Exp. Sta.).

Changes in Land Values in Mass. from 1950 to 1970 as Related to changes in Land Use (U.S. Forest Service).

Carlozzi, C.A.

Natural Resource Policies and Planning for Rural Development (Exp. Sta.).

Cole, C.F.

Effects of Water Diversion on Estuarine Fauna in Merrimack River, Massachusetts (WRRRC, U. Mass.).

Biology of Young Winter Flounder (Mass. Div. of Marine Fisheries).

Effect of Gametic Concentrations of DDT and Dieldrin on Reproduction in Winter Flounder (EPA and Bureau of Sport Fisheries and Wildlife, USDI).

Quantitative and Environmental Factors Affecting the Migration of Anadromous Alewives in the Parker River (Mass. Div. of Marine Fisheries).

Cole, C.F.

Use of Industrial Effluent in Food Production, and Subsequent Waste Treatment (NSF).

Dodge, W.E.

Porcupine Behavior and Control of Population (Fish & Wildlife Service, USDI).

Mobility, Behavior, and Population Density of Bobcats (Fish & Wildlife Service, USDI).

Winter Mortality Factors in the Turkey Population of the Quabbin Reservation (Mass. Div. of Fisheries & Game).

Population Parameters of Orchard Mice in a Commercial Orchard (Mass. Div. of Fisheries & Game).

Gatslick, H.B.

Technological Properties of Wood from Forest Tree Species in the Northeast (Exp. Sta.).

Private Woodland Owner Characteristics and Attitudes in Berkshire and Franklin Counties, Mass. (New England Regional Commission).

Greeley, F.

The Control of Bird Depredation (Exp. Sta.).

Food and Shelter Requirements of the Ruffed Grouse in Relation to Energy Regimes (Exp. Sta.).

Hoadley, R.B.

Rheology of Wood Restrained from Swelling (Exp. Sta.).

Feasibility of RTV Silicone Adhesives in Wood-to-Wood Dowel Joints (General Electric Co.).

Johnson, J.E.

Quantitative and Environmental Factors Affecting the Migration of Anadromous Alewives in the Parker River (Mass. Div. of Marine Fisheries).

Distribution, Abundance, and Growth of Fishes of the Ware River Drainage, Massachusetts (Mass. Div. of Fisheries & Game).

Sucker and Fallfish Populations in the Mill River, Massachusetts (U. Mass.).

Larson, J.S.

Food and Shelter Requirements of the Ruffed Grouse in Relation to Energy Regimes (Exp. Sta.).

Man-Animal Interactions in the Northeast Forest Environment (Exp. Sta.).

Dynamics of Land Use Change in the Northeastern United States (U.S. Forest Service).

A Multivariate Model for Public Management of Freshwater Wetlands (OWRR, USDI).

Remote-Sensing Twenty Years of Change in the Human Environment in Massachusetts (Exp. Sta.).

MacConnell, W.P.

Evapo-transpiration, Runoff, Storage, and Drainage Characteristics of Water from Forest Soils (Exp. Sta.).

Dynamics of Land Use Change in the Northeastern United States (U.S. Forest Service).

Management of Christmas Trees on Power Line Rights of Way (Holyoke Water Power Co.).



MacConnell, W.P.

- Weed Control on Christmas Tree Plantations (Geigy Chemical Co.).
- Use of Infra-Red Color Photography to Detect Fomes annosus in Red Pine.
- Remote-Sensing Twenty Years of Change in the Human Environment in Massachusetts (Exp. Sta.).

Mader, D.L.

- Genetic and Environmental Adaptability of Forest Trees (Exp. Sta.).
- Evapo-transpiration, Runoff, Storage, and Drainage Characteristics of Water from Forest Soils (Exp. Sta.).
- Humus Accumulations in Hardwood Forests in the Northeast.

Mawson, J.C.

- Distance - Measure Sampling for Volume Growth (Exp. Sta.).
- Massachusetts Continuous Forest Inventory (Mass. Dept. of Natural Resources).

McCann, J.A.

- Statistical Techniques and Estimators for Marine Sport Fishery Inventories (Fish & Wildlife Service, USDI).
- Life History of the American Shad and Blueback Herring in the Connecticut River (Tech. Committee for Fishery Management of the Conn. River and Fish & Wildlife Service, USDI).
- Inventory of the Ponds, Lakes, and Reservoirs of Massachusetts. (WRRRC, U. Mass., and Mass. Water Resources Comm.).
- Age and Growth of Hudson River Fishes (Fish & Wildlife Service, USDI, and Consolidated Edison Co.).

McNamara, W.S.

- Technological Properties of Wood from Forest Tree Species in the Northeast (Exp. Sta.).
- Technical Aspects of Plywood Made from Northeastern Softwood and Hardwood Species (New England Regional Commission).

Reed, R.J.

- Spawning Behavior of the Fallfish (Fish & Wildlife Service, USDI).
- Possible Effects of Intraspecific Competition between Large-Mouth Bass and Pumpkinseed in Cranberry Pond (Fish & Wildlife Service, USDI).

Rhodes, A.D.

- Yield of Managed Forests in Massachusetts.

Rice, W.W.

- Technological Properties of Wood from Forest Tree Species in the Northeast (Exp. Sta.).
- Yield of Flat Hardwood Dimension Parts Produced by Two Methods from Presurfaced Red Oak (W.D. Cows, Inc.).

Sheldon, W.G.

- Food and Environmental Conditions as a Limiting Factor for the Black Duck in Nauset Marsh, Orleans, and Eastham, Mass. (Fish & Wildlife Service, USDI).
- Productivity and Breeding Behavior of Canada Geese at Marshy Point, Manitoba (Fish & Wildlife Service, USDI).
- Ecology of the American Woodcock (Fish & Wildlife Service, USDI).

Sheldon, W.G.

Mobility, Behavior, and Population Density of Bobcats (Fish and Wildlife Service, USDI).

Wetherbee, D.K.

Analysis of Sparrow Hawk Nesting Success (Fish & Wildlife Service, USDI).

Effect of Chemosterilants on Populations of Wild Herring and Ring-Billed Gulls (Fish & Wildlife Service, USDI).

Dynamics of the Succession of Black-Backed Gulls Replacing Herring Gulls on Nantucket Island (Fish & Wildlife Service, USDI).

Wilson, B.F.

Role of Mechanical Stress in Cambial Activity of Trees (Exp. Sta.).

Some Continuum Mechanical Models for the Study of Plant Growth Phenomena (NSF).

Department of Landscape Architecture and Regional Planning

Cudnohufsky, W.

Southeast New England Water and Related Land Resources Study; Visual and Cultural Factors (National Park Service).

Fabos, J.

Visual-Social Values of Wetlands (OWRR, USDI).

Models for Landscape Planning (Exp. Sta.).

Integration of Water and Related Land Values into a Metropolitan Landscape Planning Model (U.S. Forest Svc. and WRRC, U. Mass.).

Southeast New England Water and Related Land Resources Study; Visual and Cultural Factors (National Park Service).

Hamilton, T.S.

Plant Hardiness Trials of Some Selected Ornamentals (Longwood Gardens, Northeastern Regional Plant Introduction Station, U.S. National Arboretum, and Arnold Arboretum).

Martin, J.H.

Evaluation of Public Policy Alternatives in Maximizing Public Benefits Arising from Water Quality Improvement (WRRC, U. Mass.).

Scheffey, A.J.W.

Natural Resource Policies and Planning for Rural Development (Exp. Sta.).

Zube, E.H.

Southeast New England Water and Related Land Resources; Visual and Cultural Factors (National Park Service).

Department of Plant and Soil Sciences

Baker, J.H.

Factors Controlling the Chemical Composition of the Soil Solution (Exp. Sta.).

Effect of Land Use on Chemical and Physical Quality of Surface and Ground Waters in Small Watersheds (WRRC, U. Mass.).

Barker, A.V.

Plant and Nutritional Variables Associated with Ammonium Assimilation in Plants (Exp. Sta.).

Factors Affecting the Accumulation of Nitrates in Soils, Water and Plants (Exp. Sta.).

Nitrate and Nitrite Accumulation in Vegetables (PHS-NIH).

Bramlage, W.J.

Post-Harvest Physiology of Pomological Fruits (Exp. Sta.).

Effect of Alar, Ethephon, and Preharvest Drop-Control Chemicals on Apple Tree Response and Fruit Quality (UniRoyal, Inc., and Amchem Products, Inc.).

Drake, M.

Relationships of Mineral Nutrition to Physiological Disorders of Apples (Exp. Sta.).

Greene, D.W.

The Mechanism of Rootstock Dwarfing (Exp. Sta.).

Effect of Alar, Ethephon, and Preharvest Drop-Control Chemicals on Apple Tree Response and Fruit Quality (UniRoyal, Inc., and Amchem Products, Inc.).

Effect of ER 3889 on the Thinning of Peaches and Apples (Ciba-Geigy Corp.).

Havis, J.R.

Physiology of Low Temperature and Water Stresses on Plants (Exp. Sta.).

The Dynamics and Energetics of the Soil-Plant-Atmosphere Continuum (Spac) (Exp. Sta.).

Roadside Development (Mass. DPW-Federal Highway Adm.).

Jennings, P.H.

Comparisons of the Amylases in Maize During Seed Germination and in Photosynthetic Tissue (Exp. Sta.).

Effects of Certain Pesticides and Plant-Growth Regulators on Plant Metabolism (Exp. Sta.).

Lachman, W.H.

Genetics and Physiology of Sweet Corn Quality and Biological Efficiency (Exp. Sta.).

Genetics and Breeding of Tomatoes (Exp. Sta.).

Lord, W.J.

Effect of Alar, Ethephon, and Preharvest Drop-Control Chemicals on Apple Tree Response and Fruit Quality (UniRoyal, Inc., and Amchem Products, Inc.).

Effect of ER 3889 on the thinning of Peaches and apples (Ciba-Geigy Corp.).

Marsh, H.V.

Effects of Certain Pesticides and Plant-Growth Regulators on Plant Metabolism (Exp. Sta.).

The Dynamics and Energetics of the Soil-Plant-Atmosphere Continuum (SPAC) (Exp. Sta.).

Maynard, D.N.

The Relationship of Nutrition to Plant Physiological Disorders  
(Exp. Sta.).

Plant and Nutritional Variables Associated with Ammonium Assimilation  
in Plants (Exp. Sta.).

Factors Affecting the Accumulation of Nitrates in Soils, Water and  
Plants (Exp. Sta.).

Nitrate and Nitrite Accumulation in Vegetables (PHS-NIH).

Rosenau, W.A.

The Relationship of Nutrition to Plant Physiological Disorders  
(Exp. Sta.).

Utilization of Sludge/bark mixtures for Horticultural Purposes  
(Crane and Co., Inc.).

Fertilization Programs for Chrysanthemum Production (Yoder Bros., Inc.)

Stewart, G.L.

An Examination of Potential Tracers to Depict the Movement and  
Behavior of Water in Soils (Exp. Sta.).

Effect of Land Use on Chemical and Physical Quality of Surface and  
Ground Waters in Small Watersheds (WRRC, U. Mass.).

Evaluation of Tracer and Tracer Techniques to Depict the Movement  
of Water and Potential Pollutants in Porous Media (WRRC, U. Mass.).

Southwick, F.W.

Effect of Alar, Ethephon, and Preharvest Drop-Control Chemicals on  
Apple Tree Response and Fruit Quality (UniRoyal, Inc. and Amchem  
Products, Inc.).

Effect of ER 3889 on the Thinning of Peaches and Apples (Ciba-Geigy Corp.).

Thomson, C.L.

Pickling Cucumber Research (Oxford Pickle Co.).

Varietal Response of Alachlor Herbicide on Sweet Corn and Beans  
(Monsanto Co.).

Troll, J.

Roadside Development (Mass. DPW-Federal Highway Adm.).

Gray Snow Mold Studies (Northeast Golf Course Superintendents' Assn.).

Vengris, J.

Ecological Studies of Certain Weeds in the Northeastern United  
States (Exp. Sta.).

Weeks, M.E.

Effect of Land Use on Chemical and Physical Quality of Surface and  
Ground Waters in Small Watersheds (WRRC, U. Mass.).

Yegian, H.M.

Roadside Development (Mass. DPW-Federal Highway Adm.).

Zak, J.M.

Roadside Development (Mass. DPW-Federal Highway Adm.).

Department of Plant Pathology

Agrios, G.N.

Virus Diseases and Their Control in Deciduous Fruit Trees (Exp. Sta.).  
 Viruses and Virus Diseases of Forest Hardwoods (Exp. Sta.).  
 Oxidized Phenolics and Infectivity of Plant Viral RNA (NSF).

Banfield, W.M.

Lophodermium Needle Cast Disease and Ozone Damage on White Pine.  
 (Exp. Sta.).

Bolmer, L.M.

Pathology of Wilt Diseases of Trees (Exp. Sta.).

McKenzie, M.A.

Pathology of Wilt Diseases of Trees (Exp. Sta.).

Mount, M.S.

Role of Enzymes in Soft Rot Complex of Vegetables and Potatoes  
 (Exp. Sta.).  
 Induction and Mechanisms of Cellular Injury of Potato Tuber Tissue  
 by Enzymes (NSF).  
 The Role of nucleoproteins and DNA-Dependent RNA Polymerases in  
 Crown Gall. (Exp. Sta.).

Rohde, R.A.

Biology of the Plant Parasitic Nematode, Pratylenchus penetrans  
 (Exp. Sta.).

Suburban Experiment Station - Waltham

Campbell, F.J.

Effect of Fertilizer Regimes on Standard Chrysanthemum Quality  
 Production (Coralux-Perlite Corp.).  
 Effect of Experimental Growth-Regulator Compounds on Poinsettia  
 Cultivars (Shell Research Development Corp.).  
 Evaluation of Sources of Vermiculite as Soil Amenders and Soil-less  
 Media (Coralux-Perlite Corp.).  
 Carnation Breeding for Commercial Varieties.

Craker, L.

Influence of Environmental Stress on Physiological Susceptibility  
 of Plants to Air Pollution (Exp. Sta.).

Faddoul, G.P.

Control Program for Mycoplasma gallisepticum in Chickens (Mass.  
 Poultry Industry).

Feder, W.A.

Air Pollution Problems in the Northeast (Exp. Sta.).  
 Influence of Environmental Stress on Physiological Susceptibility  
 of Plants to Air Pollution (Exp. Sta.).  
 Air Pollution/Plant Disease Interactions (PHS-EPA).  
 Chronic Effects of Low Levels of Air Pollutants upon Floricultural  
 and Vegetable Plants in the Northeast (PHS-EPA).

Feder, W.A.

Survey of Air Pollution Damage to Vegetation in the New England area (EPA).

Fellows, G.W.

Control Program for Mycoplasma gallisepticum in Chickens (Mass. Poultry Industry).

Galinat, W.C.

Cytogenetics, Morphology and Evolution of Corn and Its Relatives (Exp. Sta.).

Genetics and Physiology of Sweet Corn Quality and Biological Efficiency (Exp. Sta.).

Evolution of the American Maydeae (NSF).

Gentile, A.G.

Evaluation of new pesticides for control of insect pests on vegetables and flowers (Niagara Chemical Co., Stauffer Chemical Co., Shell Oil Co., and Chevron Chemical-Ortho Division).

Manning, W.J.

Control of Root Rot Diseases of Greenhouse Floricultural and Vegetable Crops (Exp. Sta.).

Influence of Environmental Stress on Physiological Susceptibility of Plants to Air Pollution (Exp. Sta.).

Vascular Disease Studies (Lowden Tree Co.).

Air Pollution/Plant Disease Interactions (EPA).

McEnroe, W.D.

American Dog Tick, Comparative Toxicology and Behavior (Exp. Sta.).

Naegele, J.A.

Air Pollution Problems in the Northeast (Exp. Sta.).

Air Pollution Damage to Vegetation in the New England Area (PHS-EPA).

Department of Veterinary and Animal Sciences

Anderson, D.L.

Nutrition Improvement in the Northeast Region (Exp. Sta.).

Interrelationship of Light and Nutrient Intake on Reproductive Performance of Female Chickens in a Thermally Controlled Environment (Agway, Inc.).

Nutrition of the Growing Foal (Agway, Inc.).

Black, D.L.

Control of Reproduction in the Bovine Female (Exp. Sta.).

Neural Control of the Mammalian Oviduct (PHS-NIH).

Ovarian Function in the Pony Mare (Grayson Foundation, Inc.).

Influence of Uterine Extracts on Corpus Luteum in the Golden Hamster (Population Council).

Physiology of the Mammalian Oviduct (PHS-NIH).

Ischemic Factors in Light Chronic Compression of Peripheral Nerves (Arthritis Foundation).

Efficacy of a Process for Sex Control in Rabbits and Heifers (SPD Technology, Inc.).

- Borton, A.  
Nutrition of the Growing Foal (Agway, Inc.).
- Duby, R.T.  
Influence of Uterine Extracts on Corpus Luteum Function in the Golden Hamster (Population Council).
- Fenner, H.  
Interaction of the Acid-Base Pool and the Function of Saliva in the Digestion Processes in the Rumen (Agway, Inc.).  
Nutritive Evaluation of Forages (Exp. Sta.).
- Gaunt, S.N.  
Relationships Between Genetic Markers and Performance in Dairy Cattle (Exp. Sta.).
- Howe, G.R.  
Hyperbaric Effects of High Pressure Exposures on Endocrine Physiology (ONR).  
Physiology of the Mammalian Oviduct (PHS-NIH).  
Neural Control of the Mammalian Oviduct (PHS-NIH).
- Lyford, S.J.  
Nutrition of the Growing Foal (Agway, Inc.).
- Mellen, W.J.  
Physiological Bases of Inherited Differences in Growth Rate (Exp. Sta.).
- Nobel, W.  
The Ischemic Factor in Light Chronic Compression of Peripheral Nerves (The Arthritis Fdn.).
- Sevoian, M.  
Avian Lymphomatosis (Exp. Sta.).  
Techniques for Eradicating Infectious Diseases of Poultry (Exp. Sta.).
- Smith, R.E.  
Infectious Diseases Affecting Reproduction in Dairy Cattle (Exp. Sta.).
- Smyth, J.R.  
Genetic Bases for Resistance to the Avian Leukosis Complex (Exp. Sta.).  
Genetic Factors Affecting the Development and Accuracy of Sex-Linked Crosses (Poultry & Egg Inst. of America).
- Snoeyenbos, G.H.  
Salmonellosis of Poultry (USDA).  
Techniques for Eradicating Infectious Diseases of Poultry (Exp. Sta.).  
Effect of Linco-Spectin and Spectinomycin for Prevention and Treatment of MG/Coliform Airsacculitis in Chickens (Upjohn Co.).
- Weinack, O.O.  
Salmonellosis of Poultry (Exp. Sta.).  
Effect of Linco-Spectin and Spectinomycin for Prevention and Treatment of MG/Coliform Airsacculitis in Chickens (Upjohn Co.).  
Techniques for Eradicating Infectious Diseases of Poultry (Exp. Sta.).

## XI ENVIRONMENTAL QUALITY

Faculty and resources in every division of the College were directed toward the improvement of environmental quality during fiscal 1972 to reflect a broadening mission and accomplishment.

Listed are examples of some of the activities concerned with the many facets of environmental quality and attendant problems.

1. The conducting of Cooperative Extension seminars and workshops in the areas of pollution, solid waste disposal, housing and environment, community resource development and environmental planning.
2. Completion and publication of an inventory of all the state's ponds, lakes and reservoirs comprised of information on the physical, biological and land-water use characteristics of each.
3. The inception of research on forest land and the human environment of the urban northeast by the new Environmental Forestry Research Center (U.S. Forest Service and Massachusetts Agricultural Experiment Station).
4. A seminar on "Field Work in Ecology" conducted by Cooperative Extension for elementary and high school teachers comprised of an 18-session series of field trips, panels, workshops and other meetings.
5. A research study indicating that small ponds and wetlands built along interstate highways will not only enhance scenic values but will undo some of the environmental damage that comes from the construction of such roads.
6. The study of "Effects of Agricultural and Food Production on the Environment" as a Cooperative Extension project. As a result, new



recommendations and educational information is available on the handling and treatment of duck farm waste and liquid manure, solid manure storage, and milking center waste.

Also, a similar project by the Agricultural Experiment Station titled "Agricultural Land Use in Relation to Environmental Quality."

7. The appointment of College faculty to important area, state and national environmental boards and institutes as follows: Ervin H. Zube, as director of the University's Institute for Man and His Environment (IME); Warren Litsky, Joseph Larson and Charles Cole, as members of the environmental Impact Advisory Committee, Lower Pioneer Valley Regional Planning Commission; Hugh C. Davis, to assistant Secretary in the Massachusetts Executive Office of Environmental Affairs and associate director of IME; and Litsky, a member of the U. S. Environmental Protection Agency's Project Review Board.

8. The publishing and distribution of a 45-page report of a Task Force concerned with agricultural environmental quality problems for the College's Environmental Quality Executive Council. The report identifies environmental contaminants, farm-caused pollution, ongoing research and extension programs and recommends additional practices and needed research.

9. Increased activity in instruction programs typified by new, modified and updated environmentally-oriented courses.

Additional involvement of the College in the area of environmental quality will be found under the "Highlight" sections for Instruction, Cooperative Extension and Research.

## XII SPECIAL PROGRAMS

### A. CIVIL DEFENSE TRAINING PROGRAM

This University Extension Program suffered a severe set-back this year. Two members of the three-man team suffered heart attacks; Harold W. Perkins was stricken on February 17 and Sidney Pierson on February 24. Both are recovering, but it is not known just when they will be back to work on a full time basis. The third member of the team, George Vinskey, is carrying on in areas that can be covered by one man, without jeopardizing quality of instruction. One Emergency Operations Simulation Exercise and two Emergency Highway Traffic Regulation Exercises were postponed indefinitely. Briefings for Emergency Operations Simulation exercises are continuing, the actual execution of the exercises contingent on the return of absent staff.

A new field of training was entered into. The department conducted three Seminars for Civil Defense Directors. A Hazard Analysis Workshop was conducted, and a model of an Emergency Operations Center set up for each seminar.

The Annual Region I Civil Defense University Extension Program Conference was held on August 31, September 1 and 2. Dr. James Ridgway, Director, Training and Education Office of Civil Defense, brought the conferees up to date on the program goals with emphasis on current and future training and education. Conference participants included State Civil Defense Training Officers, State Civil Defense Education Coordinators, and CDUEP Staffs from Region I.

In addition to the three, 2-day seminars for Civil Defense Directors and the Region I Conference, the following courses were conducted during the year:

	<u>Number Courses</u>
Radiological Monitor Instructor's Course - - -	1
Radiological Defense Officer's Course - - - -	1
Emergency Highway Traffic Regulation - - - - -	1
Emergency Operations Simulation - - - - - - -	2

### B. CENTER FOR INTERNATIONAL AGRICULTURAL STUDIES

Center activities during 1971-72 include continuation of our Peace Corps (Action) Intern Training Program and the International Training Program of AID. One new program provides assistance to 13 Malawi students who entered the University in September 1971 and are supported by their own government.

We have hosted a number of foreign visitors and provide counseling for both faculty and students interested in overseas employment. Center staff serve on a number of committees associated with the interests of the Center. An up-to-date collection of published material on international agricultural development, much of it in pamphlet form, is maintained.

#### Peace Corps (Action) Intern Program

This year's Intern Program was focused on Liberia. Recruiting was quite successful and the program started with 18 students. Due to health problems, inability of the Peace Corps to place wildlife and food technology majors, and a misunderstanding about families with children as volunteers, placement has been disappointing. As of June 1, 1972 only five interns have been placed as follows:

<u>Name</u>	<u>Major</u>	<u>Country</u>
Charles Vandersteen	Forestry	Liberia
Peter Izyk	Forestry	Liberia
David St. Laurent	Forestry	Ethiopia
Albert Nicholls	Agr. Economics	Liberia
Stephen Young	Fisheries	Nepal

One or two others may yet be placed. One problem of placement was that Liberia requests were dominated by jobs to be filled by Plant Science Majors. The one Plant Science Major recruited was eliminated from the program because of health problems.

A total of 40 University of Massachusetts students have now been partially trained and placed through the Intern Program in the four years of the program. The University has the reputation among Peace Corps agricultural recruiters as the most productive campus in the northeast. The continuing Intern Program may well be actually responsible for this.

#### Counseling and Recruitment

The Center maintains address lists and lists of overseas employment vacancies associated with agricultural development. These lists are used extensively by both students and faculty. Each use usually involves counseling on general overseas employment opportunities and conditions.

Publicity given to our graduate and undergraduate programs in International Agriculture generates substantial correspondence and numerous applications for admission, especially to the Graduate School.

The Center has assisted in recruitment for two AID funded positions at Bunda College, for overseas staff positions in the Peace Corps, and for positions with a program in Korea funded by a contract between AID and the New England Center on behalf of the six New England Colleges of Agriculture.

#### Committee Service by Center Staff

- a. Advisory Committee for the UMass-UConn-Unifc AID Contract in Nigeria.
- b. New England International Agricultural Development Council.
- c. Advisory Committee on International and Foreign Studies.
- d. Foreign Students' Committee and Admissions Sub-committee.
- e. Committee on Scholarship Financial Aid and Study Abroad and the Study Abroad Sub-committee.

Program Proposals in Development Stage

- a. Student and faculty exchange between University of Massachusetts and Bunda College of Agriculture in Bunda.
- b. AID Centrally Funded Research Contract on Livestock Feeding in the Wet-Dry Tropics of Africa.

International Training Program (AID/csd/3221)

(Conducted in conjunction with the United States Agency for International Development and the Foreign Economic Development Service of the United States Department of Agriculture)

## Program functions:

To train for AID, undergraduate students or international participants, who hold supervisory positions in various divisions of the ministries of agriculture in their respective countries

To administer the graduate training, in various departments of the College, of AID-sponsored personnel from ministries of agriculture and foreign research institutes.

To develop special programs for short-term professional or government visitors from foreign countries.

Two AID-sponsored students were enrolled in the College. They are: Louis Mumera, Kenya, a graduate of Egerton Agricultural College who transferred to UMass as a junior (Class of 1973). He is majoring in Audio-Visual Education and upon receiving his degree he will join the faculty of Egerton College to teach Audio-Visual Aids and to incorporate teaching aids in the agricultural curriculum at Egerton.

Alfred Chale, Tanzania, received his agricultural degree at the University of Dar-es-Salaam in Tanzania. He is studying for his M.S. in Marketing in the Department of Food and Agricultural Economics. Upon receiving his degree, he will return to the Tanzanian Ministry of Agriculture as a Marketing Analyst.

A third student, Sylvester Mendoza, Phillipines, sponsored by The Agricultural Council (Rockefeller Foundation), is doing graduate work in the Department of Food and Agricultural Engineering.

Foreign Visitors

Prof. Hiroo Kaneta, Hokkaido University, Sapporo, Hokkaido, Japan. His interest is in the sociological aspects of rural development. Conferred with members of the Sociology Department and Department of Food and Agricultural Economics.

Dr. Timothy O'Mullane, Dean of Faculty, Food Science and Technology, University College, Cork Eive. Conferred with the faculty in the Department of Food Science and Technology regarding organization and curriculum.

Dr. Myles Rath, Kellogg Agricultural Extension Center, University College, Dublin, Ireland. Conferences relating to curricula development in U.S. Colleges of Agriculture.

Mr. Bertram Reddock, Ministry of Agriculture, Trinidad, Tobago, West Indies. Conferences relating to agricultural curricula in two year programs and vocational agricultural schools.

The Hon. A. A. Muwalo Nqumayo, Minister of State in the Office of the President of Malawi and Administrative Secretary of the Malawi Congress Party. Conferred with faculty members of the College of Agriculture and Chancellor of the University. Also held a conference with 13 Malawian students. Interests: organization of American institutions of higher learning.

In September 1971, 13 students arrived on campus for undergraduate work. Five students were designated to major in Engineering; four in Hotel, Restaurant and Travel Administration, and four in Physical Education. All expenses for their education were to be paid by the Government of Malawi.

The Chancellor of the University appointed the Director of International Training to be Coordinator of the Malawian Students' Project.

Innumerable problems arose prior to the students' arrival on campus, because of loss of records in transit and failure of certain communications to reach Malawi and Amherst. In spite of cultural shock and a lack of familiarity with the American system of higher education, all students have performed exceedingly well in their academic studies.

#### Miscellaneous

AID Final Report The Director of the International Training Program reviewed eight years of reports and correspondence pertaining to the AID/UMASS/MALAWI Project, which terminated on November 30, 1970. Based upon this information a detailed report was prepared and mailed to AID Washington, thus completing the contract.

Medical Library Prof. Stephen Allen of the University's Mathematics Department donated the medical library of his late father (260 books) to the Queen Elizabeth Central Hospital in Blantyre, Malawi.

Agricultural Engineering Journals Prof. John Zahradnik of the Food and Agricultural Engineering Department donated approximately 200 journals to the library of the Bunda College of Agriculture in Lilongwe, Malawi.

Malawi Graduates from UMass, Classes of 1968-70. Communication has been maintained with the nine Malawian students who attended the University from 1964 through 1970. These students were sponsored by AID.

Peter Makhamera, Class of '68, is doing graduate work in animal physiology at the University of Minnesota after having served at Bunda College since his graduation.

Joshua Mtimuni, Class of '69, has done graduate work in England and has returned to his position as junior lecturer in animal science at Bunda College.

Enock Ntokotha, Class of '68, who is now with the Ministry of Agriculture specializing in soil science, has been selected to do graduate work at the Macaulay Institute of Soil Science in Aberdeen, Scotland.

Martin Mughogho, Class of '70, now serving at Bunda College as junior lecturer in soil science and as farm manager, has been awarded an African American Institute fellowship and will do his graduate work either at the University of Minnesota or Cornell.

Vincent Saka, Class of '70, has been awarded a graduate assistantship by the Department of Plant Pathology and will return to campus next semester to study for his M.S.

International Fair The Office of International Programs conducted an International Fair in early April. The 13 Malawian students prepared an effective exhibit about their country, which was well-attended by students, faculty and visitors from the community.

#### C. OTHER PROGRAMS

Dr. John Bragg, Department of Food and Agricultural Economics, began a two-year assignment at the University of Ife in Nigeria in September, 1971. He is teaching management courses and conducting special workshops at the University of Ife and surrounding areas.

The Department of Hotel, Restaurant and Travel Administration conducted Phase I of a Statler Foundation Advancement program for the purpose of discovering means and ways of increasing the motivation and management skills of members of minority groups for management positions in the hotel and restaurant business. Sixteen members of minority groups attended the two-week training session. Phase II activity was shifted to Gettysburg College, where officers of large hotel and restaurant companies served as lecturers for additional training of minority participants.

Three Continuing Education programs were conducted by faculty of the Department of Plant and Soil Sciences during the year. These included the Annual eight-week Winter School for Turf Managers with 40 students in the U.S.A. and Canada participating. Programs in Organic and Home Gardening and Plant Propagation also were conducted.

## XIII CONTROL PROGRAMS

### A. PULLORUM DISEASE ERADICATION

In the 1971-1972 testing season, 273 chickens, turkey, and game bird flocks were tested representing 318,008 samples. No pullorum or fowl typhoid infection was found in the commercial breeding flocks. Pullorum infection was found in three fancier flocks; the infection was eliminated by retesting.

### B. MASTITIS CONTROL PROGRAM

The Massachusetts Mastitis Control Program is a three-phase program consisting of a Streptococcus agalactiae eradication program, periodic testing of Str. agalactiae-free herds, and a diagnostic service.

#### Eradication Program

Str. agalactiae is found in approximately two-thirds of the dairy herds in Massachusetts and usually occurs in one-third of the animals within such herds. Although the mastitis in animals so infected is not spectacular in its clinical appearance, it generally causes decreased production, less efficiency, and high leucocyte counts.

During 1971, 77 herds participated in this eradication program; 49 of these herds were freed by the end of 1971. Testing specimens totaled 139,498.

### C. MYCOPLASMA GALLISEPTICUM TESTING

A total of 432,643 samples was tested by the Rapid-Serum Plate Agglutination Method for Mycoplasma gallisepticum during the 1970-1971 testing season and 0.45% reactors were detected.

Fifty-one chicken breeder flocks, 306,387 adult birds, were tested in toto and found free of M. gallisepticum. The majority of these flocks originated from six different strains of egg or meat birds.

A total of 97,287 tests for M. synoviae were conducted during this testing season.

### D. DIAGNOSTIC LABORATORIES

The College provides veterinary diagnostic services at Waltham through the Suburban Experiment Station and at Amherst through the Department of Veterinary and Animal Sciences. Most of the poultry diagnostic work is performed at Waltham. Poultry and large animal diagnostic services, as well as Control Programs are conducted by the Department of Veterinary and Animal Sciences.

SUMMARYI. Diagnostic Laboratories

During the calendar year January 1, 1971 through December 31, 1971, a total of 5171 avian and mammalian specimens in 1211 consignments was submitted for laboratory examination. Specimens were classified as follows:

<u>AVIAN</u>	<u>Amherst</u>	<u>Waltham</u>
Chicken	588	2,945
Turkey	150	240
Pheasant	46	51
Duck		143
Pigeon	4	84
Miscellaneous (14 species)	11	96
	Total	799
		3,559

MAMMALIAN

Cattle	364
Sheep	18
Swine	11
Goats	8
Horses	187
Dogs	63
Cats	11
Miscellaneous (11 species)	41
	Total
	703

II. Control ServicesSamples Tested

Pullorum Disease Testing	318,008	
Mastitis Control Service	139,498	
<u>Mycoplasma</u> Testing	529,930	2,336
	987,436	2,336



## E. SHADE TREE LABORATORIES

## (Dutch Elm Disease)

The estimated annual crop value of Massachusetts street trees, excluding privately owned trees, street trees on unimproved property and public trees not along streets, is \$7.5 million. Private shade and ornamental trees are estimated to be worth at least as much again.

Major studies by the Laboratories involved applied and basic research on wilt diseases of trees; and of immediate importance, the propagation of disease-resistant elm trees by crossings and cuttings. A disease of elm known as phloem necrosis found in New York and Pennsylvania areas last summer further complicates propagation work. Elms selected now as disease-resistant must be screened for this disease in addition to Dutch elm disease.

Elm clones for tree breeding studies have been received from the Netherlands. One of the most resistant of Dutch elm trees received previously is the Groenveld, which is now available to commercial nurserymen and research institutions. Elm seed irradiated at Brookhaven are germinating well in contrast to 1970-71. Inoculation of 116 small, resistant elms with the Dutch elm disease-causing fungus, *Ceratocystis ulmi*, was completed. These trees had survived two previous inoculations. They will again be inoculated in 1972 and their survivors used as parents for future crosses.

Cooperating with the Laboratories in the control of all shade tree diseases in towns and cities throughout the Commonwealth are: tree wardens, professional arborists, public utilities and Massachusetts State Departments of Agriculture, Natural Resources, Public Works and Forest and Park Association.

Other educational activities of the Laboratories and staff included: Tree Wardens, Arborists and Utilities Conference, public service lectures and demonstrations at high schools on Dutch elm disease identification and community control, Undergraduate instruction and laboratories for arboriculture and park management students, and a series of 16 lectures and laboratories for Stockbridge School students.

## F. REGULATORY SERVICES - (FEED, SEED, FERTILIZER, DAIRY LAWS CONTROL)

Teaching and collaborative studies are becoming increasingly important in addition to the Division's public service function of testing and analyzing products sold in the Commonwealth. The aim is to protect the public and to promote fair trade practices in the marketing of feeds, seeds, fertilizers and dairy products.

Teaching activities included the instruction of 180 students in seed technology, training of foreign students in nitrogen analysis and seed research, and the assisting of forestry graduate students.

Hampshire College students also were taught composting methods, values and ecological problems of composting as part of State and Federal Park and Recreation studies. Techniques of lead and arsenic analyses were taught to a class of Stockbridge students.

#### Public Service

The seed laboratory tested about 1,950 samples during the year. About 930 of these were official samples sent by market investigators and the remainder were service and research samples. Investigations were made for purity, identification, germination and other points of quality. Advice was sent to suppliers of improperly labeled seed and cooperation given to state and federal officials enforcing the seed laws.

Visits were made to all milk inspection laboratories in the state to check the proper functioning of apparatus and conduct of the work. One hundred twenty certificates were issued qualifying recipients to test milk and cream for butterfat. Tests were given to 60 bulk tank drivers, 1,590 pieces of Babcock glassware were calibrated and 80 centrifuges were checked.

General materials for analysis included 925 samples tested for protein, fat, fiber, ash, salt and urea. About 25 of these samples were for the State purchasing agent as well as 35 more samples testes for nitrogen.

Other activity included: the testing of 2200 soil samples and referral of results in the form of advice as to fertilizer needs for crops to be grown and the forage evaluation of 525 samples of hay and silage for campus staff and county extension agents designed to enable animal husbandrymen to manage their production programs more efficiently. Also the analysis of pesticide residues involving feed samples, and the examination of feed, animal tissue, manure and environmental materials for the presence of toxic contents. Analyses were made on feeds for vitamins and pesticides, and 500 samples of fertilizers tested for potash content.

#### Collaborative Studies

Six collaborative studies with the Association of Official Analytical Chemists were made in new and modified methods of analyses of antibiotics and drugs. Atomic absorption studies of minerals in feeds and fertilizers were also made.

Other samples-study involved work on:

- Kedler 240 for the Dow Chemical Co.,
- Pepsin digestibility for the Moorman Mfg. Co., Quincy, Ill.,
- quail eggs for John DesMaris, Easthampton
- acid detergent fiber for Cornell University

Referee tests for the Association of Official Seed analysts were carried out. This involved special purity Analysis methods and germination analyses of six lots of seed.

## XIV FUTURE PLANS AND NEEDS

1. The highest levels of University administration must recognize, to an even greater extent, that the College of Agriculture and its successor the College of Food and Natural Resources is one of its largest professional schools and that it is worthy of, and in fact needs, greater support, especially in terms of resident instruction. Increased enrollments coupled with the clearly tri-partite responsibilities of the Experiment Station, Cooperative Extension Service and Public Service are straining our teaching resources. Badly needed are additional teaching assistants to relieve the strain in certain large enrollment courses, and renovation of many existing teaching laboratories. The Department of Plant and Soil Sciences, for example, has a heavy service teaching load with many laboratory sections being taught in old stockrooms or converted offices with make-do equipment. In some areas enrollments have increased significantly in recent years and entirely new teaching laboratory space needs to be developed. Increases in the animal science area, for example, have placed an unrealistic load on its one 16-student teaching laboratory.

2. Primary consideration should be given to solution of the housing problem which the Department of Landscape Architecture and Regional Planning has faced for several years. This department with 20 faculty and approximately 500 student majors is presently housed in six different buildings scattered across the campus. In addition to the communication and identity problem which this situation creates, many of the classrooms and faculty offices are sub-standard. The record of achievement compiled by this department is much too great for this situation to continue.

3. Additional support, beyond that which the College is able to provide, is needed to strengthen the Departments of Entomology and Plant Pathology. These areas, especially Entomology, have achieved national and international reputations and are deserving of greater support. They are at present suffering from a combination of antiquated facilities and low student enrollments. These two areas are vital to the development of future food supplies, and without doubt, enrollments will increase in the future, especially if the departments are able to acquire more suitable and attractive physical facilities.

## XV. APPENDIX

## 1. FRESHMEN AND TRANSFER STUDENTS ENROLLED - FALL 1971 (B.S. DEGREE)

<u>Major</u>	<u>Freshmen</u>	<u>Transfers</u>	<u>Total Entering Students</u>
Agricultural & Food Economics	11 (+4)	8 (-2)	19 (+2)
Animal Sciences	60 (+23)	28 (+20)	88 (+43)
Entomology	0 (-2)	1 (N.C.)	1 (-2)
Environmental Design	29 (+9)	32 (+12)	61 (+21)
Fisheries Biology	20 (+10)	7 (+2)	27 (+12)
Food and Agricultural Engineering	2 (N.C.)	0 (N.C.)	2 (N.C.)
Food Science and Technology	3 (N.C.)	3 (+2)	6 (+2)
Forestry	59 (+26)	25 (+8)	84 (+34)
Hotel, Restaurant, and Travel Administration	23 (+1)	24 (+3)	47 (+4)
Plant and Soil Sciences	17 (+10)	14 (+3)	31 (+13)
Plant Pathology	3 (+3)	1 (N.C.)	4 (+3)
Wildlife Biology	53 (+20)	18 (+4)	71 (+24)
Wood Science	3 (N.C.)	10 (+1)	13 (+1)
Undecided	<u>2</u>	<u>0</u>	<u>2</u>
<u>Totals</u>	285 (+104)	171 (+53)	456 (+157)

Note: Figures in parentheses represent actual increase or decrease in numbers over last year's figures. N.C.= No Change.

Freshmen figures include 20 swing-shift freshmen who attended summer school and will return for the spring '72 semester.

## 2. SOURCE OF TRANSFER STUDENTS - FALL 1971 (B.S. DEGREE)

<u>COMMUNITY COLLEGES</u>	<u>No. of Students</u>	<u>Increase or Decrease Over 1970</u>
Berkshire Community College	6	+3
Bristol Community College	4	+1
Cape Cod Community College	3	N.C.
Greenfield Community College	5	N.C.
Holyoke Community College	11	+4
Massachusetts Bay Community College	4	N.C.
Massasoit Community College	3	+1
Middlesex Community College	1	+1
Mt. Wachusett Community College	9	+8
Northern Essex Community College	6	-2
North Shore Community College	5	+2
Quinsigamond Community College	7	+5
Springfield Technical Community College	5	+4
<u>JUNIOR COLLEGES</u>		
Dean Junior College	1	+1
Newton Junior College	1	N.C.
Paul Smith's School	4	-6
Quincy Junior College	2	+2
Worcester Junior College	4	+4
<u>OTHER</u>		
Stockbridge School of Agriculture	53	+4
University of Massachusetts at Boston	5	+1
Miscellaneous	<u>32</u>	<u>+17</u>
<u>Totals</u>	171	+50

N.C.= No Change

## 3. TRENDS IN FRESHMEN AND TRANSFER ENROLLMENTS - 1969-71 (B.S. DEGREE)

The following table compares the 1971 freshmen and transfer enrollments with the two previous years. Both freshmen and transfer enrollments have increased significantly as indicated. This is particularly noteworthy at a time when 32 of the 68 member institutions of NASULGC report decreases in agricultural enrollments.

These increases are due in large part to the many and varied courses and programs which have been developed by the faculty in answer to student interest and need.

	YEAR OF ENTRY				
	1969	1970	% Increase	1971	% Increase
Freshmen	155	179	15.5	285	59.2
Transfers	114	118	3.5	171	44.9
Totals	269	297	10.4	456	53.5



4. UNDERGRADUATE ENROLLMENTS BY MAJOR - FALL - 1964 - 1971

<u>Major</u>	<u>1964</u>	<u>1965</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>	<u>1971</u>
Agricultural and Food Economics	11	21	26	35	43	50	51	69
*Entomology	13	13	10	12	10	7	10	19
Food and Agricultural Engineering	3	3	7	8	5	6	3	0
Food Science and Technology	35	22	21	25	22	23	25	25
Forestry and Wood Utilization	73	90	135	129	117	104	144	211
Environmental Design	65	88	87	80	101	120	117	209
Park Administration	-	5	12	32	41	55	45	16
Plant and Soil Sciences	29	26	34	29	31	39	44	63
Plant Pathology	-	-	-	-	-	3	1	5
Restaurant and Hotel Administration	35	58	82	129	160	166	181	200
Veterinary and Animal Sciences	53	52	66	75	97	105	120	178
Wildlife and Fisheries Biology	78	98	130	151	178	193	181	220
<u>TOTALS</u>	395	487	620	705	805	871	922	1,215

\*Entomology and Plant Pathology combined from 1958 through 1967.

PER CENT OF INCREASE 1964 TO 1971: 207%

(Does not include Stockbridge Students.)

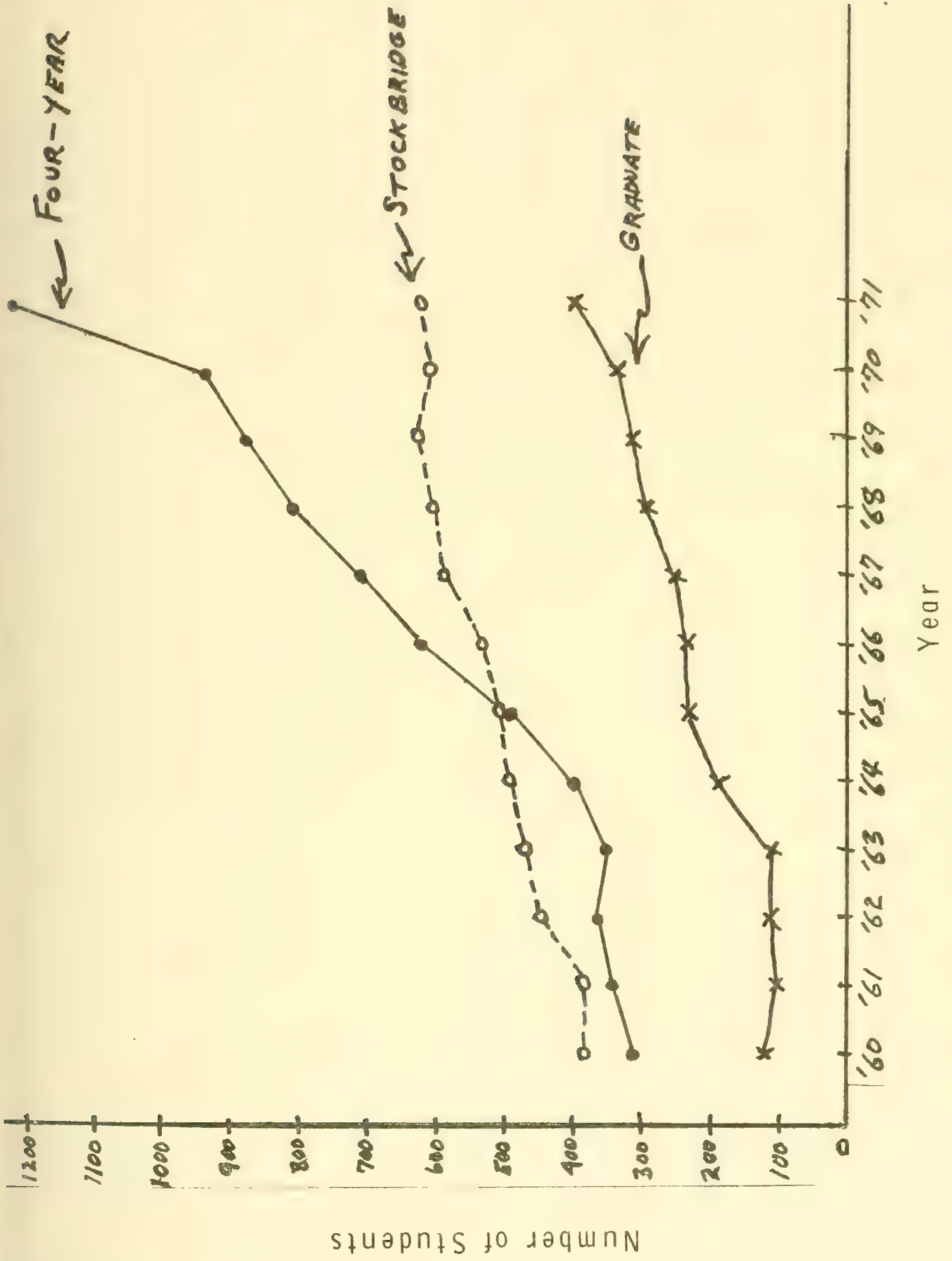
1. GRADUATE ENROLLMENTS BY DEPARTMENTS (FALL) - 1963 - 1971

<u>Major</u>	<u>1963</u>	<u>1964</u>	<u>1965</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>	<u>1971</u>
Agricultural and Food Economics	30	25	27	29	18	35	37	29	35
*Entomology	14	20	24	24	35	25	22	17	17
Food and Agricultural Engineering	12	16	18	13	10	15	19	19	14
Food Science	21	35	46	42	51	49	42	50	53
Forestry and Wildlife Management	12	44	46	46	45	45	85	76	97
Landscape Architecture	4	15	19	30	40	42	37	57	92
Plant and Soil Sciences	8	13	19	19	29	41	36	36	40
Plant Pathology	-	-	-	-	-	15	8	11	13
Veterinary and Animal Sciences	16	18	29	29	28	31	29	33	37
<u>TOTALS</u>	117	186	228	232	256	296	315	328	397

\*Entomology and Plant Pathology combined from 1958 through 1967

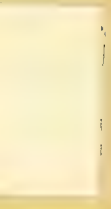
PER CENT OF INCREASE 1963 TO 1971: 239%

STUDENT ENROLLMENT 1900-1971









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**ANNUAL REPORT**  
**OF THE**  
**COLLEGE OF ARTS AND SCIENCES**

**1971-1972**



**UNIVERSITY OF MASSACHUSETTS AT AMHERST**





U N I V E R S I T Y    O F    M A S S A C H U S E T T S

COLLEGE OF ARTS AND SCIENCES

A N N U A L    R E P O R T

Period Covered: July 1, 1971 through June 30, 1972

Dean Alfange Jr., Dean, Faculty of Social and Behavioral  
Sciences

Jeremiah M. Allen, Dean, Faculty of Humanities and Fine  
Arts

Mac V. Edds, Jr., Dean, Faculty of Natural Sciences and  
Mathematics

Report prepared by H. Duncan Rollason, Associate Dean,  
College of Arts & Sciences



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## I. BUDGET

A. Budget Allocations

A statement of funds encumbered by the College during each of the last three fiscal years, as reported by the University Treasurer, is reported below. Similar statements for each of the three Faculties and the Office of the Deans are presented on the following page.

Account	FY '70	FY '71	FY '72
<u>State Funds:Salaries</u>			
01 Salaries	\$11,337,560	\$13,403,649	\$15,308,214
02 Salaries (other)	38,772	71,457	13,803
03 Service, non- employees	249,132	303,237	1,826,299
TAs charged to Provost 03*	<u>1,635,000*</u>	<u>1,711,664*</u>	<u>--</u>
<u>Subtotal:Salaries</u>	<u>\$13,260,464</u>	<u>\$15,490,007</u>	<u>\$17,148,316</u>
<u>State Funds:Other</u>			
10 Travel, auto- motive	\$43,296	\$41,808	\$39,201
11 Advertising & Printing	83	60	176
12 Repairs	44,109	49,974	55,447
13 Supplies	248,237	303,080	318,661
14 Office & Admini- strative Costs	140,265	165,973	179,594
15 Equipment	193,698	199,379	303,394#
16 Rentals	<u>21,493</u>	<u>23,333</u>	<u>24,084</u>
<u>Subtotal:Other</u>	<u>691,186</u>	<u>788,657</u>	<u>920,557</u>
<u>STATE FUNDS: TOTAL</u>	<u>\$13,951,650</u>	<u>\$16,278,664</u>	<u>\$18,068,873</u>
<u>Other Operating Funds: Salaries</u>	<u>2,201,811</u>	<u>2,053,118</u>	<u>2,201,060</u>
<u>TOTAL</u>	<u>\$16,153,461</u>	<u>\$18,331,782</u>	<u>\$20,269,933</u>
Number of instruc- tional students:	12,202	13,301	14,047
Repair cost (acct. 12) per student	\$3.61	\$3.76	\$3.95
Supply cost (acct. 13) per student	\$20.34	\$22.78	\$22.69
<u>State funds:"other" as percent of "salary"</u>	<u>5.21%</u>	<u>5.09%</u>	<u>5.03%</u>

\*The cost of teaching assistants was charged against the Provost's 03 account in FY '70 and '71 but included in the College 03 in FY '72.

#The sum encumbered in account 15 in FY '72 includes \$58,200 used to match a federal grant to Psychology and charged to the Provost's account. This sum was omitted in the calculation of state funds encumbered in "Other accounts" (10-16) as a percent of "Salary" (01-03).

FUNDS ENCUMBERED BY EACH FACULTY AND THE DEANS' OFFICE  
FISCAL YEARS 1970-72

ACCOUNT	HUMANITIES AND FINE ARTS		SOCIAL AND BEHAVIORAL SCIENCES		NATURAL SCIENCES AND MATHEMATICS		OFFICE OF THE DEANS	
	FY '70	FY '71	FY '70	FY '71	FY '70	FY '71	FY '70	FY '71
01	\$ 4,458,614*	\$ 5,010,095	\$ 2,723,177*	\$ 3,387,952	\$ 4,166,387	\$ 4,811,271	\$ 194,331	\$ 206,754
02	32,975	376	12,073	4,455	26,409	8,880	--	--
03	95,785	656,100	54,375	516,430	81,841	629,996	71,236	23,773
Prov. 03(TAs)	568,880	--	437,507	--	628,613	680,587	--	--
Sub-total (Salaries)	5,027,494	5,707,132	3,160,684	3,917,200	4,795,000	5,600,108	277,286	265,567
								230,618
10	14,013	17,250		6,808		11,218	9,769	899
11	60	96		--		--	--	30
12	5,266	5,057		8,325		34,994	1,389	1,712
13	43,364	47,132		49,397		205,110	5,209	9,702
14	45,771	54,768		41,624		51,969	26,609	14,965
15	36,882	45,646		46,955		101,054	14,888	7,241
16	7,014	4,125		4,143		14,937	2,289	2,040
Sub-Total (10-16)	116,031*	152,370	144,323*	157,252	398,425*	419,282	59,753	36,589
State Funds	5,143,525	5,859,502	3,305,007	4,074,452	5,193,425	6,019,390	309,693	325,320
Other Funds								
Salaries	127,879	106,457	510,435	449,225	1,562,869	1,497,310	628	126
TOTAL	5,271,404	5,965,959	3,815,442	4,523,677	6,742,730	7,516,700	310,321	325,446
								267,469

State Funds: "Other" percent of "Salary" 2.31% 2.67% 4.57% 4.01% 8.31% 7.49% 11.69% 22.50% 15.87%

\*For fiscal year 1970 only totals for salaries (accounts 01, 02, and 03), teaching assistants, and "other"(accounts 10-16) are provided.

†The sum encumbered in account 15 in FY '72 includes \$58,200 used to match a federal grant to Psychology and charged to the Provost's account. This sum was omitted in the calculation of state funds encumbered in "Other accounts" (10-16) as a percent of "Salary" (01-03).

As would be expected in a growing institution, particularly in a period of inflation, increases are observed in most accounts during the three-year period covered by this report. There is real concern, nonetheless, that the funds available for the "things" necessary for teaching, research, and service (accounts 10 through 16) have not kept pace with the real needs of the College.

The number of dollars per "instructional student" provides a measure of the financial support in the several maintenance accounts. An undergraduate "instructional student" is the statistical entity equivalent to 15 credit hours each semester or, normally, a student enrolled in ten courses a year. The sum encumbered for supplies in fiscal '72 was only \$22.78 per "instructional student"! At this level of support it is unnecessary to inspect departmental supply closets and chemical stockrooms to know there are no hoards of extra supplies.

The sum which is needed for maintenance and repair of equipment (account 12) is dependent upon the amount of equipment and its use. Although a reliable estimate of the present value of all equipment is not readily available, it is certain that the allocation of \$55,447 in account 12 in the fiscal year under review is less than three percent of equipment value. The dollars per instructional student have increased from \$3.61 in fiscal '70 to \$3.95 in fiscal '72--slightly less than 10%. This increase probably does not compensate for the effects of inflation to say nothing about the greater use of most pieces of equipment which results from increased enrollment.

A determination of the funds encumbered for the "things" required for teaching, research, and service as a percent of salaries also reveals that allocations in the former categories have not kept pace with the growth of the College and the effects of inflation. Because of changes in accounting procedures in the 03 account, the computations are best made on accounts 10-16 versus accounts 01-02 though similar answers are obtained if account 03 is included with appropriate adjustments. In 1965 the funds for "things" equalled 8.10% of salaries; in 1972 the sum encumbered for "things" equalled only 6.01% of salaries.\* In other words, the funds which are used by the staff in support of their work were 25% less, relative to salaries, than they were seven years ago. Additional support for travel, automotive expenses, printing, supplies, administrative expenses, equipment and rentals is sorely needed.

---

\*FY '65: Accts. 01-02 = \$ 7,927,299; accts. 10-16 = \$642,238

FY '72: Accts. 01-02 = \$15,322,017; accts. 10-16 = \$920,557

## II. PERSONNEL

### A. PROFESSIONAL PERSONNEL

#### 1. Administration, Faculty and Other Professional Personnel

Statistical data concerning the professional personnel of the College is presented in three tables as follows:

TABLE 1: PROFESSIONAL POSITIONS (FTE) FILLED BY RANK  
(Appendix A)

TABLE 2: NUMBER OF FACULTY POSITIONS (FTE) FILLED BY  
DEPARTMENT, FACULTY, AND RANK: FALL SEMESTER  
(Appendix A)

TABLE 3: PROFESSIONAL PERSONNEL ACTIONS (Appendix A)

In each of the above tables the numbers refer to full-time equivalent positions which are filled as of September of the year indicated.

The vote of the faculty to divide the College into three faculties, each with its own dean, which had been approved by the Trustees in August, 1970 was fully implemented during the year 1971-1972. Dr. Mac V. Edds, Jr., a distinguished developmental biologist, was appointed Dean of the Faculty of Natural Sciences and Mathematics and assumed his position at the start of the spring semester.

The number of faculty positions (FTE=full-time equivalent) and the number of faculty persons in the College increased this year as might be anticipated with the continuing growth of the student body. The College maintains its records according to positions filled; this data is the basis for Tables 1, 2, and 3. The office of Institutional Studies makes its determination of faculty positions from payroll reports. The data differ somewhat. If a professor is on leave of absence without pay and his position filled by two part-time people, for example, we consider the position of professor to be filled, whereas the Office of Institutional Studies does not count the professor but does count the two part-time appointees. The differences which result from the two methods of determination are summarized in the table on the next page.

The number of faculty positions (FTE) filled in September 1971 was 67.3 greater than in the previous year. This was equivalent to an increase of only 57.5 positions as calculated from the payroll reports by the Office of Institutional Studies. The distribution of the additional filled positions among the three faculties and percent of growth in each case was as follows:

Humanities and Fine Arts, 27 positions (8.3% increase);  
Social & Behavioral Sciences, 24.5 positions (12.2% increase); and  
Natural Sciences and Mathematics, 15.8 (6.1% increase).

FACULTY POSITIONS BY RANK AS OF SEPTEMBER, 1971

	<u>Prof.</u>	<u>Assoc. Prof.</u>	<u>Asst. Prof.</u>	<u>Inst. &amp; Lect.</u>	<u>Part-time No.</u>	<u>FTE</u>	<u>Total</u>
<u>HUMANITIES &amp; FINE ARTS</u>							
FTE positions	82	89.9	126.1	55.7			353.7
Payroll Report*	79	88.0	122.0	41.0	58	22.0	352.0
<u>SOCIAL &amp; BEHAVIORAL SCIENCES</u>							
FTE positions	55	64.0	81.0	25.3			225.3
Payroll Report*	51	60.0	77.0	17.0	34	13.0	218.0
<u>NATURAL SCIENCES &amp; MATHEMATICS</u>							
FTE positions	81	72.5	98.8	20.5			272.8
Payroll Report*	76	71.0	91.0	14.0	48	17.9	269.9
FTE CAS Total	218	226.4	305.9	101.5			851.8
*Payroll Total	206	219.0	290.0	69.0	140	52.9	836.9

\*Data on positions as determined from the Payroll Reports was supplied by the Office of Institutional Studies.

The continuing, more rapid growth in the size of the Faculty of Social and Behavioral Sciences is, at least in part, a response to the continuing undergraduate enrollment pressures in these fields.

There were no additions to the 13 non-teaching professional positions in the College.

Teaching assistants for the 1971-72 academic year numbered 557.75 full-time equivalents at \$3,200 each. This number is 50.25 fewer than in the previous year. The number of teaching assistants was equivalent to 65.5 percent of the number of faculty positions this year as compared to 77.5 percent the previous year.

Postdoctoral research associates contribute to the scholarly activities in the departments without cost to the state because each is supported on grant funds. During the past year they numbered 33, working in five departments in the Faculty of Natural Sciences and Mathematics and in one department in the Faculty of Social and Behavioral Sciences.

Professional personnel actions are summarized in Table 3. Each action was considered on its own merits, and further comment on this summary of actions is unnecessary.

## 2. Appointment to the Rank of Professor Emeritus

Dr. Clarence W. Shute, Professor of Philosophy, retiring after 22 years at Massachusetts, has had a distinguished career as a scholar, teacher, and administrator. Author of a book on Aristotle, he is best known as a philosopher of religion and interpreter of oriental thought: he has published important articles in these fields. He was head of the Philosophy Department for ten years, and did much to bring it to its present position of national prominence. He also served as Acting Dean of the College of Arts and Sciences during 1960-61, and was Master of the Southwest Residential College for several years. As a teacher he has had extraordinary success: his courses on Philosophy of Religion and on Indian and Far Eastern Philosophies were among the Department's most popular offerings. A man of sense as well as wisdom, he will be greatly missed.

### B. NON-PROFESSIONAL PERSONNEL

Statistical data concerning the non-professional personnel of the College is presented in three tables as follows:

TABLE 4: NON-PROFESSIONAL POSITIONS BY RANK  
(Appendix A)

TABLE 5: FACULTY AND SECRETARIAL POSITIONS BY FACULTY  
AND DEPARTMENT 1971-72 (Appendix A)

TABLE 6: NON-PROFESSIONAL TECHNICAL POSITIONS BY  
DEPARTMENTS 1971-72

Information concerning the distribution of clerical positions among departments is provided in Table 5. Inspection of this table reveals the following facts: (1) In eight departments the ratio of faculty to secretarial positions is 9.0 or greater. (Afro-American Studies, 11.5; Comparative Literature, 9.0; English, 9.2; French/Italian, 12.2; History, 9.7; Music, 9.0; Philosophy, 11.3.) (2) There are several departments of considerable size within the College in which the highest ranking clerical position is that of Senior Clerk. In three areas (Linguistics, Slavic, and Asian Studies) the highest ranking position is that of a Junior Clerk.

Members of the faculty can devote more time to teaching, advising students, and scholarly research if they are relieved of clerical and technical chores. While the present ratio of 7.4 faculty positions per clerical position and 13.5 faculty positions per technical position represents an improved situation as compared to 1969-70, it remains the goal of the College to make significant further reductions in these ratios.

III. ORGANIZATIONAL CHART  
A. Departments and Administrative Units

COLLEGE OF ARTS AND SCIENCES

FACULTY OF HUMANITIES  
AND FINE ARTS  
Jeremiah M. Allen, Dean

FACULTY OF SOCIAL AND  
BEHAVIORAL SCIENCES  
Dean Alfange, Jr., Dean

- Afro-American Studies
- Art
- Classics
- Comparative Literature
- English
- French and Italian
- Hispanic Languages
- History
- Linguistics
- Music
- Philosophy
- Rhetoric<sup>a</sup>
- Slavic Languages

- Anthropology
- Asian Studies<sup>a</sup>
- Economics
- Political Science
- Psychology
- Sociology
- Speech

OFFICE OF THE DEANS

FACULTY OF NATURAL SCIENCES  
AND MATHEMATICS  
Mac V. Edds, Jr., Dean

H. Duncan Rollason, Assoc. Dean  
of the College  
James W. Shaw, Associate Dean  
of the College and Director  
of CASIAC<sup>b</sup>

- Biochemistry
- Botany
- Chemistry
- Geology/Geography
- Mathematics/Statistics
- Microbiology
- Physics/Astronomy<sup>c</sup>
- Zoology

- NOTES:
- <sup>a</sup> Asian Studies and Rhetoric operate as separate units without departmental status.
  - <sup>b</sup> College of Arts and Sciences Information and Advising Center.
  - <sup>c</sup> The Astronomy Program has a chairman who is also chairman of the Five-College Department.

ACTIVITY CHART BY FACULTY AND DEPARTMENT

	<u>Degree*</u> <u>Programs</u>	<u>Instruc-</u> <u>tion</u>	<u>Re-</u> <u>search</u>	<u>Service</u>
<u>HUMANITIES AND FINE ARTS</u>				
Afro-American Studies	B	X	X	X
Art History	BS	X	-	-
Creative Art	BM	X	X	-
Classics	B	X	X	-
Comparative Literature	BMD	X	X	-
English	BMSD	X	X	-
Journalistic Studies	B	X	X	X
French and	BMD	X	X	-
Italian	B	X	X	-
Germanic Languages & Literature	BMD	X	X	-
Hispanic Languages & Literature	BMD	X	X	X
History	BMD	X	X	-
Linguistics	MD	X	X	X
Music	BM	X	X	X
Philosophy	BMD	X	X	-
Slavic Languages & Literature	BM	X	X	-
<u>SOCIAL AND BEHAVIORAL SCIENCES</u>				
Anthropology	BMD	X	X	-
Asian Studies Program	--	X	X	-
Economics	BMD	X	X	-
Political Science	BMD	X	X	X
Public Administration	M	-	-	-
Psychology	BMD	X	X	X
Sociology	BMD	X	X	X
Speech	BMSD	X	X	X
<u>NATURAL SCIENCES AND MATHEMATICS</u>				
Biochemistry	BMD	X	X	X
Botany	BMD	X	X	X
Chemistry	BMD	X	X	X
Geology and	BMD	X	X	X
Geography	B	X	X	-
Mathematics and	BMD	X	X	-
Statistics	M	X	X	X
Microbiology	BMD	X	X	X
Physics and Astronomy	BMD	X	X	-
Zoology	BMD	X	X	X

NOTE: \*Degree Programs: B = Bachelor; M = Master, less than 40 credits required; S = Master, 40 credits or more required; D = Doctoral Degree.



## IV. STUDENTS

### A. Majors

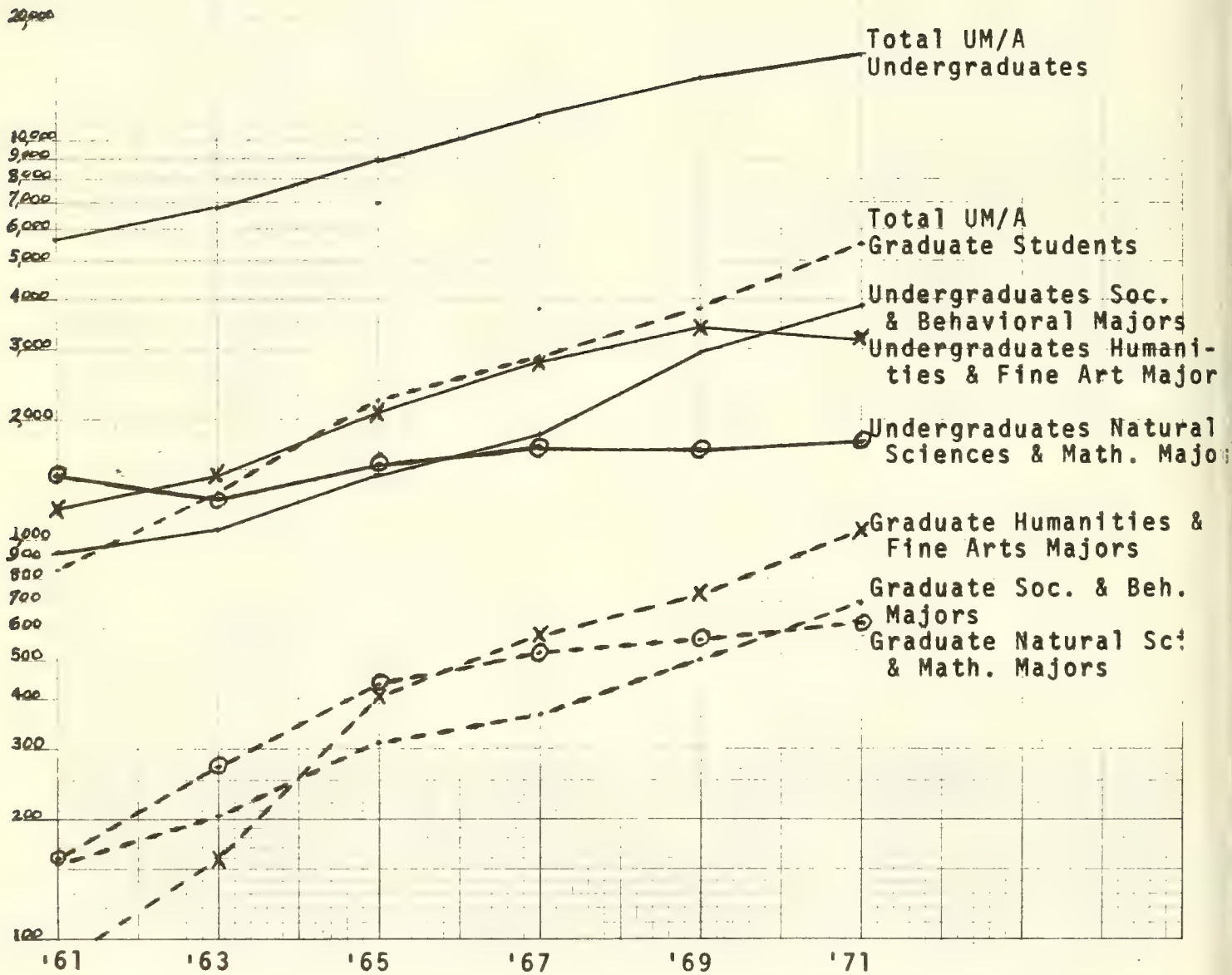
Data for each of the past three years concerning the number of majors, both undergraduate and graduate, according to Faculty and class is presented in Table 7. As would be anticipated, there are increased numbers in each category in each succeeding year. It should be noted from the data in this Table that approximately 2,000 of the undergraduates in the College are not registered as majors in any particular department. CASIAC, the College of Arts and Sciences Information and Advising Center, serves as advisor and major for these students.

Information concerning the distribution of majors according to Departments within each of the Faculties is presented in Table 8. It is interesting to note that the total number of undergraduates with majors in the Natural Sciences and Mathematics are distributed approximately equally between lower division students (freshmen and sophomores) and upper division students (juniors and seniors). In the Humanities and Fine Arts and in the Social and Behavioral Sciences the number of upperclassmen is 50 percent to 60 percent greater than the number of underclassmen. This is probably indicative of the fact that a major in the sciences is sequential in character. If a student does not begin as a science or mathematics major as a freshman, it is likely to require more than the usual eight semesters to complete requirements for the bachelor's degree. Furthermore, the community colleges in general do not attract many potential science-mathematics majors, and they are not equipped to provide the scientific background equivalent to that gained by our own students during the first two years. It is thought that the majority of the large number of transfers from the community colleges select a major in one of the non-sciences.

The data in Tables 7 and 8 also reveal interesting differences concerning graduate enrollments. Whereas all but a small fraction of the graduate students in Natural Sciences and Mathematics are degree students, there are large numbers of other graduate students in the other Faculties.

The growth of each of the three Faculties in terms of undergraduates, undergraduate majors, and graduate majors and a comparison of this growth with that of the University as a whole since 1961, is best visualized in the graph entitled, Undergraduate and Graduate Majors in Each of the Three Faculties and in the University, Fall Semester 1961-1971 (see next page). This is a semi-logarithmic graph constructed from data for the fall semester of alternate years; thus, the rates of growth are indicated by the slopes of the lines. Parallel lines indicate equal rates of growth. CASIAC majors are distributed among the three Faculties in proportion to the number of majors in each

UNDERGRADUATE AND GRADUATE MAJORS IN EACH OF THE  
THREE FACULTIES AND IN THE UNIVERSITY, FALL  
SEMESTER 1961-1971



Faculty. It is immediately apparent from this graph that the most rapid growth in the last four years occurred in the number of undergraduate majors in the Social and Behavioral Sciences. In the ten year span, the most rapid growth has been in the number of graduate students majoring in the Humanities and Fine Arts. There were fewer than 100 such majors in 1961 as compared to 1,063 in September of 1971. Growth in the number of graduate majors in the Social and Behavioral Sciences has roughly paralleled that in Humanities and Fine Arts since 1965. Growth in terms of numbers of majors in the Natural Sciences and Mathematics has also occurred at both the undergraduate and graduate levels though it has been less rapid than in the other Faculties, partially, perhaps, because of space limitations.

B. Teaching Loads - Student, Faculty Ratios

The teaching load of the College and of each of its several Departments has always been, and continues to be, very much greater than that indicated by the number of majors. The number of student credit hours taught by each department is reported in Table 9. Student credit hours can be converted to instructional students, thereby permitting an easier comparison of some of the data. An instructional undergraduate student is fifteen student credit hours in courses applicable to a Stockbridge diploma or a baccalaureate degree. An instructional graduate student is eight student credit hours applicable to a graduate degree or earned by an undergraduate in a graduate level course. Data on the majors and instructional students according to the three faculties is presented in terms of numbers of persons and percentages of the University at Massachusetts/Amherst totals in Table 10. This data indicates that for the year just ended, 53.83 percent of the undergraduates and 42.4 percent of the graduates on the Amherst campus are registered as majors in the College of Arts and Sciences. The teaching load of the College, on the other hand, as measured by instructional students, is 67.3 percent of the undergraduate load and 44.2 percent of the graduate student load. The data in this Table also reveal that, while the present year was one in which the number of undergraduate majors in the Social and Behavioral Sciences exceeds the number in the Humanities and Fine Arts, nonetheless the teaching load in the Humanities and Fine Arts remains at a higher level than that of either of the other two Faculties.

Although "instructional students" provide a useful means of measuring teaching loads and provide a basis for some comparisons, they are a particularly unsatisfactory measure of graduate teaching loads. Table 11 presents data on the number of thesis registrations, both master and doctoral, in each of the Departments in each of the three Faculties for the fall and spring semesters of the year just ended. Thesis supervision involves teaching at a one-to-one level between student and faculty. It is

particularly noteworthy here that the number of doctoral dissertations in the Faculty of Natural Sciences and Mathematics is significantly greater than that in either of the other two Faculties in the College.

The data on faculty positions, instructional students, and graduate thesis registrations are summarized in Table 12, (Appendix, page 13) in the form of a statement of student-faculty ratios. That significant differences between the three Faculties exist is immediately apparent. Some differences might be anticipated, but the data indicate clearly that the teaching load in the Social and Behavioral Sciences is much too high to permit much individual student attention by the members of the faculty if they are to actively pursue research interests and service responsibilities.

### C. Degrees Awarded

A total of 1,602 bachelor's degrees, 319 master's degrees, and 93 doctorates were awarded majors in the College during 1971-72. Data concerning the distribution of degrees between the three Faculties for each of the past three years is presented in Table 13 (Appendix, page 35).

The fact that bachelor's degrees were awarded to five fewer majors in the College this year than last is somewhat surprising, and one can only guess about the reasons. It is interesting to note that this year degrees were awarded to 96.4 percent of those students classified as seniors with majors in the College; last year the number of degrees awarded was equal to only 91.8 percent of the seniors. The number of recipients of the bachelor's degree was equivalent to 18.2 percent of all undergraduates in the College this year as compared to 18.6 percent last year and only 15.4 percent seven years ago.

### D. Special Recognition

The academic achievements of many of the undergraduates with majors in the College have been recognized in a variety of ways; graduation with honors, acceptance to distinguished graduate and professional schools, election to Phi Beta Kappa, and other scholastic honorary societies, etc. It is therefore both difficult and hazardous to select two or three for special mention in this report. Nonetheless, I mention the following because the honor bestowed is unique in that it is shared nationally by a very small, select group of students. Steven Willey and Joan Polakow, both French majors, were invited to join the Assises Internationales du Theatre des Nations conference in Paris, France, April 1972. The conference was sponsored by the French Government. Leonard G. Grzanka, an English major, was accorded honorable mention by the Danforth Foundation, indicating that he was judged to be among the outstanding seniors in a nationwide search of persons interested in graduate study with a career goal of college teaching.

## V. FACULTY

Information concerning faculty positions is presented in Section II, Personnel and its associated Tables (Appendix A, Tables 1-2).

### A. FELLOWSHIPS AND OTHER SPECIAL RECOGNITION ACCORDED FACULTY MEMBERS

#### 1. Distinguished Teacher Awards

The following two members of the College faculty were recipients of Distinguished Teacher Awards at the Opening Convocation:

Thomas Arny, Astronomy

Barbara Jean White, Zoology

These awards, each consisting of \$1,000 and a certificate of commendation have been made annually since 1962 and represent one of the University's attempts to identify and honor distinguished classroom teaching, particularly on the undergraduate level. The awards to Professors Arny and White bring to 13 the number of faculty of this College who have been recognized for teaching excellence.

#### 2. Honors for Distinguished Scholarship, Prizes and Awards of Special Fellowships

The College is proud to recognize those members of its faculty who have been accorded honors for their distinguished scholarship, awarded special fellowships, or elected to national office in a professional society. The names of those receiving special recognition and the nature of the award is presented in Table 14 (Appendix A, page 36 ).

### B. PUBLICATIONS

One hundred and four books and monographs written or edited by members of the faculty were published during the year (Table 15); of these, 19 were published by the presses of 12 different universities. At least 675 articles were published in professional journals. In addition, numerous abstracts, poems, and book reviews were printed and many papers were presented at professional meetings by members of the faculty. Works of art were exhibited and concerts presented both in this country and abroad by members of the faculty in the departments of Art and Music.

### C. SPONSORED RESEARCH AND SERVICE PROJECTS

The conduct of research by members of the faculty is greatly facilitated by the award of grants by federal agencies, industry, and the University itself. Because grants and contracts frequently are awarded for periods which differ from the fiscal or academic year, it is difficult to assign a meaningful annual value to the awards. A measure of their worth, however, is reflected in the payroll from non-state funds. The payroll from research and training grants and contracts for each of the last three fiscal years is presented by faculty and department in Table 16 (Appendix A, page ). An undetermined but significant fraction of these payrolls goes to graduate students thereby making it financially possible for them to pursue graduate study as well as supporting the various research projects.

### D. OTHER PROFESSIONAL ACTIVITIES OF THE FACULTY

All members of the faculty, as well as other members of the staff, have contributed to the life and reputation of the College and University. A complete list of the professional activities of the faculty in addition to those of teaching and research defies compilation because of number and diversity. Table 17 is a compilation of those professional activities of the faculty which involve membership on editorial or advisory boards of national organizations, office in a regional or national organization, participation by invitation in symposia sponsored by a national agency, or other activities which are considered of national importance.

## VI. MAJOR ACCOMPLISHMENTS

A. CASIAC (College of Arts & Sciences Information and Advising Center)

Goals of CASIAC. Put succinctly, academic counseling is teaching, deeper teaching than can be carried on in a classroom. Using information-giving as a means toward the end of establishing some personal contact between a relatively mature and a relatively immature intellect, counselors can move from questions regarding "what" and "how" to questions regarding "why" and "should". These more substantive functions require that counseling be done by faculty for, informed as "semi-professionals" may become, there is no substitute for a faculty perspective regarding academe.

The primary goal, then, is to provide each student access to a faculty member selected because of his interest in counseling and supported by a thorough and accurate information system, thereby helping each student get a personalized, tailor-made education.

The endeavor has been to pull together a critical mass of information and people, and to make these resources readily accessible by offering assistance both in a centralized office and in residence units.

Progress Report. During the past ten months the following activities were accomplished:--

- (1) Recruitment and training of
  - (a) some twenty faculty counselors ( a number expected to reach thirty next year) or one per department in the College;
  - (b) some thirty students as peer academic advisors;
  - (c) counselors for pre-law, pre-med., pre-nursing, and pre-social work;
- (2) Compiled an extensive handbook of information for academic counselors;
- (3) Extended accessibility by lengthening counseling hours into the evening during peak periods by having counselors available in CASIAC all day each working day, and by working out arrangements for sending student and faculty counselors to residence halls;
- (4) Compiled a library of counseling materials including information on such items as the Five Colleges, exchange programs, careers, etc.;
- (5) Distributed a handbook to each entering student regarding majors information;

- (6) Printed a handout of "where do I go . . ." for students which provides answers to often asked questions;
- (7) Set up a summer counseling operation for incoming freshmen in which each student is given a half hour conversation with his counselor in addition to the group counseling sessions scheduled;
- (8) Instituted a counseling program for mid-year transfers and returning students;
- (9) Established a limit on the number of courses for which a student may pre-register thereby giving all students equal access to a basic program;
- (10) Improved the integration of university-wide counseling services by establishing liaison with CCEBS, Career Development, Five Colleges Counseling Center, Mental Health, Residence Areas, BDIC, and other schools and colleges.

It was deemed wise to encourage freshmen not to declare a major in an effort to protect a student's option to explore and change during the early terms in the College.

An Academic Counseling Referral Form was distributed to all faculty to facilitate referring student problems to the appropriate counseling office early in the term while options for correction were available. A file of running comments by counselors was initiated to provide continuity in counseling in the event a student were unable to see his original counselor. An administrative board of deans was arranged to respond quickly and impartially to student appeals of decisions made by individual counseling members.

A newsletter was distributed to link departmental advising to CASIAC and meetings with departmental chairmen were initiated in an effort to develop career planning.

CASIAC performed academic advising for 2,000 College of Arts and Sciences undeclared majors and gave service to approximately 7,000 undergraduates who sought some type of information or assistance from CASIAC.

#### B. NEW DEPARTMENTS AND DEGREE PROGRAMS

Departments of Classics, Comparative Literature, and Linguistics were approved, effective July 1, 1972. Classics had been associated with French and Italian in a single department, and both Comparative Literature and Linguistics had been previously established as independant programs within the College.



Three new undergraduate majors were approved by the College Curriculum Committee though final approval awaits further action during the next academic year. The new majors are in Afro-American Studies, which had been previously approved in principal, Judaic Studies and Near Eastern Studies. The latter two majors, both interdisciplinary in character, were proposed by committees under the chairmanship of Professor Gilbert Lawall, Head of Classics.

The College also recommended that Theater, which is presently an area within the Department of Speech, be established as an independent program in the Faculty of Humanities and Fine Arts. A program for a Master of Arts degree in Geography and an extension of the Ph.D. in Speech to the area of communications disorders was also recommended.

#### C. REPORT OF THE COLLEGE CURRICULUM COMMITTEE

The Curriculum Committee reviewed, and in most cases approved, 102 proposals for new courses and/or revisions of existing undergraduate courses. The Faculty of Humanities and Fine Arts initiated 44 of the proposals, the Faculty of Social and Behavioral Sciences initiated 39, including a revision of the major in Economics, and the Faculty of Natural Sciences and Mathematics initiated 19 proposals.

Special Topics, with the numbers 298 and 299, were approved as a course designation which could be used by each department within the College and which could be used with a Faculty or College title for topics of an interdisciplinary nature. Three Freshman Seminars, one in the area of each of the three Faculties were also approved (CAS 102, 103, and 104).

Fourteen graduate course proposals from each of the Faculties of Humanities and Fine Arts and Social and Behavioral Sciences and five proposals from the Faculty of Natural Sciences and Mathematics were forwarded to the Graduate School for review by the Graduate Curriculum Committee.



## VII. SPECIAL PROGRAMS

A. Overseas Programs1. Freiburg (Germany) Program

In September, 1966, the University in cooperation with the University of Freiburg established a small honors center dedicated to the study of the Atlantic Community in all its various phases. The program, under which graduate students and advanced undergraduates enroll in the regularly-scheduled courses offered by the University of Freiburg, has evolved into one of broad intellectual and cultural exchange of both students and faculty of the two institutions.

During the present year Professor Albert Reh organized and conducted another very successful German Summer Program at the University of Freiburg. Professor Klaus Peter taught at Freiburg and supervised Massachusetts German students there during the year. Also teaching in Freiburg were Professors Mario de Pillis and John Nelson of the Departments of History and English, respectively. Professor Dietrich Schwanitz from the University of Freiburg was a Visiting Professor in our Department of English under the aegis of the expanded exchange program.

2. Anthropology Field Training Program

The Anthropology Department's program of field training in Europe was successfully launched in February, 1972, in its first year of independence from the University's Freiberg Program. Professor Pi-Sunyer took six students to Spain and Italy for directed field research, supported by a special allocation from the Dean of the Faculty of Social and Behavioral Sciences. This program is intended to be on-going with a different faculty member taking a small group of students each spring semester to an area of Europe in which he has special competence for research and training.

3. Grenoble, France

The Department of French and Italian initiated a new one-semester program at the University of Grenoble, France, during this academic year, under the direction of Professor Gugli. Seventy-two undergraduates, about half of them majoring in fields other than French, went to Grenoble for the spring semester. The more advanced students, mostly French majors, enrolled in the regular university courses, and we are pleased that Professor Gugli has received compliments from the faculty and administration at Grenoble on our students' preparation, which apparently is much better than the preparation of most American students in foreign study programs. Those students who were less proficient in French and would have had difficulty following a regular French university course, are enrolled in the special program of courses for foreign students offered at the University of Grenoble. To judge by the reports received from Professor Gugli, the new program at Grenoble got off to a successful start.

#### 4. Pau, France

This summer the Department of French and Italian will again offer a program at Pau. Professor Gugli will be in charge of the group while Professor Cassirer has been handling the administrative work during the spring semester. Twenty-one students have enrolled, about half of them from the two campuses of the University of Massachusetts, while the others came from as far away as Georgia and Mississippi.

#### 5. Bologna, Italy

This summer the Department of French and Italian is sponsoring the Bologna Program in Italy. Professor Tillona is directing the 1972 Program with the assistance of Professor Anthony Terrizzi who will probably assume responsibility for the Program next year. To date 25 students have enrolled, about half from the University (both Amherst and Boston campuses), and half from other schools in the country. One encouraging change is that this year the Program has become attractive to serious graduate students. We have five in all, of whom one has already completed her Ph.D. and is on a college faculty.

#### 6. Madrid Summer Seminar

The University's program of advanced studies in Spanish literature (I. Blanche De Puy, Director) is designed primarily for graduate students, but is open to well-qualified undergraduates who have completed a minimum of three years of college Spanish. The Seminar offers two graduate seminars and two advanced courses in literature and history of ideas, as well as one undergraduate course in art (taught at the Prado). Classes are taught by prominent Hispanists from Spain or Latin America, and are supplemented by a number of lectures on contemporary Spanish literature, music, and art. Integrated into the program, which runs from mid-June to late August, are three weekend cultural excursions. Students are housed in selected Spanish homes.

#### 7. Oxford Summer Seminar

Director, Ernest Hofer. One hundred students were approved to study for six weeks at Trinity College, Oxford during the summer of 1971. Of the 100 students participating in the program, 41 were from the University of Massachusetts, the rest represented many colleges and universities from all parts of the country. Oxford University dons taught all courses, facilities were provided by Trinity College, and students went to the theatre in London and Stratford, visited places of historic and literary interest, and had access to the Bodleian Library.

## B. Community Service Programs

1. COP--Career Opportunities Program in Brooklyn, N.Y. Three departments within the College participated in the Career Opportunities Program of the Center for Urban Education, School of Education. This unusual teaching program, well received by the students, is financed through the Model Cities Program of the Department of Health, Education, and Welfare.

For the English Department, Professor Edward (Mike) Jayne initiated and directed the first of the Brooklyn COP composition seminars. The Brooklyn COP sponsored an experimental four-day workshop this April in grammar and composition which was considered an enormous success by all involved. This fall the workshop will be integrated with Advanced Composition (English 337), so that faculty will be teaching on Wednesdays followed by a coordinated tutorial program on Thursdays staffed by students in English 337C. Workshops are now tentatively planned as an auxiliary to the regular curriculum of COP students through graduation.

A course in American History (History 150) was taught by Assistant Professor Philip Swenson and seven graduate teaching assistants who flew each week to the Bedford-Stuyvesant district of Brooklyn. It is reported that they made an especially fine contribution to this program by pressing for improved academic standards.

The Department of Geology participated in the program for a second time by offering a more advanced course in Physical and Historical Geology to about 200 adult Teacher's aides, most of whom live in the Bedford-Stuyvesant and Brownsville sections of Brooklyn. Six geologists flew to New York City one day each week during the fall semester. The geology course is part of the science requirement for a B.S. in Elementary Education from the School of Education, University of Massachusetts. Participating on a regular basis were faculty members Charles W. Pitrat and Thomas E. Rice, and six graduate students.

2. Holyoke Tutorial. (Nina B. Scott, Director) This new "community service" course proved very successful during 1971-72. It is to be expanded next year.

As of the fall of '71, UMass. students in this program earned 3 major Spanish credits by participating in Spanish 385 (Holyoke Tutorial), a new course designed not only to help the Spanish-speaking community in Holyoke but also to give our own students a chance to use their Spanish skills outside the classroom.

There are tremendous needs within the Spanish-speaking communities and it is possible that the future Holyoke Tutorial will offer a variety of options to participating students. Initially, we tried to help the children of elementary or junior high school age who are unable to meet the demands placed upon them in school. Many

children come from homes where only Spanish is spoken, but they have never learned to read or write it. At the same time, they are asked to master the basic skills of English. UMass students were involved in tutoring Spanish-speaking children, either individually or in very small groups, stressing proficiency in basic English comprehension. Because of difficulties in English comprehension, our students are required to use Spanish to a considerable degree. Participating students were taken to Holyoke by bus two mornings a week, and there was one additional discussion hour with Prof. Scott. Students kept a running journal of their experiences and submitted a final paper (in English) at the end of the semester.

### 3. University Year for Action Program

The University of Massachusetts was one of the first academic institutions in the nation to participate in the federally-funded University Year for Action Program. Dr. James W. Shaw, Associate Dean of the College, and Director of CASIAC, was an active member of the committee which successfully implemented the program, watched its development, and proposed modifications for the year ahead. Several members of our faculty participated in the program in a variety of ways. The following statement from the English Department is illustrative.

"Professor James Matlack is the English Department Coordinator for the University Year for Action Program at the University of Massachusetts which was started in August 1971. The purpose of this program is to provide an opportunity for undergraduates to spend a year in constructive off-campus service with a community agency in Western Massachusetts while maintaining academic progress toward graduation. Somewhat hastily organized due to late funding, the program enrolled five English majors in its first phase. While two returned to full-time study after one term because of difficulties within their agencies, three others have given exemplary performances in varied assignments--Nancy Shroeder working in the Northampton Jail, Peter McDonald as a reporter with SALT (a newspaper in Springfield), and Al Alessi serving as program director of Friendly House in Worcester. Three more English-Journalism majors joined the ACTION Program in January 1972. All are working for SALT. Apart from Journalism students, English majors have more diverse interests and skills than undergraduates in most other departments and English has far less precedent and experience in supervising full-time field work assignments for its students. Therefore the academic liaison with each participating ACTION intern has been individualized, flexible, and tailored to the needs of his agency task."

### 4. Springfield Community Project

The W.E.B. Dubois Center in Springfield was established during the present academic year and Mr. Melvin W. Smith appointed as

resident director. It was his responsibility to extend the present plans and begin implementation of five pilot projects designed to provide assistance to the Springfield Afro-American community in the areas of legal research and supportive services, art and culture, communications methods and media, health services, and community organization/representation.

In conjunction with the above projects, the W.E.B. DuBois Center serves as a base of operations for university students engaged in course-related field work and other voluntary field work in the inner city. Progress during the present year ensures real involvement by students and faculty in the social, economic, political, and cultural problems of the sizable black community in the nearby urban center of Springfield.

#### 5. Communication Disorders Clinic

The Communication Disorders Clinic is an important teaching and service arm of the Department of Speech. During the report period, affiliations were established and/or continued in order to offer students a variety of clinical experience and in order to extend the service function of the staff and students. (Examples: Belchertown State School, Amherst Public Schools, Gateway School System, Holyoke Hospital, Franklin County Public Hospital, and Ludlow Public Schools--12 facilities all told.)

More than 25 students were enrolled for clinical practice each semester in Speech 288/588. There were also about 30 students in off-campus placement during the academic year.

Approximately 65 clients were seen at the Clinic on a regularly scheduled basis each semester. In addition, three diagnostic initial evaluations and 10-12 complete audiological evaluations were performed each week. Examinations were also accomplished for diagnostic evaluations. Hearing tests were performed for Student Health Service upon their request.

During the winter inter-session, staff and students remained on duty and accomplished 41 diagnostic evaluations in order to reduce our waiting list. Also, a summer clinic was held July-August 1971, to give intensive therapy to clients who needed such help and to maintain therapy for those clients for whom it was not advisable to have a long break in therapy. Three staff members and 12-15 students were involved in maintaining this program.

Apart from the activities of the Clinic, Professor Harry Tokay served as a consultant to Franklin County Public Hospital--the Communication Disorders Department, to the Austine School for the Deaf, and to the Willie Ross School for the Deaf where he also served on their Board of Directors.

## 6. Streptococcus Identification Laboratory

A laboratory for the identification of streptococci is operated by the Department of Microbiology under the direction of Professor C.D. Cox. An estimated 48,000 cultures were examined during the year. Financial support--\$46,500 in FY'72--is provided by annual agreement with the Division of Adult Health, Massachusetts State Health Department.

## 7. Environmental Investigations

Many members of the faculty are actively involved in teaching and research in the broad area of ecology. The investigation with the greatest immediate impact within the Commonwealth was that of Prof. W.S. Motts of problems concerning the Montague Sanitary Landfill Project. Investigations showed that potentially severe environmental change, including ground-water pollution, was a distinct possibility. The report was accepted by the Department of Natural Resources and, primarily because of the Montague controversy, the Governor of the Commonwealth has recommended legislation requiring environmental impact studies on all future landfill sites.

Members of the Geology Department faculty are also assisting the town of Amherst in studies of ground-water supplies. The growth of the University has so increased water consumption that both water supplies and sewage disposal have become critical problems for the community.



## FUTURE PLANS AND NEEDS

Increases in enrollment of about 1,500 students a year have been characteristic of the University during most of the past decade, and previous statements of future plans and needs have focused upon the requirements for more staff, more space, and more money to both handle the increased teaching load and improve the quality of our offerings. With the termination of rapid growth and reorganization of the College into three Faculties, we look forward to a year of examination of programs, reflection upon our growth and progress during the past decade, and an opportunity for careful planning for the future.

Theater will become an independent department in the Faculty of Humanities and Fine Arts in the year ahead, and considerable attention will be directed toward the development of an expanded program in this area. The W.E.B. Dubois Center in Springfield became a reality under the aegis of the Department of AfroAmerican Studies this year; some programs will be initiated during the year ahead while further planning for the future of the Center continues. Student interest in the social and behavioral sciences continues to increase, and growth in the departments in these areas progresses at a more rapid rate than is experienced by other disciplines in the College. Psychology will move into Tobin Hall next year, thereby acquiring improved and expanded facilities which have been sorely needed for several years, but with new quarters comes the challenge of implementation of new programs and modification of existing programs which have been impeded by physical limitations. Similar challenges will face the Departments of Biochemistry and Chemistry as they move into the Graduate Research Center. While each of the above-mentioned departments faces a somewhat unique opportunity associated with new quarters, they are joined by each of the other departments in the College in the search for improved curricula, better teaching, means for further encouragement of research, and appropriate opportunities for service. CASIAC, the College of Arts and Sciences Information and Advising Center also plans an expanded program of counseling in the dormitories through use of the services of specially-trained undergraduates. Hopefully students will become better informed of the variety of opportunities available to them and discover more quickly the appropriate sources of professional assistance as a consequence of having peer-group academic counsellors in the dormitories.

Although growth has slowed greatly the needs of the College remain similar in kind to those of previous years though with some change in emphasis. A few additional faculty positions are required in order that we can expand our academic offerings

into new fields, add to the number of truly distinguished scholars, and, in some disciplines, particularly in the social and behavioral sciences, reduce the student-faculty ratio to levels which will permit a greater number of small classes for freshmen. If the graduate programs of the departments are to prosper, additional support for graduate students is required; the allocation of additional funds in this area not only permits us to be more competitive with other universities in attracting superior students, but it also serves to enhance teaching and encourage research and service if used to finance additional teaching and/or research assistants.

The need for additional funds in each of the state accounts and for new clerical and technical assistants has been presented in detail in the "budget request". I take this opportunity, however, to emphasize the gross inadequacy of funds for maintenance, repair, and academic renovations. An allocation in account 12 equivalent to only one percent of the estimated value of equipment would be a step in the right direction. The need to accomplish some academic renovations is urgent for reasons of safety (e.g., Art--old conservative building) and in order to provide space for new faculty (e.g., Botany and Zoology). The completion of other proposed projects would permit better use of existing space and facilities.

Insufficient and inadequate space will continue to be a problem even after occupancy of Tobin Hall and the Graduate Research Center in the year ahead and the Fine Arts Building the following year. The Departments of Botany, Geology, and Zoology, all in Morrill Science Center are truly inhibited in program development and possible additions to their faculties by insufficient space. Lack of space has similar consequences for the Department of Anthropology. Comparative Literature and Asian Studies are crowded into a few rooms in Thompson Tower with one very small office for graduate students in South College. Other examples might be cited, but it probably suffices to state that, even after completion of the new buildings now under construction, the space assigned to each department will still be so continually in use that the lack of additional space will continue as a limiting factor in program development.

Table 1  
PROFESSIONAL POSITIONS (FTE) FILLED BY RANK  
(September of the Indicated Year)

	<u>1969-70</u>	<u>1970-71</u>	<u>1971-72</u>
<u>Administration:</u>			
Dean	1.0	1.0	2.0
Vice-Dean	1.0	0.5	0.0
Associate Dean	2.0	1.0	2.0
Assistant Dean	1.5	1.5	0.5
Totals	<u>5.5</u>	<u>4.0</u>	<u>4.5</u>
<u>Faculty:</u>			
Professors	170.8 (23.2%)	187.0 (23.8%)	218.0 (25.6%)
Associate Professors	179.7 (24.4%)	207.0 (26.4%)	226.4 (26.6%)
Assistant Professors	279.0 (37.9%)	281.3 (35.8%)	305.9 (35.9%)
Instructors	84.0 (11.4%)	86.9 (11.1%)	78.4 ( 9.2%)
Lecturers	21.0 ( 2.8%)	22.3 ( 2.8%)	23.1 ( 2.7%)
Totals	<u>734.5</u>	<u>784.5</u>	<u>851.8</u>
<u>Non-Teaching:</u>			
Staff Associates	2	4	4
Staff Assistants	10	8	8
Professional Technical	1	1	1
Totals	<u>13</u>	<u>13</u>	<u>13</u>
<u>Teaching Associates/</u> <u>Assistants*</u>	545	608	557.75
<u>Postdoctoral Research</u> <u>Associates (Not on</u> <u>State Funds):</u>			
Biochemistry	3	4	7
Chemistry	12	10	11
Mathematics	-	18	-
Microbiology	2	1	2
Physics/Astronomy	5	6	5
Psychology	1	1	2
Zoology	8	12	6
Totals	<u>31</u>	<u>52</u>	<u>33</u>

Note: \*This FTE figure was obtained by dividing the total allocation for TAs by the budgeted average stipend. The appropriate amounts were: 1969, \$1,635,000 allocated--average stipend \$3,000; 1970, \$1,945,000 allocated--average stipend \$3,200; 1971, \$1,784,800 allocated--average stipend \$3,200. (\$640,000, Humanities & Fine Arts; \$521,200, Social and Behavioral Sciences; \$611,200, Natural Sciences & Mathematics; and \$2,400, CASIAC).

Table 2

NUMBER OF FACULTY POSITIONS (FTE) FILLED BY DEPARTMENT, FACULTY AND RANK: FALL SEMESTER

HUMANITIES AND FINE ARTS	1 9 7 0										Total							
	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)								
Afro-American Studies	-	-	-	-	-	(a)	1	3	1.0	2.9	7.9	-	2	5 <sup>1</sup>	2	2.5	11.5	
Art	5	7	9	3	1	25.0	7	8	12	4	31.0	8	9	14	2	1	34.0	
Comparative Literature	1	-	2	3	-	6.0	1	-	4	2	7.0	2	-	5	2	-	9.0	
English, Italian and Classics <sup>c</sup>	25	22	38.6	12	2.4	100.0	27	25	37.6	11.6	2.3	103.5	28 <sup>b</sup>	30.5	39.4	10.6	1.7	110.2
French, Italian and Languages	7	9	14	7	1	38.0	4	13	10	10	2	39.0	6.5	11.5	8	11	-	36.5
Germanic Languages	5	5	9	4	-	23.0	5	6	7	4.5	-	-	1	3	1	-	2.8	7.8
Hispanic Languages	6	3	7	5	1	22.0	6	2	5	6	1	20.0	5	7	5	2	-	19.0
History	12	20	20	5	1.8	50.8	10	17	13	3	.8	43.8	13	14	17.2 <sup>b</sup>	6	-	19.0
Linguistics	-	1	2	-	-	3.0	-	1	4	1	-	6.0	-	1.4	4	1	-	7.0
Music	3	2	12	4	1	22.0	3	4	12	3	2	24.0	5	3	14	2	3	27.0
Philosophy	6	4	5	-	-	15.0	6.5	4	4	4	-	14.5	7.5	4	5.5	-	-	17.0
Slavic Languages	1	3	1	1	1	7.0	1.5	2	2	1	1	7.5	1	3	2	1	5	7.5
Totals	71.0	68.0	119.6	44.0	9.2	311.8	71.0	83.0	113.6	47.1	12.0	326.7	82.0	89.9	126.1	43.6	12.1	353.7
<b>SOCIAL AND BEHAVIORAL SCIENCES</b>																		
Anthropology	2	3	5	-	-	10.0	2	3	7	1	-	13.0	3	6	6	-	-	15.0
Asian Studies	-	1	-	-	-	1.0	-	1	-	2.8	-	3.8	-	1	2	2.8 <sup>d</sup>	-	5.8
Economics	7	3	12	2	2	26.0	7	4	13	3	-	27.0	7	5 <sup>d</sup>	14	3	2	31.0
Political Science	11	9	11	2	1	34.0	12.5	12	7	3	-	34.5	14 <sup>b</sup>	12.5	7	3	-	36.5
Psychology	9.8	10.7	19	-	1	40.5	11	15	22.5	-	-	48.5	13	19 <sup>d</sup>	23.5	-	-	55.5
Sociology	8	12	3	1	-	24.0	7	14	3	4	-	28.0	8	13.5	6	4 <sup>d</sup>	-	31.5
Speech	8	5	20	13	-	46.0	8	6	21	10	1	46.0	10	7	22.5	9	-	50.0
Totals	45.8	43.7	70.0	18.0	4.0	181.5	47.5	55.0	73.5	23.8	1.0	200.8	55.0	64.0	81.0	21.8	3.5	225.3
<b>NATURAL SCIENCES AND MATHEMATICS</b>																		
Biochemistry	1	3	2	-	.5	6.5	1	3	2	-	1	7.0	3	3	2	1	-	9.0
Botany	6	5	7.7	-	-	18.7	7	4	6.7	1	1	19.7	12	4	7.8	1	-	24.8
Chemistry	11	10	10	6	-	37.0	13	11	12	5	-	41.0	14	11	12	4	-	41.0
Geology/Geography	4	9	4	2	-	19.0	6	8	5	2	-	21.0	7	8.5	6.5	1	-	23.0
Mathematics/Statistics	13	12	32.7	12	7.3	77.0	19.5	11	36.5	8	7.3	82.3	20	11	39.5	6	6.5	83.0
Microbiology	2	3	5	-	-	10.0	2	3	6	-	-	11.0	2	4	5	-	-	11.0
Physics/Astronomy	10	20	16	-	-	46.0	12	19	16	-	-	47.0	14	19	17	-	-	50.0
Zoology	7	6	12	2	-	27.0	8	10	10	-	-	28.0	9	12	9	-	-	31.0
Totals	54	68	89.4	22	7.8	241.2	68.5	69	94.2	16	9.3	257.0	81.0	72.5	98.8	13.0	7.5	272.8
College Totals	170.8	179.7	279.0	84.0	21.0	734.5	187.0	207.0	281.3	86.9	22.3	784.5	218.0	226.4	305.9	78.4	23.1	851.8

Columns indicate the number of positions at the rank of Professor (1); Associate Professor (2); Assistant Professor (3); Instructor (4); and Lecturer (5).

(a) No actual allocation of positions for 1969-70. Appointments were attached to the English Department for bookkeeping purposes and all positions used were borrowed.  
 b LWOP-no replacement; <sup>c</sup> Separated from French/Italian April/May '72; <sup>d</sup> One vacancy included in each sum.

TABLE 3

PROFESSIONAL PERSONNEL ACTIONS

	<u>1969-70</u>	<u>1970-71</u>	<u>1971-72</u>	<u>1971-72 by Faculties</u>		
				<u>(A)</u>	<u>(B)</u>	<u>(C)</u>
Promotions	66	55	84	53	12	19
Tenure Appointments	50	49	34	18	6	10
Resignations	44	58	75	26	23	26
Retirements	5	5	1	1	--	-
Deceased	3	2	1	1	-	-
Merit Increases	569	622	494 <sup>*</sup>	204	128	160
Sabbatical leaves taken during the academic year**	30	35	60	28	13	19
Leaves of Absence without pay taken during the academic year***	25	31	33	16	6	11

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\*Two merit increases not assigned to a particular Faculty.

\*\*Fourteen full-year and 16 one-semester in 1969-70; thirteen full-year and 21 one-semester in 1970-71; and 28 full-year and 32 one-semester leaves in 1971-72.

\*\*\*Fifteen full-year and 10 one-semester in 1969-70; nineteen full-year and 12 one-semester in 1970-71; and 25 full-year and eight one-semester leaves of absence without pay in 1971-72.

- (A) Faculty of Humanities and Fine Arts.
- (B) Faculty of Social and Behavioral Sciences.
- (C) Faculty of Natural Sciences and Mathematics.

TABLE 4

NON-PROFESSIONAL POSITIONS BY RANK

<u>GRADE</u>	<u>TITLE</u>	<u>Secretarial</u>		
		<u>1969-70*</u>	<u>1970-71*</u>	<u>1971-72**</u>
(11)	Head Clerk	2	4	4
(09)	Principal Clerk	12	15	17
(07)	Senior Clerk-Stenographer	22	27	30
(06)	Senior Clerk-Typist	14	19	20
(04)	Junior Clerk-Stenographer	37	31.5	30
(03)	Junior Clerk-Typist	11	22	25.5
	Total	98	118.5	126.5

		<u>Technical</u>		
(13)	Statistician	1	1	1
(13)	Junior Chemist	1	1	1
(12)	Technical Specialist	3	10	11
(12)	Principal Storekeeper	1	1	1
(10)	Storekeeper	3	4	3
(10)	Electronic Technician	4	4	4
(10)	Senior Technical Assistant	1	2	3
(10)	Machinist	2	2	3
(10)	Carpenter	1	1	-
(09)	Laboratory Technician	1	1	1
(08)	Technical Assistant	20	20	24
(07)	Mechanical Handyman	1	1	1
(05)	Animal Room Attendant	1	1	1
(05)	Laboratory Assistant	8	9	8
(03)	Institutional Domestic Aid	1	1	1
	Total	49	59	63

Number of Faculty Per Non-professional  
Position (positions assigned to  
Deans' Office excluded from calcula-  
tion)

Secretarial	8.2	7.3	7.4
Technical	15.0	13.1	13.5

NOTE: \*Fall of year indicated.

\*\*June 30, 1972.

TABLE 5

FACULTY AND SECRETARIAL POSITIONS BY  
FACULTY AND DEPARTMENT 1971-72

	<u>Positions</u>		<u>Ratio Fac/Sec</u>	<u>Highest Ranking Position</u>
	<u>Faculty</u>	<u>Sec'y</u>		
<u>HUMANITIES AND FINE ARTS</u>				
Afro-American Studies	11.5	1.0	11.5	Principal Clerk
Art	34.0	4.5	7.6	Sr. Clerk-Typist
Classics	7.8	1.0	7.8	Sr. Clerk-Steno
Comparative Literature	9.0	1.0	9.0	Sr. Clerk-Steno
English*	110.2	12.0	9.2	Head Clerk
French/Italian	36.5	3.0	12.2	Sr. Clerk-Steno
German	19.0	3.0	6.3	Sr. Clerk-Steno
Hispanic	19.0	3.0	6.3	Sr. Clerk-Steno
History	48.2	5.0	9.7	Principal Clerk
Language Lab	--	1.0	--	Sr. Clerk-Typist
Linguistics	7.0	1.0	7.0	Jr. Clerk-Typist
Music	27.0	3.0	9.0	Principal Clerk
Philosophy	17.0	1.5	11.3	Sr. Clerk-Steno
Slavic	7.5	1.0	7.5	Jr. Clerk-Steno
Total	<u>353.7</u>	<u>41.0</u>	<u>8.8</u>	
*Rhetoric Included				
<u>SOCIAL AND BEHAVIORAL SCIENCES</u>				
Anthropology	15.0	3.0	5.0	Principal Clerk
Asian Studies	5.8	1.0	5.8	Jr. Clerk-Typist
Economics	31.0	5.0	6.2	Head Clerk
Political Science	36.5	5.5	6.6	Principal Clerk
Psychology	55.5	10.0	5.6	Principal Clerk
Sociology	31.5	4.0	7.9	Sr. Clerk-Steno
Speech	50.0	7.0	7.1	Principal Clerk
Total	<u>225.3</u>	<u>35.5</u>	<u>6.4</u>	
<u>NATURAL SCIENCES &amp; MATHEMATICS</u>				
Biochemistry	9.0	2.0	4.5	Sr. Clerk-Steno
Botany	24.8	5.0	5.0	Sr. Clerk-Steno
Chemistry	41.0	8.0	5.1	Principal Clerk
Geology/Geography	23.0	3.5	6.6	Principal Clerk
Mathematics/Statistics	83.0	7.0	11.9	Principal Clerk
Microbiology	11.0	2.5	4.4	Principal Clerk
Physics/Astronomy	50.0	7.0	7.1	Head Clerk
Zoology	31.0	5.0	6.2	Principal Clerk
Total	<u>272.8</u>	<u>40.0</u>	<u>6.8</u>	
Departmental Totals	<u>851.8</u>	<u>115.5</u>	<u>7.4</u>	
DEANS' OFFICE(a)	6	11.0	--	Head Clerk
Grand Total	<u>857.8</u>	<u>127.5</u>	<u>6.8</u>	

NOTE: (a) The secretaries in CASIAC and in the office of the Pre-Medical Advisory Committee are included in the Deans' office total.

TABLE 6  
 NON-PROFESSIONAL TECHNICAL POSITIONS BY DEPARTMENTS  
 1971-72

FACULTY AND DEPARTMENT	13	13	12	12	12	10	10	10	10	09	08	07	05	05	03	TOTAL
	Statistician	Jr. Chemist	Principal Storekeeper	Technical Specialist	Electronic Technician	Store-keeper	Sr. Technical Asst.	Machinist	Laboratory Technician	Technical Assistant	Mechanical Handyman	Animal Room Attendant	Laboratory Assistant	Inst. Domestic Aid		
<u>HUMANITIES &amp; FINE ARTS</u>																
Art																4
Language Lab.				1					1		2					4
<u>SOCIAL &amp; BEHAVIORAL SCIENCES</u>																
Psychology				1	1					3						5
Speech					1					1						2
<u>NATURAL SCIENCES &amp; MATHEMATICS</u>																
Biochemistry										1						1
Botany										3			2			5
Chemistry			1	3		2	1			3	1		1			12
Geology/Geography				1						1						2
Microbiology		1								1			2	1		5
Physics/Astronomy				6			1	3		3			3			16
Zoology					1	1	1			2		1				6
TOTALS	1*	1	1	11	4	3	3	3	1	24	1	1	8	1		63

\*Deans' Office



TABLE 7

MAJORS BY FACULTY AND CLASS  
Fall Semester

	1969-1970	Total Majors	1970-1971	Total Majors	1971-1972	Total Majors
<u>HUMANITIES AND FINE ARTS</u>						
Undergraduate						
Freshmen	462		406		507	
Sophomores	494		565		467	
Juniors	818		733		841	
Seniors	<u>780</u>		<u>758</u>		<u>665</u>	
Undergraduate Subtotal		2,554		2,462		2,480
Graduate						
Degree Students	634		742		796	
Other	<u>102</u>		<u>160</u>		<u>267</u>	
Graduate Subtotal		<u>736</u>		<u>902</u>		<u>1,063</u>
Total Majors		<u>3,290</u>		<u>3,364</u>		<u>3,543</u>
<u>SOCIAL AND BEHAVIORAL SCIENCES</u>						
Undergraduate						
Freshmen	406		530		590	
Sophomores	396		580		601	
Juniors	791		828		1,057	
Seniors	<u>640</u>		<u>738</u>		<u>756</u>	
Undergraduate Subtotal		2,233		2,676		3,004
Graduate						
Degree Students	433		456		552	
Other	<u>50</u>		<u>90</u>		<u>137</u>	
Graduate Subtotal		<u>483</u>		<u>546</u>		<u>689</u>
Total Majors		<u>2,716</u>		<u>3,222</u>		<u>3,693</u>
<u>NATURAL SCIENCES AND MATHEMATICS</u>						
Undergraduate						
Freshmen	372		417		436	
Sophomores	273		334		322	
Juniors	305		334		359	
Seniors	<u>320</u>		<u>254</u>		<u>241</u>	
Undergraduate Subtotal		1,270		1,339		1,358
Graduate						
Degree Students	537		536		538	
Other	<u>25</u>		<u>45</u>		<u>70</u>	
Graduate Subtotal		<u>562</u>		<u>581</u>		<u>608</u>
Total Majors		<u>1,832</u>		<u>1,920</u>		<u>1,966</u>
CASIAC [undergraduates without departmental major]		2,035		2,175		1,939
<u>COLLEGE TOTALS</u>						
Undergraduate		8,092		8,652		8,781
Graduate		<u>1,781</u>		<u>2,029</u>		<u>2,360</u>
Total		<u>9,873</u>		<u>10,681</u>		<u>11,141</u>

TABLE 8  
STUDENT MAJORS BY FACULTY AND DEPARTMENT  
Fall Semester

		UNDERGRADUATE				GRADUATE		
		1969- 1970	1970- 1971	1971- 1972		1969- 1970	1970- 1971	1971- 1972
<u>SOCIAL &amp; BEHAVIORAL SCIENCES</u>								
Anthropology	L	40	36	60	D	35	38	62
	U	58	74	88	S	1	4	13
	T	98	110	148	T	36	42	75
Asian Studies		--	--	--		--	--	--
Economics	L	35	33	40	D	56	59	64
	U	144	116	121	S	2	13	17
	T	179	149	161	T	57	72	81
Political Science	L	178	216	257	D	112	100	110
	U	309	334	354	S	12	17	14
	T	487	550	611	T	124	117	124
Psychology	L	315	486	462	D	123	139	155
	U	414	479	640	S	20	24	43
	T	729	965	1,102	T	143	163	198
Sociology	L	169	226	219	D	69	67	73
	U	378	408	386	S	5	13	22
	T	547	634	605	T	74	80	95
Speech	L	65	113	153	D	39	53	88
	U	128	155	224	S	10	19	28
	T	193	268	377	T	49	72	116
Faculty Subtotal	L	802	1,110	1,191	D	433	456	552
	U	1,431	1,566	1,813	S	50	90	137
	T	2,233	2,676	3,004	T	483	546	689
<u>NATURAL SCIENCES &amp; MATHEMATICS</u>								
Astronomy	L	13	15	17	D	12	16	24
	U	6	5	8	S	--	--	2
	T	19	20	25	T	12	16	26
Biochemistry	L	28	46	66	D	20	24	26
	U	14	14	16	S	--	2	7
	T	42	60	82	T	20	26	33
Botany	L	14	21	22	D	38	39	39
	U	26	27	27	S	2	2	3
	T	40	48	49	T	40	41	42
Chemistry	L	74	87	65	D	128	127	114
	U	76	65	62	S	2	7	11
	T	150	152	127	T	134	134	125
Geography	L	--	5	3	D	--	--	--
	U	--	9	28	S	--	--	--
	T	--	14	31	T	--	--	--
Geology	L	21	29	28	D	44	53	64
	U	60	50	46	S	--	2	8
	T	81	79	74	T	44	55	72
Mathematics	L	264	294	253	D	78	79	80
	U	186	178	188	S	8	10	14
	T	450	472	441	T	86	89	94
Microbiology	L	20	17	27	D	32	32	35
	U	32	33	30	S	2	5	1
	T	52	50	57	T	34	37	36
Physics	L	42	34	36	D	109	92	91
	U	37	35	23	S	--	2	4
	T	79	69	59	T	109	94	95
Statistics	L	--	--	--	D	7	8	6
	U	--	--	--	S	1	1	--
	T	--	--	--	T	8	9	6
Zoology	L	169	203	241	D	69	66	59
	U	188	172	172	S	6	14	20
	T	357	375	413	T	75	80	79
Faculty Subtotal	L	645	751	758	D	537	536	538
	U	625	588	600	S	25	45	70
	T	1,270	1,339	1,358	T	562	581	608

NOTES: L = Freshmen and Sophomores; U = Juniors and Seniors; T = Total; D = Degree students; S = Special students

TABLE 8 (cont'd)

STUDENT MAJORS BY FACULTY AND DEPARTMENT  
Fall Semester

HUMANITIES & FINE ARTS		UNDERGRADUATE				GRADUATE		
		1969-	1970-	1971-		1969-	1970-	1971-
		1970	1971	1972		1970	1971	1972
Afro-American Studies	--	--	--		--	--	--	
Art	L	125	195	178	D	46	68	58
	U	183	198	222	S	23	26	48
	T	308	393	406	T	69	94	106
Classics	L	6	5	7	D	--	--	--
	U	10	10	8	S	--	--	--
	T	16	15	15	T	--	--	--
Comparative Literature	L	--	2	4	D	10	15	20
	U	--	3	16	S	0	1	7
	T	--	5	20	T	10	16	27
English	L	328	292	299	D	239	278	295
	U	677	598	590	S	34	54	89
	T	1,005	890	889	T	273	332	384
French*	L	102	84	84	D	(63)	79	75
	U	89	77	87	S	(9)	14	18
	T	191	161	171	T	72	93	93
Germanic Languages	L	15	20	22	D	59	48	54
	U	27	19	16	S	5	5	8
	T	42	39	38	T	64	53	62
Hispanic Languages*	L	52	40	30	D	(33)	41	41
	U	34	40	47	S	(4)	6	11
	T	86	80	77	T	37	47	52
History	L	207	193	154	D	119	130	153
	U	430	416	383	S	12	24	54
	T	637	609	537	T	131	154	207
Italian	L	5	2	5	D	--	--	--
	U	6	4	6	S	--	--	--
	T	11	6	11	T	--	--	--
Journalistic Studies (part of English)	L	44	50	54	D	--	--	--
	U	55	52	46	S	--	--	--
	T	99	102	100	T	--	--	--
Linguistics	L	--	--	--	D	8	12	22
	U	--	--	--	S	7	5	5
	T	--	--	--	T	15	17	27
Music	L	44	53	83	D	19	20	22
	U	33	27	36	S	5	14	14
	T	77	80	110	T	24	34	36
Philosophy	L	14	23	39	D	33	40	41
	U	40	30	32	S	0	6	10
	T	54	53	71	T	33	46	51
Slavic Languages	L	17	12	14	D	4	11	15
	U	19	17	12	S	4	5	3
	T	36	29	26	T	8	16	18
Faculty Subtotal	L	956	971	974	D	634	742	796
	U	1,598	1,491	1,506	S	102	160	267
	T	2,554	2,462	2,480	T	736	902	1,063

NOTES: L = Freshmen and Sophomores; U = Juniors and Seniors; T = Total  
 D = Degree students; S = Special students  
 \*There were 109 graduate students in Romance Languages in 1969.  
 The distribution between French and Hispanic Languages is approximate.

STUDENT CREDIT HOURS BY FACULTY AND DEPARTMENT  
Fall, 1971

		<u>1969-70</u>	<u>1970-71</u>	<u>1971-72</u>
<u>HUMANITIES AND FINE ARTS</u>				
Afro-American Studies	U	351	1,125	1,263
	G	---	---	---
Art	U	5,072	5,744	5,718
	G	729	778	978
Classics	U	766	1,316	1,731
	G	6	104	127
Comparative Literature	U	1,200	2,247	1,386
	G	57	150	204
English*	U*	24,759	23,972	23,432
	G	1,242	1,890	2,093
French and Italian	U	4,456	5,114	5,112
	G	270	320	351
Germanic Languages	U	2,853	2,272	2,702
	G	299	207	237
Hispanic Languages	U	2,504	2,657	3,231
	G	33	207	205
History	U	12,284	11,462	12,891
	G	999	1,226	1,560
Linguistics	U	120	300	564
	G	96	216	231
Music	U	2,321	2,298	2,941
	G	124	180	207
Philosophy	U	3,423	5,010	5,037
	G	207	261	341
Slavic Languages	U	710	702	615
	G	90	84	135
Faculty Subtotal	U	60,816	64,218	66,623
	G	4,151	5,562	6,669
<u>SOCIAL AND BEHAVIORAL SCIENCES</u>				
Anthropology	U	3,669	5,424	5,550
	G	218	334	518
Asian Studies	U	78	348	510
	G	--	--	--
Economics	U	5,622	5,772	5,541
	G	600	690	715
Political Science	U	5,733	7,677	7,014
	G	793	740	630
Psychology	U	16,248	21,508	23,745
	G	1,199	1,795	1,949
Sociology	U	11,593	12,238	11,346
	G	633	525	750
Speech	U	4,018	4,650	6,009
	G	392	588	1,025
Rhetoric	U	3,511	3,009	4,347
	G	--	--	--
Faculty Subtotal	U	50,472	60,326	64,062
	G	3,834	4,673	5,587
<u>NATURAL SCIENCE AND MATHEMATICS</u>				
Biochemistry	U	610	518	636
	G	233	313	350
Botany	U	4,824	4,650	4,133
	G	271	402	300
Chemistry	U	6,969	6,428	7,360
	G	949	1,224	1,175
Geology	U	2,834	2,307	2,583
	G	344	358	487
Geography	U	600	1,128	858
	G	--	--	--
Mathematics	U	15,799	14,651	14,982
	G	849	868	836
Statistics	U	1,725	1,491	1,935
	G	141	160	159
Microbiology	U	1,234	1,434	2,563
	G	294	388	345
Physics	U	3,620	3,995	4,316
	G	794	718	555
Astronomy	U	2,875	2,097	1,879
	G	76	125	156
Zoology	U	7,238	7,359	7,241
	G	518	621	625
Faculty Subtotal	U	46,352	46,112	48,486
	G	4,469	5,199	4,968

NOTES: U = Undergraduate including Stockbridge. G = Graduate.

\* Includes Journalistic Studies and the writing part of the Rhetoric Program.

MAJORS AND INSTRUCTIONAL STUDENTS:  
NUMBERS AND PERCENTAGES OF UM/A TOTALS

<u>Fall Semester</u>		<u>MAJORS</u>			<u>Percentage of UM/A Total</u>		
		<u>1969</u>	<u>1970</u>	<u>1971</u>	<u>1969</u>	<u>1970</u>	<u>1971</u>
Humanities and Fine Arts	U	2,554	2,462	2,480	17.7	16.0	15.2
	G	736	902	1,063	19.4	20.2	19.1
Social and Be- havioral Sci.	U	2,233	2,676	3,004	15.4	17.4	18.4
	G	483	546	689	12.7	12.2	12.4
Natural Sciences and Math.	U	1,270	1,339	1,358	8.8	8.7	8.3
	G	562	581	608	14.8	13.0	10.9
Unassigned	U	2,035	2,175	1,939	14.2	14.2	11.9
Arts & Sciences Subtotal	U	8,092	8,652	8,781	56.0	56.3	53.8
	G	1,781	2,029	2,360	46.9	45.4	42.4
<u>UM/A</u>							
Stockbridge		636	633	625			
4-yr. students	U	14,450	15,365	16,313	100.0	100.0	100.0
Grad. students	G	3,801	4,464	5,567	100.0	100.0	100.0
TOTAL UMass/A		18,887	20,462	22,505			

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INSTRUCTIONAL STUDENTS

An Instructional Undergraduate Student is 15 student credit hours in courses applicable to a Stockbridge diploma or a baccalaureate degree. An Instructional Graduate Student is 8 student credit hours applicable to a graduate degree or earned by an undergraduate in a graduate level course.

<u>Fall Semester</u>		<u>Numbers</u>			<u>Percentage of UM/A Total</u>		
		<u>1969</u>	<u>1970</u>	<u>1971</u>	<u>1969</u>	<u>1970</u>	<u>1971</u>
Humanities and Fine Arts	U	4,054	4,281	4,442	27.0	26.4	25.0
	G	519	695	834	16.4	16.5	17.1
Social and Be- havioral Sci.	U	3,365	4,022	4,232	22.5	24.8	23.9
	G	479	584	698	15.1	13.9	14.3
Natural Sciences and Math.	U	3,226	3,074	3,217	21.5	18.9	18.1
	G	559	650	624	17.6	15.5	12.8
Arts & Sciences Subtotal	U	10,645	11,377	11,891	71.0	70.1	67.0
	G	1,557	1,929	2,156	49.1	45.9	44.2
4-yr. students	U	14,997	16,230	17,748	100.0	100.0	100.0
Grad. students	G	3,174	4,202	4,876	100.0	100.0	100.0
TOTAL UMass/A		18,171	20,431	22,624			

NOTE: U = Undergraduate  
G = Graduate

TABLE 11

THESIS REGISTRATION, FALL 1971 AND SPRING 1972

	Masters Thesis				Doctoral Dissertation			
	Fall		Spring		Fall		Spring	
	No.	A.C.	No.	A.C.	No.	A.C.	No.	A.C.
<u>HUMANITIES AND FINE ARTS</u>								
Art	21	7.7	18	9.5	--	--	--	--
English	10	4.5	13	5.0	24	7.3	32	7.1
French	1	3.0	1	6.0	5	3.0	6	3.0
German	--	--	--	--	--	--	2	4.5
History	2	6.0	--	--	16	5.7	16	6.1
Linguistics	--	--	--	--	1	6.0	1	6.0
Philosophy	--	--	1	3.0	3	3.7	5	4.2
Spanish	--	--	--	--	7	4.4	7	4.4
Totals	34	6.5	33	7.4	56	5.9	69	6.0
<u>SOCIAL AND BEHAVIORAL SCIENCES</u>								
Anthropology	2	6.0	2	4.5	3	5.3	3	3.3
Economics	--	--	--	--	4	6.2	5	6.0
Political Science	8	4.9	9	5.2	15	5.8	18	7.3
Psychology	35	3.1	36	3.4	17	6.4	19	5.8
Sociology	9	3.7	11	5.5	13	7.6	18	7.6
Speech	1	3.0	1	3.0	1	0.0	3	8.0
Totals	55	3.5	59	4.1	53	6.3	66	6.7
<u>NATURAL SCIENCES AND MATHEMATICS</u>								
Biochemistry	4	5.5	3	8.3	11	7.5	12	9.0
Botany	2	3.5	3	3.0	7	3.7	11	4.4
Chemistry	7	5.4	8	5.0	62	7.6	53	6.7
Geology	6	5.5	6	4.0	8	5.4	12	5.2
Mathematics	--	--	--	--	8	4.2	10	5.1
Microbiology	3	4.3	3	5.7	8	7.4	9	7.0
Physics	--	--	2	4.5	34	4.5	38	3.4
Astronomy	--	--	--	--	--	--	2	4.5
Zoology	--	--	--	--	14	5.4	19	5.3
Totals	22	5.1	25	5.0	152	6.2	176	5.3
College of Arts and Sciences	111	4.8	117	5.2	261	6.2	311	5.7

No. = Number: A.C. = Average Credit

TABLE 12  
STUDENT-FACULTY RATIOS  
Fall, 1971

	<u>Humanities and Fine Arts</u>	<u>Social and Be- havioral Sci.</u>	<u>Natural Sciences &amp; Mathematics</u>
Instructional (U)	4,442	4,271	3,232
Students (G)	834	698	624
Total	<u>5,276</u>	<u>4,969</u>	<u>3,856</u>
Full-time Profs. & Assoc. Profs.	167	111	147
All other faculty (FTE)	<u>185</u>	<u>107</u>	<u>122.9</u>
Total FTE faculty (determined from pay- roll report)	352	218	269.9
FTE Teaching Assts. (\$12,800 salary from 03 account)	<u>41</u>	<u>36.3</u>	<u>42.5</u>
<u>Total Faculty &amp; Teaching Assts.</u>	393	254.3	312.4
Undergraduate Ins- tructional Students/ FTE Faculty	12.62	19.59	11.97
Undergraduate Ins- tructional Students/ Total Faculty & Teaching Assts.	11.30	16.80	10.34
Graduate Instructional Students/FTE Faculty	2.37	3.20	2.31
Total Instructional Students/FTE Faculty	14.99	22.79	14.29
Instructional Graduate Student/Full-time Prof. & Assoc. Prof.	4.99	6.29	4.24
Ph.D. spring '72 Dissertations/ Full-time Prof. & Assoc. Prof.	0.41	0.59	1.20
Total spring '72 Thesis Registration/Prof. & Assoc. Prof.	0.61	1.13	1.37

Table 13

## DEGREES AWARDED BY FACULTY AND DEPARTMENT

	BACHELOR					MASTER					DOC- TORAL DEGREE
	BFA	BM	BA	BS	TOTAL	MFA	MM	MA	MS	TOTAL	
<u>1969-1970</u>											
Total 1969-70	34	12	1208	315	1569	20	9	158	71	258	100
<u>1970-1971</u>											
Humanities and Fine Arts	39	13	647	--	699	25	5	87	--	118	29
Social & Behavioral Sciences	--	--	604	72	676	1	--	52	27	80	48
Natural Sciences & Mathematics	--	--	23	209	232	--	--	24	61	85	60
Total 1970-71	39	13	1274	281	1607	26	5	163	88	283	137
<u>1971-1972</u>											
Humanities and Fine Arts	40	9	593	--	652	25	6	113	--	144	22
Social & Behavioral Sciences	--	--	618	86	704	--	--	61	21	82	33
Natural Sciences & Mathematics	--	--	28	218	246	--	--	27	66	93	38
Total 1971-72	40	9	1239	304	1602	25	6	201	87	319	93

## DOCTOR OF PHILOSOPHY DEGREES BY FACULTY AND DEPARTMENT

	<u>1969-1970</u>	<u>1970-1971</u>	<u>1971-1972</u>
<u>HUMANITIES AND FINE ARTS</u>			
English	12	21	13
French	2*	2	2*
German	2*	2	1*
History	3	2	4
Linguistics	-	1	-
Philosophy	1*	1	2*
<u>SOCIAL AND BEHAVIORAL SCIENCES</u>			
Anthropology	1	1	2
Economics	3	8	2
Political Science	1	9	8
Psychology	25	23	17
Sociology	5	7	4
<u>NATURAL SCIENCES AND MATHEMATICS</u>			
Biochemistry	5*	2	2
Botany	5	5	1
Chemistry	18*	20	10
Geology	-	2	2
Mathematics	6	8	7
Microbiology	2	7	3
Physics	3	6	7
Zoology	6*	10	6
Total	<u>100</u>	<u>137</u>	<u>93</u>

\*Includes Five-College cooperative Ph.D. degrees.



Table 14SPECIAL RECOGNITION: AWARDS AND SPECIAL FELLOWSHIPSHUMANITIES AND FINE ARTSArt

Coughlin, Jack--elected Associate Member, National Academy of Design--New York, N.Y.  
 -----  
 --first prize purchase award, 16th national print exhibit, Hunterdon Art Center, Clinton, N.J.

Perkins, Lyle--honorary member--International Academy of Ceramics, Geneva, Switzerland.  
 -----  
 --honorary life membership in National Council on Education for the Ceramic Arts, University of Illinois.

Schleappi, Dale--P.S. Ward Sculpture award--Berkshire Museum.

Mallery, Robert--first prize--"Small Package" invitational sculpture competition, Museum of Art, University of Connecticut, Storrs.

Norton, Paul--Senior Fellow--National Endowment for the Humanities.

Patterson, William--prize for "The Best Work of Art"--61st annual exhibit of Connecticut Academy of Fine Arts, Hartford; purchase award, Northern Illinois National Print Show.

Comparative Literature

Miller, Lucien M.--one of 15 scholars awarded post-doctoral grants for advanced research in the humanities and social sciences dealing with East Asia.--American Council of Learned Societies.

English

Ashton, Thomas--Huntington Library Fellowship--and post-doctoral fellowship, Graduate Institute of Modern Letters, University of Tulsa.

Hicks, John--honorary member--National Humanities Faculty.

Junkins, Don--The John Masefield Memorial Award (Poetry Society of America) for 1972.

Kaplan, Sidney--honorary member--Phi Beta Kappa, University of Massachusetts.

Lowance, Mason--Fellow--American Antiquarian Society.

Politella, Dario--named "Distinguished Yearbook Adviser of 1971  
--National Council of College Publications Advisers.

Porter, David--U.S. Postal Service Commemorative Album at  
issuance of Dickinson stamp.

### German

Johnston, William M.--Austrian History Prize for The Austrian  
Mind (Berkeley, 1972).

### Hispanic Languages and Literature

Wexler, Sidney F.--National Executive Committee--Spanish  
III, M.W.A.

### Music

Tillis, Frederick--Three Songs for Voice and Piano received  
premiere performance at a Festival of Contemporary Afro-  
American Art and Culture at Virginia State College.

### Linguistics

Demers, Richard A.--post-doctoral traineeship, National  
Institute of Health.

## SOCIAL AND BEHAVIORAL SCIENCES

### Anthropology

Munn, Nancy D.--elected to Fellowship as a Visiting Member  
of the Institute for Advanced Studies, Princeton.

### Economics

Barkin, Solomon--recognition for Lifetime Achievement in  
Economics, Special Field (Labor Economics) Award IX by  
Hansen Weisbrod, Toward a General Theory of Awards, JPE,  
March/April, 1972.

### Political Science

Bach, Stanley--Congressional Fellowship--American Political  
Science Association.

Connolly, William--Fellowship--National Endowment for the  
Humanities.

Wiarda, Howard--SSRC-ACLS Foreign Area Fellowship--and a  
Population Council, post-doctoral fellowship, both for  
1972-73.

Sociology

Driver, Edwin D.--nominated as Fellow of the Royal Society of Health (U.K.).

Speech

Tolhurst, Gilbert--appointed to the National Academy of Science--and elected Fellow of the American Association for the Advancement of Science (AAAS).

NATURAL SCIENCES AND MATHEMATICSBiochemistry

Fornier, Maurille, EMBO Fellowship for supported work at the Max-PLANCK Institute fur Experimentele Medign in Gottingen, Germany.

Westhead, Edward W.--U.S. Public Health Special Fellow--England.

Chemistry

Siggia, Sidney, delivered inaugural plenary lecture on the occasion of the fusion of the four English Societies of a chemical nature into the consolidated Britich Chemical Society.

Stein, Richard S.--recipient of Bordon Award in Chemistry of Plastics and Coatings of the American Chemical Society.

Geology and Geography

Haggerty, S.E., appointed to NASA-Soviet Academy of Science Consortium for examination and analysis of USSR Luna 16 samples from the Mare Fecunditatis.

Physics/Astronomy

Arny, Thomas T., Distinguished Teacher Award.

Ford, Norman C.--Guggenheim Fellowship.

Hallock, Robert B.--Sloan Fellowship.

Shafer, Janice,--Fellow--American Physical Society.

Strong, John, --Life Fellow member--Franklin Institute of Philadelphia.

Zoology

White, Barbara Jean--Distinguished Teacher Award.

Table 15BOOKS AND MONOGRAPHS, BY DEPARTMENT AND FACULTY (1971-1972)

## HUMANITIES AND FINE ARTS

Afro-American Studies

Lester, Julius. Long Journey Home: Stories from Black History. New York: Dial Press, 1972. 147 p.

\_\_\_\_\_. Two Love Stories. New York: Dial Press, 1972. 164 p.

\_\_\_\_\_. Edited and Introduction by, The Seventh Son: Thought and Writing of W.E.B. DuBois. 2 vols. New York: Random House, Vintage Books, 1971. 1,334 p.

Art

Reed, Carl. ART from Scrap, sixth edition. Worcester, Massachusetts: Davis Press, 1971. 100 p.

Wang, Hui-Ming. The Boat Untied and Other Poems. A translation of T'ang poems with Chinese calligraphy and woodcuts. Barre, Mass.: Barre Publishers, 1971. 30 p.

\_\_\_\_\_. The Land on the Tip of a Hair, poems by 16 living poets carved in wood. Barre, Mass.: Barre Publishers, 1971. 90 p.

Comparative Literature

Moebius, William C. (Translation) Oedipus at Colonus, by Sophocles, in An Anthology of Greek Tragedy. Edward Dolin and Albert Cook, eds. Indianapolis and New York: Bobbs-Merrill, 1972. 152-206.

Will, Samuel Frederick, Jr. Herondas. New York: Twayne, 1972. 150 p.

\_\_\_\_\_. Brandy in the Snow. New York: New Rivers, 1972. 55 p. (Poems).

English

Ashton, Thomas L. Byron's Hebrew Melodies. London: Routledge & Kegan Paul, Ltd., 1972. 236 p.

\_\_\_\_\_. Byron's Hebrew Melodies. Austin: University of Texas Press, 1972. 236 p.

- Campbell, Marie. Reprint with new introduction, Cloud-Walking. Bloomington: Indiana University Press, 1972. 272 p.
- Carey, George. A Faraway Time and Place: Lore of the Eastern Shore. Washington, D.C.: R.B. Luce, 1971. 257.
- \_\_\_\_\_. Maryland Folk Legends and Folk Songs. Ithaca: Cornell Press, 1971. 125 p.
- Donahue, Joseph. The Theatrical Manager in England and America: Player of a Perilous Game. Princeton: Princeton University Press, 1971. xii, 216 p.
- Frank, Joseph. You. New York: Harcourt Brace, 1972. 281 p.
- \_\_\_\_\_. The Doomed Astronaut. Cambridge: Winthrop Publishers, 1972. 158 p.
- Gallo, Ernest. The Poetria Nova and Its Sources in Early Rhetorical Doctrines. The Hague and Paris: Mouton, 1971. 241 p.
- Golden, Morris. The Self Observed: Swift, Johnson, Wordsworth. Baltimore: Johns Hopkins Press, 1972. 190 p.
- Harrington, John. Male and Female: Identity. New York: John Wiley and Sons, 1972. 180 p.
- Hicks, John. (Co-editor with Robert Tucker) "Revolution and Reduction: The Paris Commune of 1871," The Massachusetts Review, XII, 3, 1971. 208 p.
- Kinney, Arthur. (Co-author) Bear, Man, and God. New York: Random House, 1971. xii, 333 p.
- Lowance, Mason. Cotton Mather's Magnalia and the Metaphors of Biblical History, and Images or Shadows of Divine Things in the Thought of Jonathan Edwards in Typology and Early American Literature. Amherst: University of Massachusetts Press, 1972. 30 p.
- Neugeboren, Jay. Listen, Ruben Fontanez. London: Penguin Books, 1972. 187 p.
- Reed, J.D. Whiskey Profiles. Phoenix, Arizona: Baleen Press, 1971. 32 p.
- \_\_\_\_\_. Editor, New Canadian and American Poetry. Boston: Beacon Press, 1972. 15 p.

- Swados, Harvey. Standing Up for the People: The Life and Work of Estes Kefauver. New York: E.P. Dutton Co., 1972. 189 p.
- Tucker, Robert. (Co-editor with John Hicks) "Revolution and Reduction: The Paris Commune of 1871," The Massachusetts Review, XII, 3, 1971. 208 p.

### French

- Azibert, Mireille. Horace, Cicéron et la Rhétorique Française de la Renaissance. Pau, France: Marrimpouey Jeune, 1972. 224 p.
- Dufau, Micheline (Co-author). En Avant. A Progressive Review of French. New York: Harcourt Brace Jovanovich, Inc., 1972. 398 p.
- Johnson, Patricia. Camus et Robbe-Grillet, Structure et techniques narratives dans "Le Renégat" de Camus et Le Voyeur de Robbe-Grillet. Paris: Nizet, 1972. 127 p.
- \_\_\_\_\_. (Co-editor with Robert Johnson). Henry de Montherlant, Le Cardinal d'Espagne. Boston: Houghton Mifflin Co., 1972. 162 p. Student Edition.
- Johnson, Robert. (Co-editor with Patricia Johnson) Henry de Montherlant, Le Cardinal d'Espagne.
- Mankin, Paul. Precious Irony, The Theatre of Jean Giraudoux. The Hague and Paris: Mouton & Co., 1971. 195 p.
- O'Connell, David. The Teaching of Saint Louis, No. 116. Chapel Hill: The University of North Carolina Press, 1972. 66 p.
- Taylor, Robert E. (Co-author) Bibliographie internationale de l'humanisme et de la Renaissance. V: Travaux parus en 1969. Geneve: Droz., 1971. 616 p.
- Guillumette, Doris. La libre pensée dans l'oeuvre de Tristan l'Hermite. Paris: Nizet, 1972.

### German

- Beekman, Eric M. Patriotism Inc. and Other Tales by Paul van Ostaijan (edited, translated, and annotated). Amherst: University of Massachusetts Press, 1971. 170 p.

Denkler, Horst. Einakter und kleine Dramen des Expressionismus. (Anthology) 2nd rev. ed. Stuttgart: Reclam, 1971. 286 p.

\_\_\_\_\_. Geschichte der "Menschheitsdämmerung". Interpretationen expressionistischer Lyrik. (omnibus-volume) München: Fink, 1971. 292 p.

\_\_\_\_\_. Alfred Brust: Dramen 1917-1924 (edition). München: Fink, 1971. 318 p.

\_\_\_\_\_. Der deutsche Michel. Revolutionskomödien der Achtundvierziger. (Anthology) Stuttgart: Reclam, 1971. 526 p.

Paulsen, Wolfgang. (Editor) Psychologie in der Literaturwissenschaft. Heidelberg: Stiehm, 1971. 241 p.

Reh, Albert M. Teacher's Manual to "Continuing German, A Bridge to Literature". New York: McGraw Hill, 1971. 62 p.

### Hispanic Languages and Literature

DePuy, Blanche. (Co-author and translator) America in the Fifties and Sixties: Julián Mariás on the United States. Michael A. Rockland, editor. University Park and London: The Pennsylvania State University Press, 1972. 444 p.

Fernández-Turiénzo, Francisco. (Editor) Miguel de Unamuno: En torno al casticismo. Madrid: Ediciones Alcañá, 1971. 297 p.

Sturm, Harlan G. (Editor) El libro de los buenos proverbios: A Critical Edition. Lexington: University of Kentucky Press, 1971. 148 p.

\_\_\_\_\_. (Co-author) Repaso: Revised Edition. New York: W.W. Norton, 1971. 246 p.

### History

Boyer, Paul S. et al. (Asst. Editor) Notable American Women: 1607-1950, A Biographical Dictionary. Vol. I, II, and III. Cambridge: Belknap Press of Harvard University Press, 1971. 687 p.; 659 p.; and 729 p.

Boyer, Paul and Nissenbaum, Stephen (editors). Salem Witchcraft: A Documentary Record of Local Conflict in Colonial New England. Belmont, California: Wadsworth Publishers, 1972. 416 p.

- Gordon, Harold J. The Beer Hall Putsch. Princeton: University Press, 1972. 632 p.
- \_\_\_\_\_. Hitlerputsch 1928: Machtkampf in Bayern, 1923-1924. Frankfurt, Germany: Bernard and Graefe, 1971. 580 p.
- Hanke, Lewis (editor). Benito Juárez and the French Intervention in Mexico. Cambridge: Harvard University Press, 1971. 75 p.
- Johnston, William M. The Austrian Mind. Berkeley: University of California Press, 1972. 515 p.
- McNeal, Robert H. Bride of the Revolution: Krupskaya and Lenin. Ann Arbor: University of Michigan Press, 1972. 326 p.
- Minear, Richard. Victors' Justice: The Tokyo War Crimes Trial. Princeton: University Press, 1971. 229 p.
- \_\_\_\_\_. Shōsha no saiban (translation of Victors' Justice). Tokyo, 1972. 200 p.
- Nissenbaum, Stephen (editor). The Great Awakening at Yale College. Belmont, California: Wadsworth Publishers, 1972, 263 p.
- Potash, Robert A. El ejercito y la politica en la Argentina, 1928-1945. Argentina: Sudamericana, 1971. 441 p.
- Quint, Howard H., Cantor, Milton, and Albertson, Dean. Main Problems in American History. Third edition. Vols. I, II, Homewood, Illinois: Dorsey Press, 1972. 406 p., 409 p.
- Tragle, Henry I. The Southampton Slave Revolt of 1831. Amherst University of Massachusetts Press, 1971. 489 p.

### Music

- d'Armand, John. Four Readings from Christopher Marlowe's Dr. Faustus, Vaclav Nelhybel, Serenus Records.
- Olevsky, Estela and Olevesky, Julian: Complete recording of Mozart's Sonatas for Piano and Violin. Gemini Records: London, England, 1971.
- Teraspulsky, Leopold. Violin-'Cello, Viola-'Cello Duo Albam, Coronet Records #1715.
- Whaples, Miriam. Bach Aria Index. Music Library Association, Ann Arbor, 1971. 88 p.



Philosophy

Ackermann, Robert J. Belief and Knowledge. Garden City: Doubleday-Anchor, 1972. 149 p.

Wolff, Robert Paul. Philosophy: A Modern Encounter. Englewood Cliffs: Prentice-Hall, 1971. 613 p.

\_\_\_\_\_. (editor and Introduction by) Styles of Political Action in America. New York: Random House, 1972. 248 p.

## SOCIAL AND BEHAVIORAL SCIENCES

Anthropology

Armelagos, George J., Mielke, James H., and Winter, John, compilers. Bibliography of Human Paleopathology. Research Reports, No. 8, Department of Anthropology, University of Massachusetts, Amherst, 1971. xvi, 159 p.

Cole, John W. Estate Inheritance in the Italian Alps. Research Reports, No. 10, Department of Anthropology, University of Massachusetts, Amherst, 1971. iv, 99 p.

Pi-Sunyer, Oriol. The Limits of Integration: Ethnicity and Nationalism in Modern Europe. (edited) Research Report No. 9, Department of Anthropology, University of Massachusetts, Amherst, 1971. ix, 186 p.

Economics

Ehrenberg, Ronald. Fringe Benefits and Overtime Behavior. Lexington: D. C. Heath, 1971. 161p.

Political Science

Braunthal, Gerard. The West German Legislative Process: A Case Study of Two Transportation Bills. New York: Cornell University Press, 1972. 290 p.

Feit, Edward. Urban Revolt in South Africa 1960-1964: A Case Study. Evanston, Illinois: Northwestern University Press, 1971. xxii, 365 p.

Kline, Harvey F. (co-author). El Comportamiento Legislativo en Colombia. Gogota, Columbia: Ediciones Universidad de Los Andes, 1972.

Maki, John M. (editor). We, The Japanese. New York: Frederick Praeger, 1972. 221 p.

Vali, Ferenc A. The Turkish Straits and NATO. Palo Alto: Hoover Institution Press, 1972. 348 p.

### Psychology

Levinger, George, et al. Attraction in Relationship: A New Look at Interpersonal Attraction. New York: General Learning Press, 1972. 22 p.

Steiner, Ivan D. Group Process and Productivity. New York: Academic Press, 1972. 205 p.

(see addenda)

### Sociology

Driver, Edwin D. World Population Policy: An Annotated Bibliography. Lexington, Mass.: D.C. Heath Co., 1972. 1,350 p.

\_\_\_\_\_. Essays on Population Policy. Lexington, Mass.: D.C. Heath Co., 1972. 170 p.

\_\_\_\_\_. The Social Sciences and Population Policy: A Survey. New York: N.Y. Academy of Sciences, 1971. 56 p.

Faulkner, Robert R. Hollywood Studio Musicians: Their Work and Careers in the Recording Industry. Chicago: Aldine-Atherton, 1971. 218 p.

Killian, Lewis M. (with Ralph H. Turner) Collective Behavior. 2nd edition. Englewood Cliffs: Prentice-Hall, 1972. 424 p.

Yaukey, David, et. al. The Dacca Family Growth Study: An Experiment Comparing Programs Directed at Males and Females. Berkeley: Pacific Health Education Report No. 3. Schools of the University of California and the University of Hawaii, 1971. 250 p.

### Speech

Blankenship, Jane. Public Speaking: A Rhetorical Perspective. Second edition. Englewood Cliffs: Prentice-Hall, 1972. 361 p.

Brown, Kenneth. "Listening Content of Children's Textbooks," Teaching Listening in the Elementary School by Sam Duker. Metuchen, N.J.: Scarecrow Press, 1971. Chapter LX, pp. 229-246.

Cronen, Vernon E. "The Listener: Changing Attitudes and Beliefs," in Public Speaking: A Rhetorical Perspective by Jane Blankenship. Englewood Cliffs, N.J.: Prentice-Hall, 1972. Chapter III, pp. 67-101.

## NATURAL SCIENCES AND MATHEMATICS

### Botany

Walker, James W. Pollen Morphology, Phytogeography, Phylogeny of the Annonaceae. Cambridge: Gray Herbarium of Harvard University, 1971. 132 p. 61 plates, 14 tables.

### Chemistry

Brewster, R.Q., VanderWerf, C.A., and McEwen, W.E. A Brief Course in Experimental Organic Chemistry. New York: Van Nostrand Reinhold Company, 1972. xxiv, 216 p.

Siggia, S. Instrumental Methods of Organic Functional Group Analysis. New York: John Wiley and Sons, 1972. 428 p.

Richason, G.R. Jr., (editor). Chemistry Workbook and Laboratory Manual, 101, 102. Amherst, Mass.: H.I. Newell, Inc., 1971. 100 p.

\_\_\_\_\_. (editor). Chemistry Workbook and Laboratory Manual, 110. 165 p.

\_\_\_\_\_. (editor). Chemistry Workbook and Laboratory Manual, 111, 112. 315 p.

\_\_\_\_\_. (editor). Chemistry Workbook and Laboratory Manual, 113, 114. 198 p.

### Geology and Geography

Emslie, R.F., Morse, S.A., and Wheeler, E.P. Igneous Rocks of Central Labrador, with Emphasis on Anorthositic and Related Intrusions. Ottawa, Canada: XXIV International Geological Congress Guidebook A54, 2nd., 1972. 72 p.

Morse, S.A. (editor). The Nain Anorthosite Project, Labrador: Field Report 1971. Amherst: Department of Geology, University of Massachusetts, 1972. 102 p.

Stoiber, R.E., and Morse, S.A. Microscopic Identification of Crystals. New York: Ronald Press Co., 1972. 288 p.

### Mathematics and Statistics

Janowitz, M.F. (with T.S. Blyth). Residuation Theory. Oxford: Pergamon Press, 1972. 382 p.

Stockton, D.S. Essential Mathematics. Glenview, Ill.:  
Scott, Foresman & Company, 1972. 491 p.

### Physics and Astronomy

Inglis, David R. Nuclear Energy--Its Physics and Its Social Challenge. Reading, Mass.: Addison Wesley Publishing Co.,  
1972. 352 p.

### Zoology

Klingener, David. Laboratory Anatomy of the Mink. Dubuque:  
Wm. C. Brown Co. 1972. 99 p.

Moner, John G. Cells, Their Structure and Function. Dubuque:  
Wm. C. Brown Co. 1972. 190 p.

Nutting, William B. Basic Natural History. A Procedural Approach. New York: MacMillan Co. 1972. 386 p.

\_\_\_\_\_. Instructors Manual for Basic Natural History.  
New York: MacMillan Co. 1972. 22 p.

## ADDENDA

### Psychology

Cashdan, Sheldon. Abnormal Psychology. Englewood Cliffs,  
N.J.: Prentice Hall, 1972. 156 p.

Epstein, Seymour, "Drive Theories of Schizophrenia" in  
Robert Cancro (ed.), The Schizophrenic Syndrome, Vol. 1,  
New York: Bruner/Mazel, Inc., 1971, 17-52.

Moore, John W. "Stimulus Control: Studies of Auditory  
Generalization in Rabbits," in A.H. Black and W.F. Prokasy  
(eds.), Classical Conditioning II. New York: Appleton-  
Century-Crofts, 1972.

Myers, Jerome L. Fundamentals of Experimental Design,  
2nd ed. Boston: Allyn and Bacon, 1972. 475 p.

Table 16

PAYROLL FROM RESEARCH AND TRAINING GRANTS  
AND CONTRACTS (Fiscal Years 1970 - 1972)

	1970	1971	1972
<b>HUMANITIES &amp; FINE ARTS</b>			
Afro-American Studies	\$ --	\$ 111	\$ 60
Art	4,312	7,358	4,418
Classics	*	*	1,768
Comparative Literature	1,206	3,473	3,476
English	37,085	40,724	23,268
French, Italian	36,301*	10,633*	12,244
Germanic Languages	18,899	11,999	16,090
Hispanic Languages	--	2,036	--
History	12,177	19,325	22,265
Linguistics	473	584	941
Music	1,031	2,015	1,018
Philosophy	16,396	8,199	10,042
Slavic Languages	--	--	--
Dean's Office J-61	--	--	8,809
<b>Total</b>	<b>\$127,880</b>	<b>\$106,457</b>	<b>\$104,399</b>
<b>SOCIAL &amp; BEHAVIORAL SCIENCES</b>			
Anthropology	\$ 1,084	\$ 2,071	\$ 9,807
Asian Studies	--	619	--
Economics	7,964	33,646	25,956
Political Science	95,062	79,491	36,214
Psychology	279,036	276,290	417,476
Sociology	94,397	21,819	46,637
Speech	32,445	35,291	28,379
<b>Total</b>	<b>\$509,988</b>	<b>\$449,227</b>	<b>\$564,469</b>
<b>NATURAL SCIENCES &amp; MATHEMATICS</b>			
Biochemistry	\$ 87,167	\$ 87,165	\$116,839
Botany	95,126	63,191	58,713
Chemistry	258,823	246,356	269,022
Geology/Geography	62,973	63,910	85,550
Mathematics/Statistics	80,193	93,275	64,964
Microbiology	165,473	134,439	116,700
Physics/Astronomy	569,885	565,447	613,122
Zoology	243,229	243,528	205,151
Dean's Office J-63	--	--	2,131
<b>Total</b>	<b>\$1,562,869</b>	<b>\$1,497,311</b>	<b>\$1,532,192</b>
<b>GRAND TOTALS</b>	<b>\$2,200,737</b>	<b>\$2,052,995</b>	<b>\$2,201,060</b>

\*Classics was included in French and Italian in 1970 and 1971.

Table 17OTHER PROFESSIONAL ACTIVITIESHUMANITIES AND FINE ARTSArt

Perkins, Lyle, member--Ad Hoc Committee of the American Ceramic Society to study the "Place of Fine Arts Ceramics with the Society".

Reed, Carl, Keynote address, Massachusetts Art Education Association annual conference, October 1971. Judged 20th Annual Merit Awards of Massachusetts Advertising Art.

Wang, Hui-Ming, consultant, M.F.A. Program at Goddard College.

Wozniak, James, chairman and member of the board of directors and member of nomination committee, The National Council on Education in the Ceramic Arts.

Classics

Dyer, Robert--member--Advisory Committee for Computer Activities of the American Philological Association.

Lawall, Gilbert--member--Board of Directors of the Massachusetts Foreign Language Association.

Comparative Literature

Lenson, David R.--Poetry Editor, Panache.

Will, Samuel Frederick, Jr.--Editor, Micromegas.

English

Bagg, Robert--chairman--Poetry Board, University of Massachusetts Press.

Brogan, Howard--First Vice-President--College English Association in charge of Conference Program, Boston, Massachusetts.

Chametzky, Jules--Secretary, Board of Directors, Coordinating Council of Literary Magazines.

\_\_\_\_\_ --Co-editor, The Massachusetts Review.

Duckert, Audrey--President--American Name Society; and Regional Secretary for the Northeast American Dialect Society.

Frank, Joseph--Vice-President--New England College English Association; and consultant to departments of English, University of Florida and City College of New York.

Gibson, Walker--Chairman--College Section, NCTE; Consultant--Educational Testing Service, Princeton (CLEP tests) College Level Equivalency, and General Editor, Xerox Indiana Project for Continuing Education.

Haven, Richard--Co-editor--Victorian Periodicals Newsletter.

Hicks, John--Co-editor--The Massachusetts Review.

Jayne, Edward--English editor of Kritikon Litterarum, a German quarterly review.

Junkins, Donald--Poetry editor, The Massachusetts Review.

Kinney, Arthur--Editor--English Literary Renaissance and the Ben Jonson Quadricentennial (MLA). Director, New England College English Association and Chairman, MLA Conference of Editors of Learned Journals.

Lowance, Mason--Consultant--U.S. Office of Education for Division of Student Special Services and Treasurer, Modern Language Association, Early American Literature Group.

Neugeboren, Jay--Consultant--Indiana University.

Politella, Dario--Editor--The Campus Press Syllabus.

Reed, J.D.--Director--Northern New England Poetry Circuit.

Rudin, Seymour--Drama editor--The Massachusetts Review.

Tucker, Robert--Co-editor--The Massachusetts Review.

### French and Italian

Dufau, Micheline--member--Graduate Record Examination Committee in French and member, Nominating Committee of Modern Language Association of America.

O'Connell, David--member--National Modern Language Association committee for Special Topics II: Romanticism.

Tillona, Zina--Chairman--College Entrance Examination Board  
Italian Test Committee and Member, National Screening Com-  
mittee, Fulbright-Hayes awards.

### Germanic Languages

Reed, Carroll--member--Executive Committees of the American  
Dialect Society, and of the Linguistic Society of America.

### Hispanic Languages

DePuy, I. Blanche--Member--Board of Directors, International  
Institute in Spain.

Pollock, Seymour--Member--Higher Education Committee and  
Co-chairman, Subcommittee on Certification of the Higher  
Education Committee Bilingual Advisory Council, State  
Department of Education.

Rothberg, Irving P.--Editor--Hispania.

Soons, Rosalie S.--Representative--MLA Professional Status  
of Women.

Sturm, Harlan G.--Section Organizer--1972 Northeast Modern  
Language Association (Golden Age Literature) meeting.

Wexler, Sidney F.--Member--National Executive Committee  
for Spanish III (Golden Age Drama), MLA.

Zamora, Juan C.--Member--Higher Education Committee, Bi-  
lingual Advisory Council of State Department of Educa-  
tion.

### History

Bernhard, Winfred E.--General editor--Commonwealth Series,  
University of Massachusetts Press.

Hanke, Lewis--Vice-President--American Historical Associa-  
tion.

### Linguistics

Freeman, Donald C.--member--Committee on the Golden Anniver-  
sary, Committee to Find Summer Study Aids in Linguistics,  
and Committee on the Linguistic Institute, all of the  
Linguistic Society of America.



Music

duBois, Richard--member--Curriculum Committee of the State Department of Education.

Fussell, Charles--premiere performance--Julian, a drama in five scenes for soloists, chorus and orchestra, Salem Fine Arts Center, Winston-Salem, North Carolina. Commissioned by Salem College for 200th Anniversary.

King, John--Organ Recitals--Denmark, Germany, Sweden, and England. Also visited many organ builders for discussion concerning an organ for the new Fine Arts Center.

Stern, Robert--premiere performance--Carom, a work for orchestra and tape commissioned by Springfield, Massachusetts Symphony Orchestra.

Teraspulsky, Leopold--member--teaching faculty, Aspen Music Festival (summers). Also Chairman of their Music Committee and member of Board of Trustees. Judged Canadian Music Competition, Toronto and Montreal.

Tillis, Frederick--Music Consultant and Lecturer--Institute in Afro-American Music and Culture, Regis College.

Philosophy

Matthews, Gareth--invited participant--American Philosophical Association symposium, St. Louis.

Sleigh, Robert--invited participant--Western Washington Philosophy Colloquium.

Slavic Languages

Rothstein, Robert--participant--Summer Seminar in Slovak Language and Culture at Bratislava.

SOCIAL AND BEHAVIORAL SCIENCESAnthropology

Armelagos, George J.--Associate editor--Journal of Human Ecology.

Cole, John W.--organized symposium--Dynamics of Ownership in the Alpine Context, American Anthropological Association meeting, New York.

Munn, Nancy D.--Invited lecturer--Cornel University and the University of Chicago.

Salzmann, Zdenek--Invited paper--11th Congress of Czechoslovak Anthropologists in Presov.

Wobst, Martin H.--Memoirs editor--Society for American Archaeology.

### Economics

Barkin, Solomon--Consultant--Committee on Income, White House Conference on Aging and to Governor's Special Assistant for Program and Policy Development. Member, Academic Advisory Committee, Massachusetts Secretary of Manpower Affairs and Professional Task Force Steering Committee of State Executive Office of Elderly Affairs.

Ehrenberg, Ronald--delivered seminars--National Bureau for Economic Research, Princeton, and at the University of Maryland.

Rottenberg, Simon--Member--Committee for the Study of Incarceration, Marshall Field Foundation Study.

Wright, Arthur W.--Member, Board of Directors--Taxation with Representation and Tax Analysts and Advocates (public-interest tax law groups).

### Political Science

Coulter, Philip--Visiting Lecturer--Faculty of Public Administration, Institute of Social Studies, The Hague.

Feit, Edward--Invited papers--67th Annual Meeting American Political Science Association (Chicago) and American Association for Advancement of Sciences (Philadelphia).

Mainzer, Lewis--Managing editor--Polity, The Journal of the Northeastern Political Science Association.

Friedman, Harvey--Member--State Commission on Public Sector Collective Bargaining and member of Technical Advisory Committee for the office of the Secretary of Elder Affairs and Massachusetts Delegate to the White House Conference on the Elderly.

Gordon, Glen--Member--Commission on Compensation, University of New Hampshire System, Durham.

Howards, Irving--Consultant--Prime Minister's Office, Israel, on environmental problems.

Kramer, Fred--Consultant--Office of Training, Department of Community Affairs, Commonwealth of Massachusetts.

Syed, Anwar--Member--National Seminar on Pakistan and Bangladesh, Columbia University.

Lederle, John--Chairman--Reevaluation Committee for the University of Maine at Portland-Gorham; member, New England Board of Higher Education; advisor, to Committee for Economic Development Subcommittee on Management and Financing of Colleges; Consultant to the Indiana Commission on Higher Education and to Governor William Milliken on Higher Education in Michigan.

Lewy, Guenter--Member--American Political Science Association Committee on Academic Freedom and Professional Ethics.

Maki, John--Member--Northeast Asian Regional Council, Association for Asian Studies.

Psychology - see Addenda

### Sociology

Chilton, Roland--Assistant editor--Journal of Drug Issues.

Driver, Edwin D.--Member--American Sociological Association Committee on UNESCO; the U.S. delegation to the African Population Conference, Accra Ghana; the Behavioral Science Fellowship Committee (N.I.H.); the Developmental Behavioral Science Study Section, NICHD; and the Population Policy Panel, NICHD).

Killian, Lewis M.--Member--Committee on Nominations, American Sociological Association.

O'Rourke, John--Member--Research Advisory Subcommittee, Secretary of Elderly Affairs, Commonwealth of Massachusetts.

Roof, W. Clark--Associate editor--Sociological Analysis.

Yaukey, David--Member--site visiting team for NIH, Cornell University and the University of Pennsylvania.

### Speech

Nober, Harris--Member--American Board of Examiners in Speech Pathology and Audiology.

Tolhurst, Gilbert--Member--Scientific Affairs Committee of American Speech and Hearing Association.

\_\_\_\_\_ served on the National Academy of Science NRC Committee on Hearing, BioAcoustics and BioMechanics. Appointed--Academy's NRC Committee on Vision.

Melrose, Jay--Member--Committee on Delivery of Clinical Services and on the Legislative Council, American Speech and Hearing Association.

Matlon, Ronald J.--Massachusetts Representative--Committee on Discussion and Debate for the National University Extension Association.

Sillars, Malcolm--Member--Speech Communication Association; Chairman, Awards Committee, and Member of the Committee on Bicentennial Year and the Nominating Committee.

Wallace, Karl--Member--Speech Communication Association; Chairman, Finance Board and member of the Administrative Committee.

Bohn, Thomas--Consultant and judge--Ohio State Awards (a national competition involving network and metropolitan radio programs).

Bednerik, Marya--Acting Chairman--Playwright's Interest Group, American Theatre Association.

Abramson, Doris--Drama editor--The Massachusetts Review.

Bevilacqua, Vincent--Associate editor--Speech Monographs and Quarterly Journal of Speech.

## NATURAL SCIENCES AND MATHEMATICS

### Biochemistry

Bierhorst, David W.--Vice-President--International Society of Plant Morphologists; Invited participant, International Symposium on Ferns, Linnean Society and Pteridological Symposium, London, England.

Klekowski, Edward J. Jr.--Secretary-Treasurer--Pteridological Section, Botanical Society of America; Invited participant, Plant Disjunctions Symposium, A.I.B.S., Edmonton, Alberta.

Swanson, Carl P.--Editor--Biological Series, Prentice-Hall Inc.; and Adviser, Biological Section, Encyclopaedia Britannica.

### Chemistry

Barnes, Ramon M.--Chairman--National Program Committee, Society for Applied Spectroscopy; Invited speaker, Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy; and invited speaker, Analytical Section, American Chemical Society, Philadelphia Section.

Brandts, John F.--Symposium organizer--Great Lakes Regional A.C.S. meeting, Houghton, Michigan; Member, Biophysics and Biochemistry Study Section, National Institute of Health.

- Cade, Paul E.--Invited lecturer--Institute of Physics and Mathematics, Academy of Science, U.S.S.R. Invited Plenary lecturer, American Crystallographic Association Symposium, Albuquerque, N.M.
- Holmes, Robert R.--Invited speaker at three nationally and internationally sponsored symposia of the American Chemical Society.
- McEwen, William E.--Member--Board of Editors, Phosphorus and the Heavier Group Va Elements; Editorial Board, Organic Preparations and Procedures International; Committee on Nominations and Awards, American Chemical Society; and Consulting Editor, Topics in Phosphorus Chemistry.
- MacKnight, William J.--Invited Speaker--Northern California Polymer Group of ACS; North Jersey Polymer Group of ACS; and Gordon Conference on Elastomers.
- Rausch, Marvin D.--Invited lecturer--Academy of Sciences, U.S.S.R. Fifth International Conference on Organometallic Chemistry, Moscow.
- Rowell, Robert L.--Chairman--46th National Colloid Symposium.
- Siggia, Sidney--Invited lecturer (totalling six)-- in Scotland, Sweden, and Austria under sponsorship of the Chemical Society of each country; Member--Editorial Boards of Analytica Chimica Acta; Analytical Abstracts; Chemical Instrumentation; Advisory Panel, Oak Ridge National Labs; and Executive Committee to Analytical Division of the American Chemical Society.
- Stein, Richard S.--Invited lecturer--International Union of Pure and Applied Chemistry and at the National Meeting of the American Chemical Society, Boston. Chairman and U.S. Coordinator of U.S.-Japan Conference on Statistical Mechanics and Spectroscopy of Polymers, Amherst, sponsored by NSF and the Japan Society for the Promotion of Science.
- Zajicek, Oliver T.--Consultant--MDC and Corps of Engineers on Chemical Aspects of Water Quality; Scientific Advisor, Lower Pioneer Regional Planning Commission.

### Geology and Geography

- Morse, S.A.--Coordinator--Inter-University Nain Anorthosite Project, a study of Precambrian crustal evolution in coastal Labrador, using the 51-foot geological Research Vessel Pitsiulak.
- Haggerty, S.E.--Analyzer--Lunar moon-rock samples from Apollo 14 and 15 missions and from the Soviet Luna 16 as an international exchange.

- --Invited participant--International Geological Congress, Canada and the International Association of Geomagnetism and Aeronomy, Japan; and, selected participant, Third Luna Science Conference, Houston and the National Academy of Science, Geodynamics Project, Princeton University.
- McGill, G.E.--Analyzer--Jet Propulsion Laboratory, Pasadena, on daily operations of Mariner 9 Mars spacecraft.
- Smith, H.T.U.--Analyzer--NASA Earth Resources Technical Satellite (ERTS) Program.
- Doehring, D.O.--Co-Director--First Annual Symposium at SUNY Binghamton.
- Hall, L.M.--Invited lecturer and participant--Geological Society of America Penrose Conference on Piedmont Geology, Baltimore, Maryland.
- Wilkie, R.W.--Advisor--RAKSHA, a study of the performing arts at festivals and fairs in South India.
- Hartshorn, J.H.--Member--Executive Council of American Quaternary Association, Geomorphology and Geology Division, and of the Management Board of the Northeast Section of the Geological Society of America.
- Hubert, J.F.--Invited participant--International Sedimentary Petrology Seminar, Cincinnati, Ohio.
- Burke, T.--President--New England Division, Association of American Geographers; Visiting Geographer (NSF) at New Jersey State Colleges in Trenton and Glassboro; Bowdoin College, Bates College, and the University of Maine at Orono. Member, Geography Consulting Bureau, Association of American Geographers.

### Mathematics and Statistics

- Chang, C.-n.--Invited participant--Conference on theory of quadriatic forms, Louisiana State University.
- Chen, Y.W.--Invited participant--Summer Seminar on Partial Differential Equations at Berkeley; visiting member, Institute for Advanced Study, Princeton University.
- Cohen, H.--Visiting lecturer--Mathematical Association of America; Consultant, Conference on Undergraduate Program in Mathematics, sponsored by the Mathematical Association of America.

- Connors, E.A.--Invited participant--Conference on Arithmetic Theory of Quadratic forms, Louisiana State University.
- Jones, S.L.--Invited participant--Conference on Infinite Dimensional Topology, Louisiana State University and at the Cornell Topology Conference.
- Ku, H.T.--Invited Speaker--Special Session of American Mathematical Society on Transformation Groups, University of Wisconsin, Milwaukee.
- Liu, T.S.--Invited participant--International Conference on Harmonic Analysis, University of Maryland.
- Manes, E.--Invited Speaker--Special Session, Category Theory, American Mathematical Society, Pennsylvania State University and St. Louis University.
- Martindale, W.S. III--Invited lecturer--Algebra Conference, Oberwolfach, Germany.
- Rosenkrantz, W.A.--Invited participant--NSF Regional Conference at SUNY, Buffalo.
- Wattenberg, F.--Invited participant--Victoria Conference in Nonstandard Analysis.

### Microbiology

- Canale-Parola, E.--Chairman--American Society for Microbiology Subcommittee on Treponemataceae, and Member, International Taxonomic Subcommittee on Spirochaetales.
- Cox, C.D.--Member--National Research Council Committee on Naval Medical Research and NASA Advisory Panel on Life Sciences.
- Norkin, L.C.--Invited participant--25th Annual Symposium on Fundamental Cancer Research, M.D. Anderson Hospital and Tumor Institute and Conference on Molecular Mechanism of Genetic Recombination at the John E. Fogarty International Center of the National Institute of Health.

### Zoology

- Anderson, Everett--Member--Editorial Board and Associate Editor of Biology of Reproduction; Anatomical Record; Journal of Experimental Zoology; Journal of Morphology. Member, Corporation of Woods Hole Marine Biological Laboratory; Evaluating Panel of National Academy Science, NATO Postdoctoral Fellowships; Population Research and Training Committee, N.I. Child Health and Development. Consultant, AIBS Consultant Bureau, SUNY Board of Higher Education.

Bartlett, Lawrence M.--Member--NSF Undergraduate Research Participation Review Panel.

Fairbairn, Donald--Consulting Editor--Journal of Parasitology and, Council Member, American Society of Parasitologists.

Honigberg, B.M.--Editor--Journal of Parasitology; Editorial Board, International Journal of Parasitology; Trustee and Executive Committee Member, American Type Culture Collection. Invited papers--National Biology Congress, Miami and Symposium on Trichomoniasis, Warsaw, Poland.

Ludlam, Stuart D.--Consultant--Cheat River Project, U.S. Corps of Engineers.

Nutting, William B.--Senior Instructor--NSF Institute on Marine Biology, Bowdoin College.

Roberts, Larry S.--Editorial Board, Journal of Parasitology; and Experimental Parasitology; Associate Editor, Transactions of American Microscopical Society. Invited participant--Symposium on Parasites and their Environment, Toronto.

Roberts, John L.--Secretary--Division of Comparative Physiology, American Society of Zoologists.

Sargent, T.D.--Editor--Journal of the Lepidopterists' Society. Invited participant--Symposium on Lepidoptera Behavior, San Antonio.

Stuart, A.M.--Organizer and Chairman--Symposium, Invertebrate Behavior, Philadelphia.

### Psychology

### ADDENDA

Appley, Mortimer: Member, Advisory Committee, Law Enforcement and Administration of Criminal Justice, Commonwealth of Massachusetts.

Berger, Seymour M. Editorial Board, Journal of Personality and Social Psychology.

Clifton, Charles E. Editorial Board, Journal of Experimental Child Psychology, and Cognitive Psychology.

Clifton, Rachel. Guest Editor, Journal of Experimental Child Psychology.

Eagly, Alice H. Program chairman, Division 8, American Psychological Association and chairman, Research and Evaluation Committee, Convention Board of the American Psychological Association.



- Epstein, Seymour. Editorial Board, Journal of Consulting and Clinical Psychology and the Journal of Experimental Research in Personality. Invited address, Distinguished Speakers' Series, Canadian Psychological Association Convention, Montreal, June 1972.
- Golann, Stuart. Member, Board of Professional Affairs, American Psychological Association.
- Levinger, George. Executive Committee, Society of Experimental Social Psychology; Committee on Relations with other professions, American Psychological Association.
- Louittit, Richard T. Member, Committee on Brain Sciences and the Panel on Behavioral Modification Therapy, Committee on Brain Sciences, National Academy of Sciences, National Research Council.
- Steiner, Ivan D. Secretary-Treasurer, Society of Experimental Social Psychology.





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**UNIVERSITY OF MASSACHUSETTS  
AMHERST**



**ANNUAL REPORT**

**SCHOOL OF BUSINESS ADMINISTRATION**

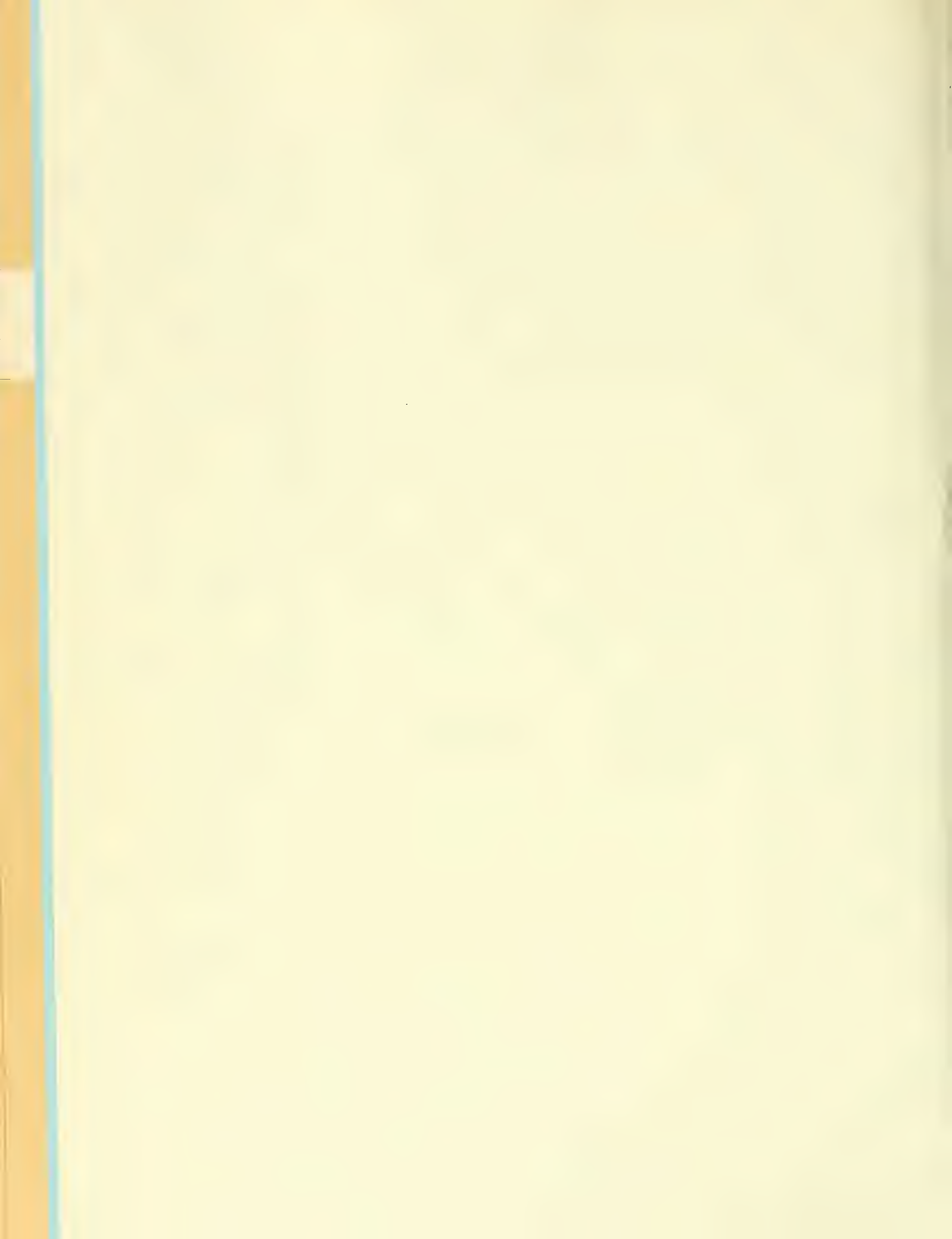
**JULY 1, 1971—JUNE 30, 1972**



A N N U A L   R E P O R T

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School of Business Administration  
University of Massachusetts/Amherst





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ANNUAL REPORT, 1971-1972  
SCHOOL OF BUSINESS ADMINISTRATION  
UNIVERSITY OF MASSACHUSETTS

WENDELL R. SMITH, DEAN

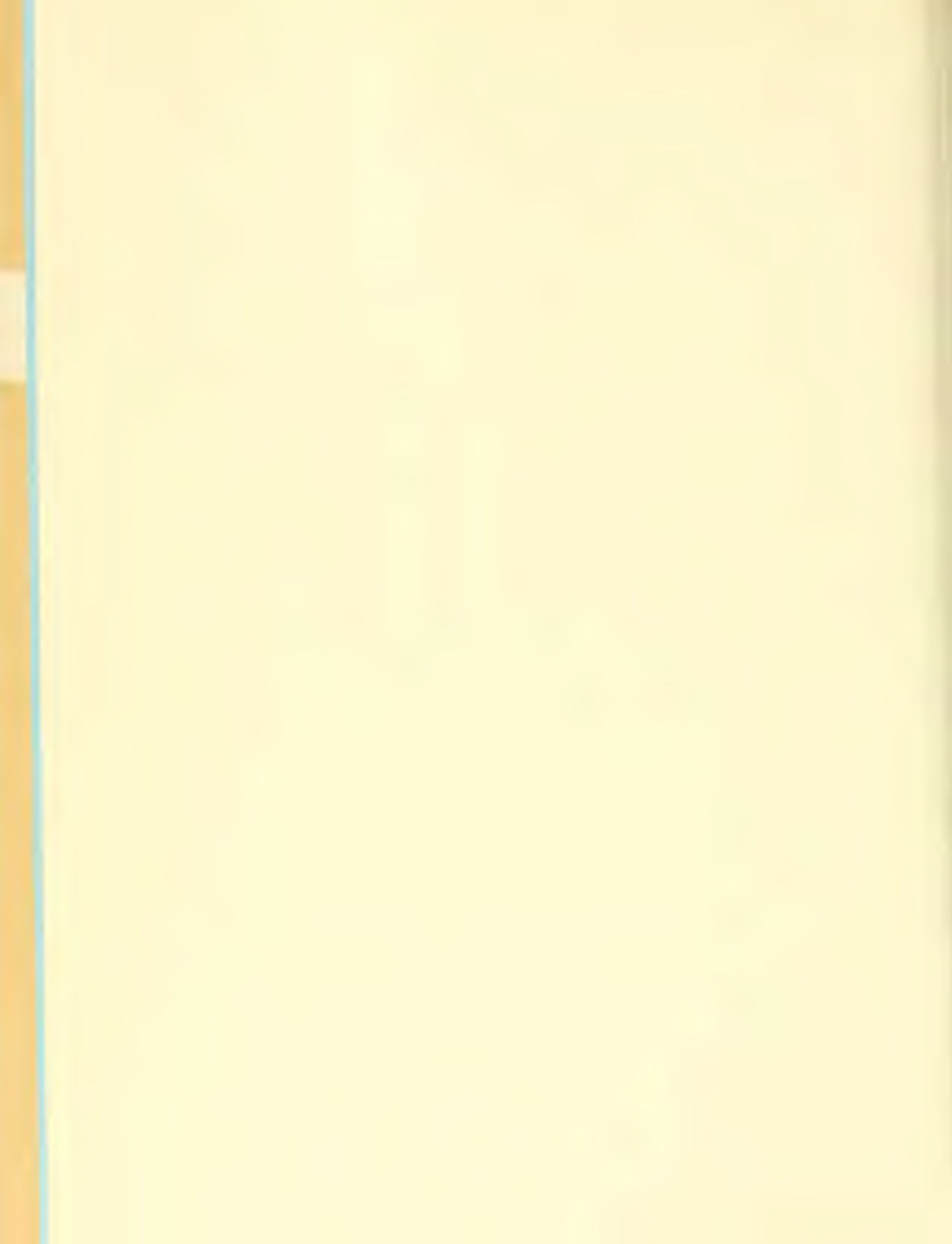
PREFACE

During the 1970-1971 academic year, the Administrative Committee of the School of Business Administration developed an updated statement of the goals and activities of the School. A portion of this statement is included here as a preface to the 1971-1972 Annual Report since it identifies guidelines for the continued development of the School.

During the 1971-72 academic year, an SBA Planning Committee was appointed by the Dean to review this statement, collect data on operations, and to report its observations and recommendations to the Dean and to the faculty. This committee is composed of Professors Kaczka (Chm.), Litterer, and Monroe. The committee's report will be released during the summer of 1972, and will be the subject of discussion and action by the Dean and the faculty in the fall. It is expected that the report will identify problem areas and recommend appropriate changes in organization and operating procedures.

I. GOALS OF THE SCHOOL OF BUSINESS ADMINISTRATION

The activities of the School of Business Administration are directed toward development of the understandings and capabilities necessary for effective management and operation of business firms and other complex organizations in the private, non-profit and governmental sectors of the socio-economic system. The goals of the School can be defined more



specifically as they relate to the primary activities of the School-- instruction, research, and service.

### Instruction (Undergraduate and Masters Levels)

In its modern context, instruction consists of teaching and other activities designed to enable students to learn. Through effective programs of instruction, the School seeks to prepare students for meaningful careers in management and administration. Emphasis is upon building a foundation for the continuing program of learning and development that is essential to effective contribution in an environment characterized by accelerating change.

The objective of the Doctoral Program is to prepare selected students to perform effectively as teachers and/or administrators in dynamic institutions by means of programs designed to build competence in research and learning oriented toward the planning, operation and control of business firms and related complex organizations.

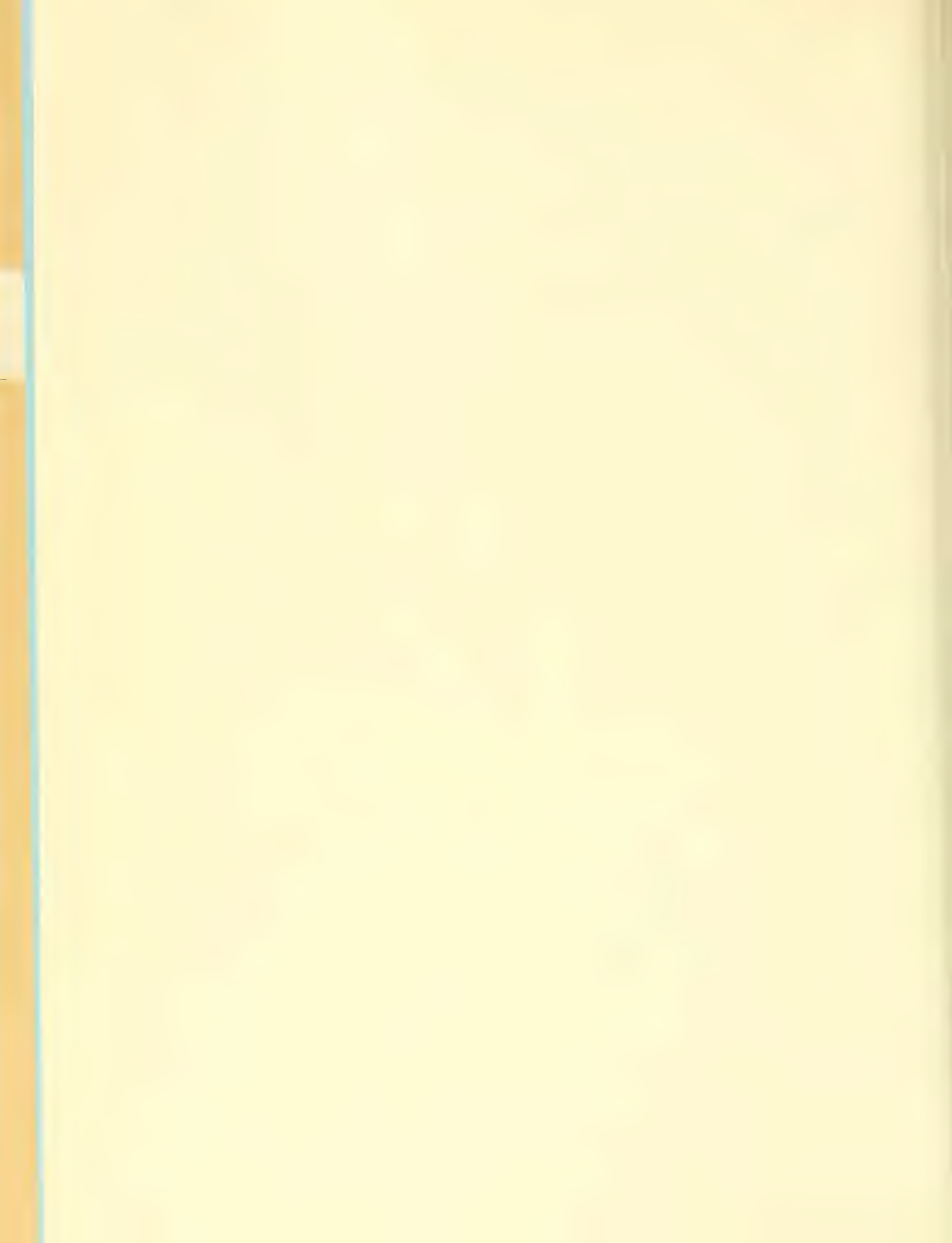
### Research

To conduct research related to:

1. The enrichment of instruction in relevant disciplines.
2. Maintaining and enriching the competence of the faculty.
3. Contributing to the development of established and emerging disciplines; and to do this in such ways as to reflect credit to the researcher and to the School.

### Service

1. To contribute to the development of close ties between



the University and those elements of its constituency that identify with the mission that the School seeks to achieve.

2. To contribute to the general welfare by applying the special capabilities of the School's faculty to the solving of pressing socio-economic problems, specifically to participate fully in programs, such as ABLE, designed to develop minority group students for effective careers in business and related areas of management and administration.

3. To serve the University internally by involvement in its problems of management and administration.

4. To offer continuing education programs designed to maintain and enhance the competence of non-student participants.

The following guidelines are applicable to the four major activities of the School.

#### Instruction

1. Challenge and motivate undergraduate and graduate students to excel.
2. Offer courses and programs that are abreast of the most recent knowledge.
3. Encourage students to develop the ability to engage in independent and creative thinking and to obtain knowledge of progress towards professional development in forms that have diagnostic value for self-improvement.
4. Establish a foundation for career-long professional growth and development.





### Research

Provide the necessary faculty and support for graduate programs by developing and maintaining:

- a. A research environment capable of attracting the number and types of faculty necessary to guide and direct the research efforts of quality graduate students.
- b. A research program that will generate financial support adequate to fund research activities associated with the target size of the graduate programs.

### Publication

1. Achieve and maintain a flow of scholarly publications sufficient to attract the number and quality of prospective new faculty and graduate students consistent with the target size of the School's graduate programs.
2. Since the University desires to establish itself both nationally and internationally as a first-rate institution of higher learning, all schools and divisions of the University should contribute to this end by encouraging faculty to publish scholarly works within their respective fields.

### Service

1. Concentrate upon those service activities which require the special skills and knowledge identified with business faculty and in which business faculty can make unique contributions because of their expertise. Among these services are the following:
  - a. Finding solutions to management and administrative problems



- - -

within the University structure.

- b. Designing and offering continuing education programs in the field of business and administration.
- c. Contributing to the solution of socio-economic problems.



## First Preliminary, EXPENDITURES AND APPROPRIATION

	<u>1969-1970</u>	<u>1970-1971</u>	<u>1971-1972</u>
State Funds - Salaries	<u>1,259,700</u>	<u>1,474,358</u>	<u>1,670,638</u>
State Funds - Other	<u>35,250</u>	<u>37,131</u>	<u>43,500</u>
Other Operating Funds - Salaries	<u>73,702</u>	<u>103,870</u>	<u>N/A</u>
Total	<u>1,368,651</u>	<u>1,615,359</u>	<u>N/A</u>

## Second Preliminary, PERSONNEL

Faculty - Full Time			
Professors	<u>18</u>	<u>17</u>	<u>18</u>
Associate Professors	<u>18</u>	<u>19</u>	<u>25</u>
Assistant Professors	<u>23</u>	<u>28</u>	<u>21</u>
Instructors & Lecturers	<u>3</u>	<u>5</u>	<u>10</u>
Part Time Faculty - Number	<u>3</u>	<u>2</u>	<u>6</u>
Full Time Equivalent	<u>2.25</u>	<u>1.0</u>	<u>2.0</u>
Faculty Subtotal	<u>64.25</u>	<u>70.0</u>	<u>76.0</u>
Non-Faculty Professionals			
Deans or Directors	<u>4</u>	<u>5</u>	<u>5</u>
Staff	<u>---</u>	<u>---</u>	<u>1</u>
Other (and Part Time, FTE)	<u>---</u>	<u>---</u>	<u>---</u>
Faculty and Professional Subtotal	<u>68.25</u>	<u>75.0</u>	<u>82.0</u>
Classified Personnel			
Clerical Positions	<u>16</u>	<u>16</u>	<u>17</u>
Technical Positions	<u>---</u>	<u>---</u>	<u>---</u>
Other	<u>---</u>	<u>---</u>	<u>---</u>
Classified Subtotal	<u>16</u>	<u>16</u>	<u>17</u>



## Third Preliminary - ORGANIZATIONAL CHART

<u>Departments</u>	<u>Degree*</u> <u>Programs</u>	<u>Instruc-</u> <u>tion</u>	<u>Re-</u> <u>search</u>	<u>Service</u>	<u>Other</u>
Accounting	BMD	X	X		
General Business and Finance	BMD	X	X		
Management	BMD	X	X		
Marketing	BMD	X	X		
Center for Business and Economics Research			X	X	

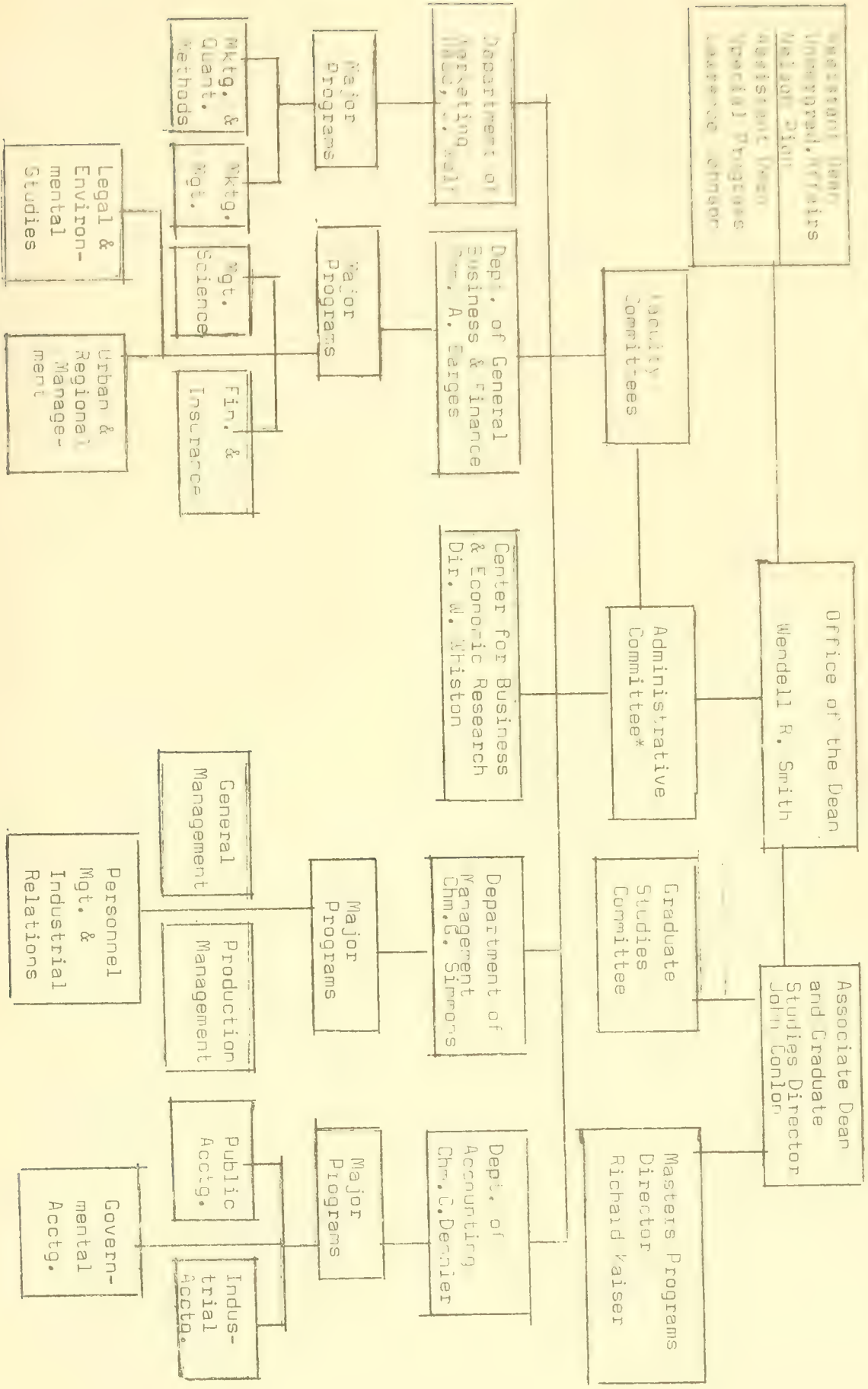
Masters and Doctoral Programs in Business Administration are offered at the School level. Concentrations are available in the M.S. and Ph.D. programs.

\* A- Associate; B- Bachelor; M - Master, less than 40 credits required;  
S- Master, 40 or more credits required; D - Doctoral Degree.





Includes the Dean, Associate Dean, Department Heads and





ANNUAL REPORT School of Business Administration 1971-1972

## Fourth Preliminary, CLIENTELE

STUDENT MAJORS (Fall Semester):	1969-1970	1970-1971	1971-1972
Stockbridge School	---	---	---
Undergraduate			
Freshmen	<u>237</u>	<u>254</u>	<u>270</u>
Sophomores	<u>374</u>	<u>287</u>	<u>310</u>
Juniors	<u>445</u>	<u>430</u>	<u>371</u>
Seniors	<u>376</u>	<u>388</u>	<u>301</u>
Undergraduate Subtotal	<u>1,432</u>	<u>1,367</u>	<u>1,334</u>
Graduate			
Degree Students	<u>179</u>	<u>218</u>	<u>264</u>
Other	<u>8</u>	<u>21</u>	<u>95</u>
Graduate Subtotal	<u>187</u>	<u>239</u>	<u>359</u>
Total Majors	<u>1,619</u>	<u>1,606</u>	<u>1,693</u>

## STUDENT CREDIT HOURS TAUGHT (Fall Semester):

## In courses of this unit

Undergraduate including Stockbridge	<u>11,538</u>	<u>11,600</u>	<u>12,720</u>
Graduate	<u>1,619</u>	<u>2,086</u>	<u>2,900</u>

## In courses of other units

Undergraduate	<u>N/A</u>	<u>N/A</u>	<u>174</u>
Graduate	<u>N/A</u>	<u>N/A</u>	<u>180</u>

## OTHER CLIENTELE:

<u>Management Development</u>			<u>217 registrations</u>
<u>Commonwealth Supervisory Personnel Program</u>			<u>2500 registrations</u> <u>over 4 years</u>
<u>Junior Executive Training</u>			<u>68 registrations</u>
<u>Summer School</u>	<u>1839</u>	<u>1323</u>	<u>1257</u>



ACTIVITIES AND PLANS

5. Faculty Publications, Research Grants, Research Projects and other Professional Activities

The members of the faculty of the School of Business Administration continue to be highly productive from the point of view of publications and related activities. The record for 1971-72 is as follows:

Articles published or accepted for publication--53

Books published -- 3

This is a conservative view of the publications output of the School. It takes into account only articles appearing in recognized professional or academic journals; and is limited to contributions that have been published, or barring some unforeseen development, will be published. Other manuscripts are in various stages of preparation.

The faculty and staff of the School of Business Administration continues to become more visible on the State, New England, and National and International scenes. The reports of the Departments and the Center for Business and Economic Research (Appendix 4) provide documentation on these points.

The Dean's professional activities have included serving on the Editorial Board of the Journal of Marketing, as Chairman of the Accreditation Committee of the Association of American Collegiate Schools of Business, and as a member of the Board of Trustees of the Marketing Science Institute. He is also a member of the Business Advisory Council of Springfield Community College. He has appeared before business groups in the United States, Japan, Switzerland, India, and South Africa during the past year.

The majority of SBA senior faculty members, and a growing percentage of younger faculty, are well recognized by their professional groups. Several hold offices in their associations. Many are active on committees of various sorts. John Conlon, Associate Dean and Director of Graduate Studies, continues to be active in the area of mediation and arbitration of labor disputes, and has been elected to the Academy of Arbitration.

The faculty of the School of Business Administration continues to be called upon for substantial participation in University-wide activities. Many are effectively involved in University committees. Several are serving the University as consultants.



## 6. Major Accomplishments

### (1) Teaching

A number of actions have been taken toward enhancement of the teaching effectiveness of the faculty of the School of Business Administration. The School continues to administer course and instruction evaluation questionnaires in all courses. Experimental courses continue to be offered prior to their being presented for formal approval. Curriculum reviews are being carried on at all levels.

Faculty recruiting activities this year were highly successful. Next fall we will welcome new faculty members from Syracuse, the Wharton School, Indiana, Michigan State, California (Berkeley), Harvard, Stanford, and Northwestern. Faculty members of this quality properly assume the availability of the necessary travel funds and support services to retain the cutting edge of their professional competence and to make their capabilities fully available to their students and colleagues of the University of Massachusetts. If decline in support in these areas continues, we will be seriously disadvantaged.

As a result of program revision and the promotional efforts of the Director of Masters Programs, Richard Kaiser, enrollment in the Pittsfield program has gone from a low of 17 in 1970 to a new high of 61 participants. During this same time period the on-campus enrollment in the MBA and MS Programs has increased from 216 to 276 even though admissions standards have been substantially increased.

### (2) Research and Service

Major accomplishments in the area of research are reported in the appended reports of the Departments and the Center for Business and Economic Research. Additionally, several of our faculty members are involved in interdisciplinary research with faculty of other Schools and Colleges. The Energy Source Study is a case in point. Professor Wortman's work in the manpower area has placed him in a leadership position in this field.

Service activities have been many and varied. Some are mentioned in Section 7 of this report since they relate to Special Programs. Additional examples are:

1. Professor Elkins study and report of research and recommendations on, "Management Procedures at Belchertown State School for the Mentally Retarded." Professor Elkins was joined in this effort by a student team.

2. In cooperation with the School of Engineering, and independently through the Center for Business and Economic Research, the faculty of the School of Business Administration is becoming involved in the economic development of Massachusetts in general and Western Massachusetts in particular. This activity is taking several forms such as:





1. Teams of faculty and students working with individual firms and/or local and regional development groups.
2. Faculty consultation with community leaders such as the officers of the Springfield Chamber of Commerce.

## 7. Special Programs

### 1. Commonwealth Supervisory Personnel Program

In March 1972 the School of Business Administration was designated by the Bureau of Personnel and Standardization, Executive Office of Administration of the Commonwealth, to conduct the above-identified executive development program for personnel holding managerial positions in State service. The first four of an initial series of six supervisory training seminars, each meeting one day per week for a period of eight (8) weeks, were conducted in Boston between the dates of April 10-June 30, 1972. A total of approximately 100 administrators in State departments and agencies attended this set of seminars. The training program has been funded by a grant from the United States Civil Service Commission under the Intergovernmental Personnel Act of 1970. It is expected that over the succeeding four-year period a total of approximately 2,500 supervisory personnel employed in State service will be trained in this program.

### 2. Executive Marketing Seminars

The management Development Program of the School of Business Administration offered a series of eight (8) one-day Executive Marketing Seminars throughout the period November 17, 1971-June 7, 1972. Each session of the seminar series was held in the Campus Center in Amherst. A total of 121 executives from business firms attended one or more sessions, with a total of 217 individual registrations recorded. Geographic representation of participants was as follows: Massachusetts-83; Connecticut-19; New Hampshire-9; New York-4; Maine-2; Rhode Island-3; and Ohio-1. Comparable seminars in other areas will be launched in 1972-73.

In addition, the Department of Marketing, in cooperation with the Western Massachusetts Chapter of the American Marketing Association, sponsored the First Annual Marketing Planning Seminar on April 24, 1972 in the Campus Center in Amherst. One hundred participants, primarily top management executives at the policy-formulating level in business firms throughout Massachusetts and Connecticut attended.

### 3. Program ABLE Consortium

Since 1969, the School of Business Administration has offered Program ABLE (Accelerated Business Leadership Education), a graduate program leading to the degree of Master of Business Administration (M.B.A.) designed for members of minority groups.

In May, 1972, a Program ABLE Consortium was established to introduce and offer Program ABLE on the following additional campuses: Syracuse



University, New York University, Howard University, and Atlanta University. The Program ABLE Consortium has been funded by the Office of Minority Business Enterprise in the United States Department of Commerce in the amounts of \$175,000 for each of the academic years 1972-1973 and 1973-1974. At the present time, twenty-one (21) students from minority backgrounds are enrolled in Program ABLE on participating campuses. Two calendar years are involved in completing the M.B.A. degree requirements. One initial three-month summer period is devoted to remedial study. The summer period between the first and second years of enrollment requires an internship in a minority-run business. Dr. Lawrence Johnson, presently on leave as Assistant Dean of the School while serving as President of Franklin Park Community College, is Executive Director of the Program ABLE Consortium. The headquarters office of the Consortium is located on the Amherst campus.

#### 4. Workshop Conference on Productivity

The School of Business Administration and the School of Engineering received a grant in the amount of \$26,500 from the National Science Foundation in May 1972 for the purpose of conducting a Workshop Conference on the Amherst Campus in October 1972 on the topic: A National Inquiry into Productivity in Durable Goods Manufacturing. Approximately seventy (70) individuals holding leading positions in government, industry, and universities will be invited to participate. Among the principal objectives of the Workshop Conference will be the examination of current problems within the domestic durable goods industry, the initiation of the process by which reports and recommendations for future National action may be prepared with reference to the durable goods industry, and the development of a series of priorities to guide the activities of the Productivity Center which has been proposed to be established on the campus of the University of Massachusetts-Amherst. A grant proposal in excess of \$300,000 was submitted to the National Science Foundation in April 1972 by the Schools of Business and Engineering for the creation, and funding over a three-year period, of the aforesaid Productivity Center. Thus, the Workshop Conference is but the first of a series of anticipated efforts directed toward improving industrial productivity within American manufacturing firms so as to promote their competitive effectiveness in international markets.

#### 5. JET Program

Since 1960, in collaboration with the Experiment of International Living, the School of Business Administration has conducted annually a six-week, middle-management training program on the University Campus in Amherst for executives from business firms located in overseas countries.

Within the past fiscal year arrangements have been made with the School for Business and Public Administration in Zurich, Switzerland, and the Advanced School of Commerce in Paris, France, to conduct separate and additional four-week management-training programs for recent graduates from each of these institutions. As with previous JET Programs, emphasis will continue to be directed toward providing student-participants with insight into American Business philosophies and methods, as well as toward promoting better relations between United States and foreign markets.



## 8. Future Plans and Needs

As has been reported before, one of the most serious problems confronting the Professional Schools on the Amherst campus of the University has to do with the inadequacy of funds for support activity and for the development of teaching, research and service programs that are essential if we are to render optimum service to the Commonwealth. While it is clear that the University is obligated to grow in order to provide opportunities for the youth of the Commonwealth, it must also be understood that this cannot be done efficiently unless the secretarial, research, and administrative support that is necessary is made available. At the present time, far too many faculty members find it necessary to type their own correspondence or to have it handled at their own expense outside of the School. Deans, Directors, and Department Chairmen spend hours of valuable time in the handling of reports and records that should be handled by administrative assistants. This misallocation of effort leaves undone many things that are critical to the achievement of the development goals of the University.

Professional Schools are especially hurt by the paucity of travel funds. The "Laboratory" of the School of Business Administration is not on campus as is true of many disciplines. Rather, it is in the "real world" of commerce, industry, and non-profit and governmental institutions. Access to this laboratory is essential of relevant programs are to be developed and maintained. This is critical in support of effective teaching, useful research and noteworthy public service.

The School of Business Administration will continue to make changes designed to communicate and implement the expanding role that is being played by what have been traditionally called "business schools" across the country. Whereas most of such schools began in the 1920's with an almost exclusive concern with preparing students for business careers, this is no longer the case. Our accrediting organization, the American Association of Collegiate Schools of Business, now identifies the goal of its member institutions as the "Preparation of students for the administration of business firms and other complex organizations." This is to say that the competence developed in a Collegiate School of Business Administration has increasing applicability to the management of non-profit institutions, educational institutions, and governmental organizations as well as business firms per se.

This evolutionary broadening of focus, is an established fact; but the image of business schools held by many still reflects the older orientation.

Several of the accredited schools in the New England area and elsewhere have responded by a change of name. The School of Boston College, for example, is now officially called the "Graduate School of Management." The same is true of the School at Northwestern, while Ohio State has reorganized as the College of Administrative Science. These changes of name are not without their disadvantages. They tend to suggest to the business community a movement away from the needs and problems of the



## A Word From The Dean



Wendell R. Smith

With the publication of this first issue of the SBA Newsletter, the University's School of Business Administration begins the second twenty-five years of development. It is our desire to share with the alumni and friends of the School a quick review of the accomplishments of these first eventful years.

In subsequent issues we will be asking you to participate with us in considering new educational plans and programs that

SBA is now capable of launching. Some of these programs will be designed to bring you back to the campus to continue your educational experiences, either in person or via some of the exciting new media of communication. Through future Newsletters and related activities, we hope to make you full partners in developing a future that will benefit us all.

As I begin my fifth year as Dean of the School of Business Administration at the University of Massachusetts, I am confident that our School has emerged as one of the best in the Nation. We wish to share it with you.

May I extend a cordial invitation to drop in whenever you are in the Amherst area. Associate Dean Conlon and I will be delighted to see you, as will members of the Faculty and Staff. We have tried to include in this issue of the Newsletter some updating information as background for looking ahead. Please give us your suggestions for items to be considered in the future.

# The First Quarter Century

## THE BEGINNING

Twenty-five years ago, in 1947, the School of Business Administration was established at the University of Massachusetts. That was also the year when Massachusetts State College officially became the University of Massachusetts. However, in the early 1900's the Department of Agricultural Economics at Massachusetts Agricultural College introduced a limited number of courses in the business and management field. Dr. Alexander E. Cance served as Head of this Department until 1935 at which time the courses in Economics and business-related subjects were transferred to the newly-organized Department of Economics within the then School of Liberal Arts. Dr. Cance was appointed Head of this Department. Between 1935 and 1947 the curriculum was enriched and expanded. Dr. Philip E. Gamble replaced Dr. Cance as Head of the Department in 1942.

In 1947, the Trustees established the School of Business Administration and designated an initial faculty of ten members. For a time Dr. Gamble served as both Head of the Department of Economics and Acting Dean of the new School of Business Administration. The degree of Bachelor of Business Administration was first awarded to 15 graduates in the Spring of 1949.

As a result of rapid growth in faculty size, the student body, and course offerings during the immediate post-World War II period, the School of Business Administration was reorganized in 1952 and Dr. Milo Kimball was appointed as the first full-time Dean. In



A recent aerial view of the University's Amherst campus shows the School of Business Administration buildings at lower left.

1954, the School vacated its initial quarters in Old North College, adjacent to the present site of Machmer Hall, and relocated in renovated office and classroom facilities in Draper Hall. Also in 1954, under authorization granted by the Trustees in 1953, the School conferred graduate degrees for the first time to three students who had completed the requirements for the degree of Master of Business Administration.

Dean Kimball resigned his administrative responsibilities and returned to full-time teaching in February

1957. Provost McCune became Acting Dean pending the arrival of the newly-appointed Dean, Dr. Himy B. Kirshen from the University of Maine. Following an intensive evaluation of faculty qualifications and course offerings, the School was accredited at the undergraduate level by the American Association of Collegiate Schools of Business in May 1958. In March of 1959, the Trustees authorized the establishment of four academic departments within the School: Accounting, General Business and Finance, Management, and Marketing. The initial administrative officers of these respective departments were Professors John W. Anderson, James B. Ludtke, John T. Conlon, and Harold E. Hardy.

At the suggestion of executives of the General Electric Company, an evening MBA Program, identical to that offered on campus, was introduced in Pittsfield, Massachusetts in September 1959.

In February 1963, the School was one of a group of 53 American business schools, and one of only four in New England (the others being Harvard, Massachusetts Institute of Technology, and Dartmouth College), to be accredited at the Master's level by the American Association of Collegiate Schools of Business.

The present School of Business Administration building was completed during the summer of 1964. Initially the building provided office space for 48 faculty, and 30 class and seminar rooms of varying capacity. Subsequent changes have substantially increased the building's capacity.

The dedication ceremonies held in April 1965 were the occasion of the formal establishment of the Business Advisory Council of the School, a group of executives from a variety of industrial and service organizations who consult with the School on the development of its teaching, research, and service programs. The first Chairman of the Business Advisory Council was Dr. Stanley Teele, Treasurer of Amherst College and former Dean of the Graduate School of Business at Harvard University. Dr. Teele had also served as President of the American Association of Collegiate Schools of Business.

In July 1967 the School established a Center for Business and Economic Research to encourage and support basic and applied research by faculty and students in all areas of management and administration.

In September 1967, following two years of study and planning, a program leading to the degree of Doctor of Philosophy in Business Administration was

introduced. Graduates of this program are now assuming faculty positions in business schools throughout the country.

After ten years of service, Dean Kirshen resigned his position and retired from the University in July 1967. He is now a member of the faculty of the University of Santa Clara. Dr. Wendell R. Smith, formerly a Staff Vice President of RCA, came to the University of Massachusetts from a professorship in University of Pennsylvania's Wharton School and the presidency of the Marketing Science Institute. He was appointed Dean of the School effective January 2, 1968. In the interim, Associate Dean John T. Conlon served as Acting Dean.

## THE PRESENT

### *Department of Accounting*

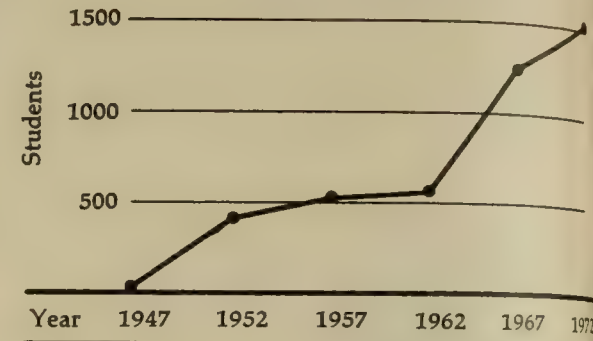
The rapid growth of the University and the School over the past 25 years has permitted the appointment of faculty members with educational backgrounds reflecting developments in many fields. In the accounting area, these changes include an increasing opportunity for quantitative approaches to accounting procedures, practices, and problems; a concern for the behavioral aspects of accounting and accounting reports; and a new awareness of the role of accounting in the complex social and economic systems of the Commonwealth, the nation, and the world. Added personnel have permitted the Department to integrate these factors into established courses as well as to develop new courses. The curriculum has been expanded to include courses that involve systems, computer science, international accounting, and accounting theory. New courses are being created and established courses are being evaluated constantly to assume relevance and effective organizational design.

Professor Carl Dennler, who completed his doctoral work at the University of Wisconsin, was appointed Chairman of the Department in 1966, replacing Professor John Anderson, who resumed full-time teaching responsibilities. Currently there are 17 full-time faculty members in the Department.

### *Department of General Business and Finance*

The Department of General Business and Finance also has undergone marked changes in character. After 12 years of building and leading the Department, Professor James B. Ludtke asked to resume full-time teaching responsibilities in the area of business finance and

Twenty-five Year Growth  
of the  
School of Business Administration  
University of Massachusetts  
1947-1972



financial institutions. Professor Alexander Barges was appointed Chairman of the Department during the summer of 1971. Professor Barges came to the School in 1966 from the University of Southern California.

The Department also has enlarged substantially. At present there are 25 full-time faculty members. The Department has been decentralized on the basis of the four principal disciplines included in the Department. Each of these areas; Finance and Insurance, Law and Environment, Management Science, and Urban and Regional Studies, is headed by a faculty member serving as area coordinator.

### *Department of Management*

As with the other departments, the programs of the Department of Management have evolved to reflect new needs for management personnel, new student interests, and changing job requirements.

The period of the mid-sixties was perhaps the biggest growth period for the field. It was during these years that a faculty of national reputation was assembled and a strong program of teaching and research instituted. The faculty, which now numbers 15, is headed by Professor George Simmons, who came to the University in 1966 from Columbia University.

With collegiate schools of business administration reaching maturity levels, the value of higher education being appraised, and changing economic conditions, the Department considers that more attention should be given to improving undergraduate teaching and



# SBA Goes International

Since 1960, SBA has become heavily involved in international education for business. This involvement has intensified in recent years, with the future promising to be still challenging. At present the SBA is active in several areas:

1. *JET PROGRAM*: Every summer since 1960, in collaboration with the Experiment in International Liv-

providing professional services to the analysis and possible solution of social and economic problems.

The Department is currently developing a series of new programs leading to the BBA degree which should give students the skills and information needed to launch successful careers in management, while providing at the same time freedom to develop intellectual breadth. Programs in such new and important areas as systems analysis, manpower planning, and organizational behavior have been developed.

An intensive program in leadership training for administrative personnel of the Commonwealth has recently been developed by the faculty of the Department.

## *Department of Marketing*

In 1965 Professor Jack S. Wolf, formerly of Saint Louis University, assumed the Chairmanship of the Department of Marketing upon the retirement of Dr. Harold Hardy. Over the past 25 years the Department has grown to a faculty of 12. As with the other Departments, Marketing has developed a number of innovations in curriculum and instruction. In order to provide additional flexibility for marketing majors, students are now allowed more freedom of choice with respect to marketing courses which have been classified into three groups: functional, tool, and expansive. More concern is now directed, in the basic courses, towards societal and social responsibility considerations, and the ways environmental constraints influence decision-making in marketing.

Department faculty members have also been encouraging students in their courses to engage in dialogue with specific business firms in the area and to work in real problem settings. Related to this effort has

ing, SBA has conducted a six-week middle management course in Amherst. In 1971 this intensive program was taught to 50 managers from eight countries in Europe, South America and Asia. The aim of the program is twofold: to give foreign businessmen an insight into modern American business philosophies and methods, and to promote better relations between the U. S. and foreign markets.

been an attempt to bring a number of highly visible off-campus speakers into classrooms, and to schedule experience-oriented activities for student groups.

## *Graduate Programs*

The School has developed a balanced and well-integrated group of graduate programs designed to serve the professional and educational needs of students seeking careers in the management of business firms and other complex organizations and in teaching in the field of business administration.

The MBA program continues to emphasize the general administrative aspects of business organization and behavior. Opportunities for more specialized graduate study have been provided by a Master of Science program with concentrations currently available in Accounting, Management Science, Marketing, Personnel and Industrial Relations, Finance, and Urban and Regional Management. The Ph.D. program allows students to major in one of the functional fields of business, or in the quantitative or behavioral science disciplines as applied to business. At present, 375 students are enrolled in the several graduate programs on campus, with an additional 50 students enrolled in the Master's programs offered in Pittsfield.

## THE FUTURE

Today, more than ever before in its first 25 years, there is concern in SBA for quality classroom performance on the part of the faculty. Along with the improved education programs, extending the service capability of the School to more people and institutions in the Commonwealth, is an exciting challenge facing the School and the University in the future.

2. *HWV PROGRAM*: Together with the School for Business and Public Administration in Zurich, Switzerland, SBA conducted a four-week seminar in Management Techniques for the first time in 1971. The 20 participants were all from Switzerland and recent graduates of the HWV School of Zurich. This program, which will be repeated in 1972, is expected to become a more comprehensive exchange program with American teachers and students going to Switzerland and Swiss teachers and students coming to Amherst.

3. *European Seminar*: This past summer, for the third time, SBA faculty conducted a high-level Executive Seminar in Central Europe. The 1971 seminar was held in Flims in the Swiss Alps and dealt with the subject of "Mergers and Acquisitions."

4. *Export Program*: In cooperation with the New England Regional Commission, and later with the funding provided by the U. S. Department of Commerce, SBA during 1971 provided marketing research and consulting services to several Massachusetts industrial firms. A number of graduate students in the International Marketing class have been working with individual firms in developing export plans and strategies. An indication of the success of the program was that, after the initial year in Massachusetts, the Department of Commerce decided to make the program nationwide.

5. *Future Programs*: A preliminary basis for student and teacher exchange has been developed with the Chamber of Commerce of Paris, France. The Chamber and the Advanced School of Commerce in Paris have asked SBA to initiate the cooperation with a special four-week seminar in the summer of 1972.

An informal collaboration has been instituted with the Meisei University of Tokyo, Japan. On three occasions Dean Smith has lectured and conducted seminars at the Japanese school.

SBA faculty members on sabbatical leave next year will be teaching and conducting research in several locations including Greece and France.

# Management Development Programs

Recognizing the importance of providing continuing education opportunities to alumni and other managers, the School has instituted several new management development programs under the direction of Professor Victor Buell, formerly Marketing Vice President of American Standard. Programs currently being offered are:

1. *Commonwealth Supervisory Personnel Program.*

SBA has been named by the Commonwealth Bureau of Personnel and Standardization, Executive Office for Administration and Finance, to conduct a continuing executive education program for Commonwealth supervisory personnel. The program concentrates upon the development of managerial and leadership skills of governmental employees.

2. *Executive Marketing Seminars.* Eight one-day seminars designed to update managers on tested and new methods for improving sales and profits are scheduled to June, 1972. The seminars are held in the Campus Center and taught by the SBA Marketing faculty.

3. *Future Programs.* Other management development programs are now being developed. Brochures outlining the SBA Programs, resources, and facilities are available from Victor P. Buell, Director, Management Development Programs.



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Amherst, Massachusetts  
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## *Assistant Dean Johnson Appointed College President*



Dr. Lawrence A. Johnson, SBA Assistant Dean for Special Programs, has been named first president of the new Franklin Park Community College in Roxbury. Dr. Johnson, a graduate of Boston University and Stanford University, is the founder and chairman of the board of the Committee for Collegiate Education of Black Students. He is also the founder and director of Program ABLE which is designed to assist minority students in graduate programs in business administration.

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## *An Urgent Request*

The officers of the SBA Graduate Business Club request any assistance you can give on the job placement front this Spring. While the Placement Office is doing its best, there is no denying that employment opportunities are fewer, even for recipients of BBA and Master's degrees in business. If your company has any vacancies to fill, please ask your personnel people to get in touch with Richard Kaiser, Director of Masters Programs at the School. You will be doing a favor for all concerned.

## Appendix 1.

School of Business Administration  
 FACULTY by DEPARTMENT - FALL 1971

	<u>Professor</u>	<u>Associate Professor</u>	<u>Assistant Professor</u>	<u>Instructor &amp; Lecturer</u>	<u>Part-time No.</u>	<u>FTE</u>	<u>Total FTE</u>
Accounting	6	4	7	2	3	1.25	20.25
General Business & Finance	5	6	10	5	0		26.00
Management	6	8	1	-	3	.75	15.75
Marketing	1	7	3	1	0		12.00
Dean's Office	-	-	-	2	-	-	2.00
School Total	18	25	21	10	-	2.00	76.00



## Appendix 2.

## School of Business Administration

## STUDENT MAJORS by DEPARTMENT

Fall of	Undergraduate				Graduate			
	'69	'70	'71		'69	'70	'71	
School of Business								
Administration	L	590	515	559	D	179	218	264
Unassigned	U	188	201	257	S	8	21	95
	T	778	716	816	T	187	239	359
Accounting	L	6	4	13	D	---	---	---
	U	149	150	134	S	---	---	---
	T	155	154	147	T	---	---	---
General Business	L	3	3	2	D	---	---	---
Finance	U	160	154	112	S	---	---	---
	T	163	157	114	T	---	---	---
Management	L	6	11	2	D	---	---	---
	U	159	141	111	S	---	---	---
	T	165	152	113	T	---	---	---
Marketing	L	6	8	4	D	---	---	---
	U	165	180	140	S	---	---	---
	T	171	188	144	T	---	---	---
School Subtotal	L	611	541	580	D	179	218	264
	U	821	826	754	S	8	21	95
	T	1,432	1,367	1,334	T	187	239	359

L: Freshmen and Sophomores, U: Juniors and Seniors,  
T: Total, D: Degree Students, S: Other

**Notes:**

1. Normally, undergraduate students do not select majors and are not assigned to Departments until the Junior year.
2. Graduate programs are currently administered at the School level.



Appendix 3.

School of Business Administration

STUDENT CREDIT HOURS BY DEPARTMENT

Fall Semester of		1969	1970	1971
Accounting	U	3,825	3,795	3,888
	G	27	72	78
General Business and Finance	U	3,699	3,392	4,620
	G	30	30	162
Management	U	2,025	2,077	2,115
	G	11	18	12
Marketing	U	1,968	2,212	2,097
	G	6	---	42
Undifferentiated	U	36	33	---
	G	1,542	2,035	2,650
School of Business Administration Subtotal	U	11,553	11,509	12,720
	G	1,616	2,176	2,944

U: Undergraduate including Stockbridge      G: Graduate





Appendix 4 A

Department of Accounting

Chairman - Carl Dennler

Faculty publications, research grants, research projects, and other professional activities.

I. A. Publications:

- (1) "The Value Added Tax," The Massachusetts CPA Review, March-April 1972, Dr. Motekat.
- (2) "Reporting Profit Expectations," Management Accounting, February 1972, Dr. Backer.
- (3) The CPA Examination, a two-volume text written by Professors Anderson and Lentilhon, in production by South-Western Publishing Co.
- (4) Professor Krzystofik, as Editor of the Mass. CPA Review, writes for each issue editorial comments under the title "Editor's Corner."
- (5) Reprints or abstracts or previously published articles:
  - (a) Abstract of an article "An Empirical Study of Possible Income Manipulation" appeared in the C.F.A. Digest, Summer 1971. The article, written by Dr. Simpson, originally appeared in The Accounting Review, 1969.
  - (b) The article, "A New Application of Calculus and Risk Analysis to Cost-Volume-Profit Changes," was reprinted in a book of readings, Contemporary Issues in Cost Accounting, 2nd. Edition, Edited by Anton & Firmin, Houghton-Mifflin Co., 1972. The article had appeared in The Accounting Review, April 1969, pp. 330-344.

B. Written and Accepted for Publication:

- (1) A Statement of Basic Auditing Concepts, a report of the AAA Auditing Concepts Committee. The report was written by Dr. Stone.
- (2) An information systems textbook, written by Dr. Burch and Mr. Strater, to be published by John Wiley & Sons. Production to begin October, 1972.

C. Written and Submitted for Publication:

- (1) "Financial Statement Simulation," an article by Dr. Stone



D. Articles or Books in Progress:

- (1) "Choice of Accounting Procedures: When Conflict Exists Between Management and Shareholders," Mr. Zeisel.
- (2) "Environment Conducive to Accounting Changes," and "Management Pursuit of Non-earnings Enhancement Goals," articles by Dr. Gosman.
- (3) Current Value Reporting, a monograph reporting the results of an FEI research project and expected to be published in the Fall, 1972.

II. A. Research Grants

- (1) Professor Singer is completing, this year, a project titled, "Self-Instructional Materials for Topics in Elementary Accounting - A Means to the Demonstration of Pay-Offs from Individualized Time-to-Complete." The project was funded by the Region I Office of Educational Research.
- (2) Professor Backer made significant progress toward completion of a research project funded by the Financial Executives Institute to study current value reporting. Progress to date is being reported in a monograph which is substantially completed.

B. Research Projects

- (1) An empirical investigation of the "big bath" theory being researched by Gerald Zeisel.

III. Other Professional Activities:

A. Speeches or Papers Presented:

- (1) Dr. Stone presented the report of the Auditing Concepts Committee at the annual meeting of the American Accounting Association, August 1971.
- (2) Dr. Burch presented a paper, "Data Processing and Information Systems," at UMass., Boston, November 1971. He also presented a paper and was a panelist for a data processing/systems/computer curriculum conference sponsored by AIDS, May 1972.
- (3) Dr. Motekat delivered two programs: "Technical Writing," Joint Annual Meeting of the Woman's Society of CPA's and the American Society of Women Accountants, Detroit, October 1971; and "What's New in Accounting?," Boston Chapter, American Society of Women Accountants, April 1972.
- (4) A paper, "Managerial Accounting for Pharmacies," was presented by Dr. Morrison to small businessmen in retail pharmacy operations, Boston, April 1972.



III. (cont.)

- (5) Professor Backer gave a number of speeches during the year. A partial list follows:
  - a. "Current Value Reporting," presented to 100 "leaders of the Accounting profession" in New York City, October 1972, and to the Financial Reporting Committee of the FEI in Dearborn, Michigan.
  - b. "Financial Reporting and Security Investment Decisions," at the NAA Regional Meeting in New York City.
  - c. "Information Systems" and "Contemporary Issues," two papers presented at Catholic College, Puerto Rico.

B. Moderator, Chairman, or Panelist:

- (1) Dr. Motekat was a panelist for "Minorities in the Profession," at the N.E. Regional Meetings of the AAA, April 1972, and was moderator of a panel discussion of "Expansion Through Education and Experience" at the Regional Meeting of the American Society of Women Accountants, April 1972.
- (2) Dr. Morrison chaired a panel discussion of a paper, "A Macro-Economic Simulation Sensitivity Analysis of Deferred Taxes," at the AAA Regional Meetings, April 1972.
- (3) Dr. Gosman was a panelist for two sessions at the AAA Regional Meetings: "The New Introduction to Accounting" and "The Financial Accounting Course After the New Introduction." Professor Dennler chaired the latter panel discussion.
- (4) Professor Krzystofik moderated three panel discussions for the Mass. Society of CPA's: "Setting Fees" and "Unaudited Financial Statements." He was also the discussion leader for a session sponsored by the AICPA in their Professional Development Program on Unaudited Financial Statements.

C. Editorial Activities:

- (1) Professor Krzystofik continued as Editor of the Mass. CPA Review.
- (2) Professor Stone was a member of the Editorial Board and a manuscript editor for The Accounting Review.
- (3) Dr. Motekat was the Associate Editor of The Woman CPA.

D. State and National Committee membership:

- (1) Professor Krzystofik is Chairman of the Publication Committee of the Mass. Society of CPA's and a member of its Continuing Education Committee.
- (2) Professor Singer is a member of the Advisory Committee to the Director of Education of the AAA.
- (3) Professor Backer is a member of the Research Committee of the NAA, the joint APB-NAA Committee on Reporting for Diversified Companies, the Executive Board of the NAA, and has been nominated as Chairman of the NAA's Research Committee.
- (4) Professor Morrison is a member of the Program Committee for the Northeast Region of the AAA.



### III. (Continued)

#### E. Reviews:

- (1) Dr. Burch reviewed a COBOL manuscript and an information systems text for Addison-Wesley Publishers.
- (2) A manuscript for Principles of Managerial Accounting text was reviewed by Dr. Morrison.
- (3) Professor Dennler reviewed a proposal for an accounting readings book.
- (4) Professor Krzystofik reviewed Modern Guidance in Business Administration for Mass. Personnel & Guidance Associates.

#### F. Other Activities:

- (1) An evaluation and report of resource allocation by the Springfield Board of Education among schools undertaken by Professors Zeisel and Motekat at the request of the Springfield Office of Neighborhood Legal Services. Several students assisted in gathering data.
- (2) A paper, 'A Gaming Approach to Managerial Accounting' has been submitted to AIDS for possible presentation at the annual meeting in October 1972. The paper is authored by Professor Stone and Mr. Ageloff.
- (3) Professor Backer acted as consultant to the U.S. Treasury Dept.
- (4) Mr. Fitzgerald spent a portion of his sabbatical leave at the University of Texas where he enrolled in a course in tax practice and research.
- (5) Professor O'Connell completed an additional 22 hours of course work for a Law degree at Western New England College.
- (6) Professor Krzystofik instituted a manuscript contest for students attending colleges in Massachusetts for the Mass. Society of CPA's.

### IV. Special Projects - Teaching and Course Related Developments.

- (1) Dr. Stone involved a number of students in community service research/service projects during the year as part of a seminar. This activity resulted in a number of studies and reports for:
  - (a) Quabbin Regional School District
  - (b) Town of Wendell (Department of Public Works)
  - (c) University of Massachusetts, establishment of a law school on campus
  - (d) Holyoke Medical Clinic
  - (e) Town of Amherst (PPBS)
- (2) Implementation of a generalized data management system, INFOL, in Accounting/Management 210/510 by Dr. Burch.
- (3) The undergraduate tax accounting offerings consist of a two-course sequence which are taught each semester. One of the two instructors,





Mr. Fitzgerald, has made substantial progress in reorganizing one sequence so that a much greater emphasis is placed on the conceptual approach to taxation, rather than the procedural approach. This arrangement permits students to choose that approach which best serves their interests.

- (4) Dr. Simpson revised the objectives and wrote new problems for Advanced Accounting and used the same objectives - problems approach in Intermediate Accounting.
- (5) The undergraduate course in managerial cost accounting was revised by Mr. Zeisel to include recent research findings in both quantitative and behavioral areas.
- (8) Professor Krzystofik revised the Auditing course to include statistical simulation, audit simulation, and guest speakers. In the cost accounting course he added field studies to the course requirements.
- (9) The Department instituted a regular schedule of help sessions for students in Accounting 120 and 130.

#### V. Conferences Attended

- (1) AAA Annual Meeting, Lexington, Kentucky, August 1971: Professors Stone, Singer, Dennler, and Gosman.
- (2) AAA Regional Meetings, Adelphi University, April 1972: Professors Stone, Motekat, Morrison, Zeisel, Singer, O'Connell, Gosman, and Dennler.
- (3) Professors Fitzgerald and Lentilhon attended a Tax Conference at Suffolk University, Spring 1972.
- (4) Mr. O'Connell represented the School of Business at the Residential College Conference, Northfield Inn, March 1972.

#### VI. Membership on Committees

##### A. University Level

- (1) Committee on Status of Women, Dr. Motekat
- (2) Chairman of the Supervisory, University of Massachusetts Credit Union and member of the Board of Directors, Dr. Simpson
- (3) Budget Committee, Dr. Backer
- (4) University Senate, Professor Motekat, Simpson, and Lentilhon

#### VII. Other Activities or Events

- (1) Dr. Motekat served as Treasurer of Beta Gamma Sigma and the Faculty Club.



- (2) Mr. Fitzgerald received the CPA certificate.
- (3) Professor Krzystofik was Editor and Production Supervisor for the first SBA Newsletter.

6. Major Accomplishments

- A. Continued efforts to reorganize and revise course offerings and contents (see IV).
- B. The Department succeeded in increasing financial support from public accounting firms.
- C. The Department began the process of developing long and short run objectives and goals. This included meetings called for the purpose of discussing goals and objectives, the election of a committee to present a report to the Faculty to be used for discussions and possible action, and the election of a five-member committee to develop specific goals and objectives which will be presented to the Faculty for approval and implementation.
- D. The Barbara Bogdan Fund was established, with the income produced by the Fund to be used as an annual award to the outstanding senior accounting major. The first award was presented to David Watt at the Beta Gamma Sigma banquet in April.
- E. The Masters Program with a major in Accounting increased substantially last year. Applications for admission to the program for next year indicate that next year's enrollment will increase also. Further, there appears to be an increasing interest in second bachelor's degrees in Accounting.

7. Special Programs or Projects

- A. See IV.
- B. The Department sponsored a one-day meeting for small public accounting firm representatives to acquaint them with recruiting procedures and the accounting program in the School of Business.

8. A. Future plans will be more precisely defined next year when the recently elected Policy Committee has had an opportunity to develop goals and objectives.

- B. In addition to Departmental goals and objectives, it is becoming increasingly necessary to develop more precise objectives for courses, particularly the elementary accounting courses which are staffed by a number of different instructors. Although some attempts have been made to achieve this goal, a more rigorous effort will be made next year in order to resolve this problem.



- C. It would be desirable if all regular faculty could occupy single offices. It becomes extremely difficult to work productively in a double office.
- D. An effort will be made to develop a program with the School of Education for Business Education majors in order to more fully, and formally, make use of the talents of both schools in an area in which very little has been done in the past.
- E. From a staffing point of view, the Department will need to replace two faculty members who are leaving. It is expected that one of these will be a person with a strong background in behavioral science. In addition to these two replacements, the Department should add a faculty member who can offer graduate level tax courses.
- F. The Department will host a two-week workshop in Quantitative Methods for Accountants this summer and the Northeast Regional Meetings of the AAA next Spring.



APPENDIX 4B

DEPARTMENT OF GENERAL BUSINESS AND FINANCE

Chairman--Alexander Barges

MAJOR ACCOMPLISHMENTS DURING 1971-72

During the year new departmental administrative personnel were installed, and the department implemented a reorganization proposed and approved by the faculty in the Spring of 1971. The reorganization was an outgrowth of the enlarged size of the department over previous years, and is characterized by extensive delegation of authority and responsibility to area coordinators. A more formal structure was adopted, and a policies and procedures manual was developed to more clearly define areas of responsibility and methods of operation.

SPECIAL PROJECTS OR PROGRAMS

Department faculty were involved in a wide variety of special programs across the School and University. Thus, department faculty were significantly involved in the JET Program, the ACTION Program, the BDIC Program, WMPiRG, the Honors Program, the Swiss Program, University Year for Action Program, the Residential College Program, and the University Without Walls Program. As part of its regular academic programs, the Urban and Regional faculty worked toward developing a student Internship Program with the Northampton Chamber of Commerce, and have generally been active in placing student interns with municipal agencies.

FUTURE PLANS AND NEEDS

The new departmental administrators will be undertaking a thorough review of existing academic programs, with an eye toward strengthening curricula, assessing needs, and establishing resource priorities. Pending completion of this review, and pending clarification of the budgetary situation, no plans involving facilities, personnel or equipment are being made at this time.





PUBLICATIONS

BALINTFY, JOSEPH L.:

"A Computerized Management Information and Control System for Shipboard Food Service," ONR Technical Report I, Jan. 1972, 85 pages. Appendix I, Program Documentation, Oct. 1971, 445 pages. Appendix II, User's Manual, April 1972, 38 pages.

"The Challenge of Human Nutrition to Operations Research." Abstract, ORSA Bulletin, Vol. 20, Suppl. 1, Spring, 1972, p. B-178.

BONSIGNORE, JOHN J.:

"Law and Conflict Resolution," ABLA Journal, Fall, 1971, pp.

"Legal Developments in Marketing," Journal of Marketing (quarterly articles), Jan., Apr., July and Oct. issues.

CHENG, PAO L.:

"A Test of Portfolio Building Rules," Journal of Finance, Sept. 1971, pp. 965-972. (Coauthored with King Deets.)

"Efficient Portfolio Selections Beyond the Markowitz Frontier," Journal of Financial and Quantitative Analysis, Dec. 1971, pp. 1207-1234.

"Portfolio Returns and the Random Walk Theory," reprinted by General Learning Corporation. (Originally appearing in the journal of Finance, March, 1971, and coauthored with King Deets.)

DEETS, M. KING:

"A Test of Portfolio Building Rules," Journal of Finance, Sept., 1971, pp. 965-972 (Coauthored with Pao Cheng.)

"Portfolio Returns and the Random Walk Theory," reprinted by General Learning Corporation. (Originally appearing in the Journal of Finance, March, 1971, and coauthored with Pao Cheng.)

"The Financial Gap: The Concept of Leverage in Hospital Building Programs," Hospital Progress, May, 1972, pp. 62-65.



HARTZLER, H. RICHARD:

(Book review) E. Banfield, the Unheavenly City, in Growth and Change,

KACZKA, EUGENE E.:

"A New Application of Calculus and Risk Analysis to Cost-Volume-Profit Changes," Contemporary Issues in Cost Accounting, ed. H. Anton, (Houghton Mifflin Co., 2nd ed., 1972), pp. 295-313. (Coauthored with T. Morrison.)

A Computerized Educational Program for the Application of Management Science to Water Resource Management, Completion Report 7FY72-6, water Resources Center, University of Massachusetts. (Coauthored with G. Williams.)

"A Simulation Model to Aid Strategic Planning in a University Environment," Proceedings of the 3rd Annual Meeting of the American Institute of Decision Sciences (AIDS, 1971) pp. 113-118. (Coauthored with G. Williams.)

"Managerial Climate, Work Groups and Organizational Performance," in Computer Simulation of Human Behavior, ed., Dutton and Starbuck (J. Wiley & Sons, 1971), pp. 286-298. (Coauthored with G. Kirk.)

"Managerial Climate, Work Groups and Organizational Performance," in Studies in Organizational Behavior and Management, ed., Porter, Applewhite and Mischauk (International Textbook Co., 1971), pp. 386-404. (Coauthored with G. Kirk.)

"The Use of Spectral Density Analysis for Testing Computer Simulation Reliability," Proceedings of the 3rd Annual Meeting of the American Institute of Decision Sciences (AIDS, 1971), pp. 8-13. (Coauthored with H. Brightman.)

"Computer Simulation," Proceedings of Management Science in Transportation Conference, Northwestern University, Summer, 1971.

KUMAR, PREM:

"Security Pricing and Investment Criteria in Competitive Markets: Comment," The American Economic Review, March, 1972, pp. 143-146.

(Book review) S. P. Dobrovolsky, The Economics of Corporation Finance (McGraw-Hill), Journal of Finance, Dec., 1971.

PIPKIN, RONALD:

(Book review) L. Pospisil, The Anthropology of Law, in the Journal of Social Forces, March, 1972.



WORK ACCEPTED AND SCHEDULED FOR PUBLICATION

BALINTFY, JOSEPH L.:

"Large Scale Programming Properties of Menu Planning and Scheduling," to appear in Applications of Optimization Methods for Large-Scale Resource-Allocation Problems, ed., Cottle and Karup (English Press).

BONSIGNORE, JOHN J.:

(Book review) W. I. Thompson, At the Edge of History (Harper), to appear in Growth and Change.

CHENG, PAO L.:

"Portfolio Returns and the Random Walk Theory: Reply," to appear in the Journal of Finance. (Coauthored with King Deets).

DEETS, M. KING:

"Portfolio Returns and the Random Walk Theory: Reply," to appear in the Journal of Finance. (Coauthored with Pao Cheng).

(Book review) Beerman and Weeks, Hospital Financial Management, to appear in AUPHA Program Notes.

HARTZLER, H. RICHARD:

(Book review) Tullock, Logic of Law, (Basic Books) to appear in Growth and Change.

KACZKA, EUGENE E.:

(Book review) R. Miller, Modern Mathematical Methods for Business and Economics (Holt, Rinehart & Winston), to appear in the Journal of Business.

PIPKIN, RONALD:

Introduction to R. H. Smith, Justice and the Poor (Patterson Smith Publishers).



LECTURES AND PRESENTATIONS

BALINTFY, JOSEPH L:

"Computer Applications in Food Service Management and Dietetics," Tuland University - M.O.S., March 13-18 and June 5-10, 1972.

"Computer Applications and Nutrition," Northwestern University, May 4, 11, and 18, 1972.

Speaker at the Meeting of the Northwest Chapter of the Institute of Management Sciences in Boston, October 20, 1971.

"Integer and Nonlinear Programming for Human Diets," Yale University, February 9, 1972.

DEETS, M. KING:

"New Techniques in Hospital Financing," for Catholic Hospital Association in Washinton, D. C., St. Louis, New Orleans and San Francisco, (quarterly).

"Long-Term Financing and Cost Containment," for Southeastern Conference of Daughters of Charity, Jacksonville, Florida.

"Nursing Home Finance," Seminar in Bowling Green University.

"Small Business Finance," Speaker at Southern Christian College, Tennessee.

"Common Sense and the Stock Market," Speaker at Westfield State College.

"Finance and the Computer," Speaker at the University of Massachusetts, Boston.

KACZKA, EUGENE E.:

"Simulation Languages for Small Computer Systems," AIDS, Northeast Regional Conference, May 12, 1972.

OSBORN, GRANT:

"Prepaid Group Practice on the College Campus," American Risk and Insurance Association, Montreal, August, 1971.

"European Backgrounds for National Health Insurance Legislation," CPCO Society, Houston, October, 1971





PROFESSIONAL MEETINGS ATTENDED DURING THE YEAR

American Finance Association Convention (New Orleans); Deets, Choate  
AIDS Northeast Regional Conference (Boston); Belovicz, Kaczka  
Law & Society Association (Denver); Pipkin  
ABLA National Convention (Long Beach); Bonsignore  
CPCO Society (Houston); Osborn  
American Risk & Insurance Association (Montreal); Osborn  
Transportation Research Forum (Boston); Rivers  
American Law School Association (Chicago); Goldman, Katsh  
Meeting of ORSA Western Chapter (Lake Tahoe); Balintfy  
IFMAP Meeting on Nutrition (Chicago); Balintfy  
ORSA National Convention (New Orleans); Balintfy, Kaczka  
AIDS 3rd National Meeting (St. Louis); Kaczka



PUBLIC SERVICE AND CONSULTING ACTIVITIES

1. Joe Balintfy consulted for the USDA, Agricultural Research Service (Washington, D. C.) and for the New York City Department of Correction (New York City).
2. Alex Barges consulted in the promotion and incorporation activities of the Yankee Mountain Bank and Trust Company (Greenfield, Mass.).
3. King Deets has consulted with a number of hospital organizations on the use of financial leverage by hospitals.
4. Dick Evans consulted with the New York State Health Planning Commission regarding organizational problems and policies. He also assisted the Holyoke-Chicopee Model Cities Program and the Chicopee Community and Regional Opportunities Program in developing an organization and program for the Spanish-speaking residents of those areas, and also served as a charter board member of the organization developed.
5. Gene Kaczka consulted with the Citizens Evaluation Group through the U. Mass. Water Resources Center.
6. Grant Osborn has been acting as Director for the School for Mutual Insurance Agents at Oberlin College; as Chairman of Collective Bargaining for the AAUP; and as Chairman of the Faculty Fringe Benefits Task Force for the Board of Higher Education.
7. Marty Puterman has been working with the Amherst Growth Study Committee.
8. Bob Rivers has been serving on the Select Committee on Goals for the Town of Amherst.



ON-CAMPUS ADMINISTRATIVE AND SERVICE ACTIVITIES

1. Joe Balintfy provided research cooperation for the U. Mass. Food Service Department.
2. John Bonsignore and Peter d'Errico participated on the Quinn Committee to study legal education at the University of Massachusetts.
3. Dick Evans chaired the Professional Schools Workshop for the New Towns Symposium, sponsored by President Wood's Office and the Institute for Man and His Environment.
4. Sam Goldman has been serving as pre-law counselor on the U. Mass.-- Amherst campus.
5. Bob Rivers participated in the development of a proposal to the U. S. Department of Transportation that led to an award of \$700,000 to the University to study the impact of free bus service on the parking situation at the University.



## Appendix 4 C

Department of Management

Chairman - George Simmons

### Special Projects or Programs

#### New Seminar in Information and Not-for-Profit Organizations

The course, SBA 862, which was intended to explore informational processes, was taught within the context of not-for-profit organizations this spring. The informal title was "Informational Processes in the Management of Not-for-Profit Organizations." It drew students at the doctoral level from a number of schools and departments of the University. The enrollment with listeners totaled fifteen, the maximum set for the course due to its seminar nature.

A major attracting feature of the course was Mr. Frank W. Phillips' (Vice President for Administration of the University of Massachusetts system) participation as the co-instructor. The other co-instructor was Professor K.E. Sahin of the Department of Management of the School of Business Administration. Mr. Phillips enriched the course with his immense background in the NASA and university administration. Mr. Sahin concentrated on covering aspects of the pertinent theory.

Judged by the student comments and by the impressions of the two instructors, the course was quite successful. Attendance and participation were high. Most students kept up with the readings and in their weekly position papers were able to go beyond orthodox views.

The course will be repeated in the fall.

#### Management Studies

During the fall semester, three students in Professor Elkins' B.A. 779 section undertook, under his direction, a study of management practices at the Belchertown State School for the Mentally Retarded. The first report, detailing existing practices was completed in March. Presently under a B.A. 700 course, two of these students are preparing recommendations for change and improvement in the management procedures at Belchertown. This report should be due in early June.





During the spring semester, 12 students enrolled in his 799 course and under the direction of Professors Elkins and Donald Stone, are doing a three-part study for the Quabbin Regional School District. Teams are studying the four-town economic base, the school budget, and the administrative practices of the district administration. This work should be completed by mid-May, at which time oral and written reports will be submitted to the school boards and selectmen of the four towns involved.

#### State Executive Development

In the past year faculty from the Department of Management have been engaged in an Executive Development Program for the Commonwealth of Massachusetts. This program funded under the Intergovernmental Personnel Act of 1971 provides for instruction in management techniques and will continue for four years.

It is anticipated that 2500 middle and top level government executives will receive instruction in topics such as leadership, management by objectives, motivation, job enlargement, decision making, and collective bargaining. The program is based on an innovative experiential style of instruction which limits the amount of formal lecturing, emphasizes participant involvement, and requires participants to apply the instruction to actual job issues. The program is, also, incorporated as a segment of the Institute of Governmental Affairs training program for city and town governments in the State.



Faculty Publications

Tim Bornstein

"Collective Bargaining in the Public Sector: A Retrospective Comment on the Explosion of the 60's", Government Employee Relations Report (Bureau of National Affairs)

D. Anthony Butterfield

"Leadership and Organizational Effectiveness", Chapter 6 in The Characteristics of Effective Organizations, by Paul E. Mott, New York: Harper, Row, 1972.

"Goal Congruence in Brazilian Organizations", In press for Inter-american Journal of Psychology, Vol. 6, Nos. 3 and 4, 1972. (With George F. Farris).

Gordon Chen

Operations and Systems Analysis: A Simulation Approach (book now in production by publishers, with E. E. Kaczka).

Sidney Claunch

"Effects of Pass-Fail Gradings on Quality Point Averages", College and University, XLVII, 93-105, (Winter, 1972).

Van Court Hare

"Information and Communication Systems," in Joseph McGuire, ed., Management: The State of the Art, Prentice-Hall, scheduled for 1973.

Walter O'Donnell

"Bridging the Private and Public Sectors of Developing Countries", in Administrative Issues and Problems in Developing Countries, D. C. Heath, 1972.

"Management Development in the Private and Public Sectors of Developing Countries: Similarities and Differences," in Morello and Brodie, eds., Management Development for Industrializing Countries, Betriebswirtschaftlicher Verlag, Wiesbaden, 1972.

Max Wortman

"Compulsory Arbitration: Nightmare or Workable Strike Alternative?" Public Personnel Review, accepted

Review of "Ethos and the Executive," by Clarence C. Walton, in Administrative Science Quarterly, 16, No. 3, September, 1971.



Faculty Publications (Cont.)

Max Wortman (Cont.)

Review of "Interpreting Executive Behavior," by George S. Swope,  
in Personnel Psychology, 24, No.3, Autumn, 1971.

Review of "Personality and Leadership Behavior," by Henry P. Knowles  
and Borje O. Saxberg, for Personnel Psychology, XXIV, Winter 1971,  
743-745.



Appendix 4 D

Department of Marketing

Acting Chairman - Gordon Paul

Departmental Accomplishments

- (1) A series of eight one day executive marketing seminars were conducted by departmental faculty throughout the year. These were developed for New England businessmen and averaged 30-35 participants per session. This series is the first successful venture of its type sponsored by SBA and should provide seed money for additional such efforts by the School. Marketing faculty each committed themselves to a session. These seminars were arranged by Professor Buell and coordinated by Professor Worthing. Feedback indicated the seminars were enthusiastically received by those in attendance. In addition to providing a valuable outreach activity for the department and school, faculty members were exposed to important problems and concerns and established a better liason with the business community. Seminar titles were: "Marketing Abroad", "Making Marketing Planning Work", "Adding Successful New Products and Services", "Practical Marketing Research", "Sharpening Sales Management", "New Tools for Solving Marketing Problems", and "Marketing Strategies for Growth".

Another effort of this type was the Marketing Planning Seminar held in April. This one-day program was co-sponsored by the Department of Marketing and the Western Massachusetts Chapter of the American Marketing Association and coordinated by Professor Paul. Approximately one hundred persons from as far as Chicago and Atlanta although predominately regional attended this event. Several nationally known speakers including among others Dr. George Brown, Director of the U.S. Bureau of the Census and Stuart Watson, President of Heublein, Inc. were on the program. It is the department's intention to make this an annual event with the Western Mass AMA Chapter. It is felt that a strong faculty participation in the chapter will make for a stronger professional organization and will also benefit other SBA sponsored activities of this nature.

- (2) The continued professional development of the faculty of the Department was evident this year. A high degree of collaboration is visible in both research and teaching efforts. During the reporting period approximately 25 individual or collaborative publications were accounted for by departmental faculty. (A more detailed listing of publication efforts is included under the section professional activities of the faculty.)





In addition to publication efforts, departmental faculty were active in professional meetings. Six members of the department were on the program at the August American Marketing Association Educators Conference. Papers were selected through competition for this conference and four of those selected were from department faculty. No other school was more fully represented on the competitive part of the program. Papers were also delivered before national meetings of The Institute of Management Sciences, American Institute of Decision Sciences, Association of National Advertisers and the Association for Consumer Research. Regional meetings such as N.E. AIDS and the Southern Marketing Association also were audiences for several faculty papers. Professors Paul, Venkatesan and Frederick served as program chairmen or session chairmen for various regional or national meetings.

- (3) Undergraduate teaching remains a major concern with the faculty and a substantial amount of attention is directed at this level. The number of majors remains at 205-10 students. The revised marketing curriculum seems to be well received by students as it provides them flexibility from the standpoint of course elections while at the same time maintaining a certain basic "core" foundation. The need to develop the second course as a true follow-up to Marketing 201 is currently of some importance. Now that this course is no longer subscribed to by students with both an extensive and limited background, the level of the course will be more readily determined and the objectives for the course easier attained.

Professor Gultinan has revitalized the departmental honors program and this year eight students were enrolled in Senior Honors. Typical projects ranged from an exploration of alternative food distribution systems in the Holyoke Model Cities Area to methodological investigations of deceptive advertising and evaluations of governmental campaigns. Approximately fifteen students also conducted independent study projects with faculty supervision.

The Marketing Department is an active sponsor of the ACTION program with two students working with the Springfield Street Academy Community Newspaper. Professor Barber has been an active sponsor of several B.D.I.C. students and has recently been awarded one of the ten summer Faculty Growth Grants for teaching. She, and the Department, continue to concern themselves with establishing better and closer liasons with students in their first two years.

The Marketing Club under the leadership of its President John Barrows entered and placed first in the Arthur S. Hassell Marketing Competition at the University of Hartford. This culminated an active year for this organization and its members. Several important SBA student issues such as recruiting seminars and recruiting on campus were means of concern. This has had some positive effect as our undergraduates continue to find fairly strong employment opportunities in a relatively weak employment market. Several firms have indicated an intention to concentrate recruiting activities on this campus because of their satisfaction with our candidates.



(4) Graduate level instruction continues to be a relatively small part of the department's overall activity. During this reporting period almost eight times as many undergraduates were taught as graduate students. Nevertheless, the department's initial enrollment for the M.S. with a Marketing concentration was seven during this first year of the program. It is anticipated that the required marketing courses in this program will be offered on a more regular basis next year with somewhat increased staffing capabilities.

Professor Gultinan and Paul continued to put graduate students to work on class projects to provide them with a first-hand exposure to a problem situation. Among the organizations cooperating in this venture have been Western Bank and Trust Co., Holyoke Model Cities, Shaeffer Beer, American Pad and Paper, Western Mass. Nursing Home Association, Scott Graphics, Springfield Street Academy, Stanley Home Products, The Boston Braves Hockey Club, and several others. This activity has provided students a unique opportunity to learn of problems being faced by these organizations and apply methodological approaches to their solution. Both at the graduate and undergraduate level, faculty have invited guest speakers to provide more relevancy to the course being taught.

(5) The faculty of the Department continue to increase their visibility and activity across the campus as well as on a regional or national basis. Professor Wiek, Gultinan, Barber, and Paul filled in for three weeks of class in the School of Home Economics. Professor Gultinan, Paul, and Worthing jointly submitted a proposal to the National Science Foundation with faculty from the Department of Chemical Engineering for a joint funded program at the graduate level intended to develop entrepreneurial talent. Professor Liander chairs the University Foreign Student Committee and Professor Paul chaired a committee reviewing the School of Home Economics, and along with Professor Liander participated as a member of the cooperative proposal between the College of Engineering and School of Business Administration for a proposed National Productivity Institute.

#### Professional Activities of the Faculty

The following listing of faculty activity is provided to furnish an indication as to the variety of activities by departmental faculty. It should not be considered a complete listing.



May K. Barber

1. Three B.D.I.C. student advisees and four thesis committees.
2. Chairman of SBA Undergraduate Curriculum Committee.
3. Secretary, University Athletic Council, Member of Executive Committee, and Chairman of Awards Sub-Committee.
4. Member of B.D.I.C. interviewing group and Improving Freshman Year Discussion Group.
5. Faculty Growth Grant for Summer 1972. Topic: Improving the Pre-Professional Business School Curriculum.
6. Received two manuscripts for MacMillan Publishing Company.
7. Executive Marketing Seminar "Making Marketing Planning Work".

Victor P. Buell

1. "The New Formulation of the Marketing Mix", Marketing Communications, July, 1971, pp. 23-27.
2. "New Rules for Budget Planning", Marketing Times, November-December, 1971, pp. 11-14.
3. Panel Discussant, AMA Meetings, Minneapolis, August.
4. Advanced Management Research Seminar, "Planning and Controlling Marketing Expenditures", Program Director and lecturer: New York, October 27-29, 1971; Chicago, December 13-15, 1971; Chicago, February 14-16, 1972; Los Angeles, March 20-22, 1972.
5. Annual meeting, Association of National Advertisers, Hot Springs, Virginia, October 19, 1972, "The Move to Advertiser Self Sufficiency" Stories carried in New York Times and several marketing publications.
6. Columbia University Marketing Executive Seminar, December 11, 1971, "Marketing Planning and Corporate Planning".
7. National Association of Mutual Savings Banks "Marketing Strategy" Seminar at Campus Center, April 28-30, 1972. Planned program and lectured.
8. National Association of Mutual Savings Banks, Executive Development Program, Brown University, June 12, 13, 1972. Lecturing on Marketing Strategic Planning.
9. Graduate School of Sales Management and Marketing, Syracuse University, June 14, 15. Lecturing on "How to Select Marketing Service Firms" and "Planning for Customer and Marketing Services".



10. Editorial Review Board, Journal of Marketing.
11. Editorial Advisory Board, Industrial Marketing.
12. Nominating Committee, American Marketing Association.
13. Chairman, Sponsored Funds Board, American Marketing Association.
14. Committee to select winner of Crain Award for Association of Industrial Advertisers.
15. Developed series of eight one-day Executive Marketing Seminars for New England businessmen utilizing marketing department faculty.

Donald G. Frederick

1. "The Subjective Specification of Multivariate Parameters" (with D.J. Laughunn) Proceedings, American Institute for Decision Sciences, Northeast Region, Forthcoming, Summer, 1972.
2. "Time-Sharing Computer Systems as a Teaching Tool" (with Wynn Abranovic and Roy Ageloff) The American Statistician, Vol. 26, No.1, February 1972.
3. "A Pricing Decision Using Bayesian Multivariate Analysis" abs., Journal of Economic Literature, Vol. IX, No. 4, December, 1971.
4. "Forecasting With Bayesian Regression"(with Parker M. Worthing) Relevance in Marketing: Problems, Research, Action, ed. Fred C. Allvine, American Marketing Association, Chicago, 1972.
5. "Forecasting Within a Decision Framework" (with Joseph P. Gultinan and Parker M. Worthing) Beyond Profit-Decision Making in a Non-Profit Context ed. Manfred W. Hopfe, American Institute for Decision Sciences, 1972.
6. "Ridge Regression: An Exposition and Critique" (with Wynn Abranovic and Roy Ageloff) Beyond Profit-Decision Making in a Non-Profit Context ed. Manfred W. Hopfe, American Institute for Decision Sciences, 1972.
7. Presented paper "Adaptive Control Models in Marketing", XIX International Meeting, The Institute of Management Sciences, Houston, April, 1972.
8. Presented paper "Forecasting Within a Decision Framework" (with Joseph P. Gultinan and Parker M. Worthing) Third Annual Meeting, American Institute for Decision Sciences, St. Louis, October, 1971.
9. Presented paper "Ridge Regression: An Exposition and Critique"(with Wynn Abranovic and Roy Ageloff). Third Annual Meeting, American Institute for Decision Sciences, St. Louis, October, 1972.





10. Presented Paper "Forecasting With Bayesian Regression" (with Parker M. Worthing) 1971 Fall Conference, American Marketing Association. Minneapolis, September 1971.
11. Lectured on "Bayesian Decision Theory" A two-day symposium, School of Business, University of South Carolina, March 1972.
12. Lectured on "Bayesian vs. Classical Methods in Econometric Estimation" School of Business, University of Kentucky, April 1972.
13. Lectured on "Bayesian vs. Classical Methods in Forecasting" School of Business, Southern Illinois University, Carbondale, April 1972.
14. Appointed to National Committee for Innovative Instruction, American Institute for Decision Sciences, 1971-72.
15. Appointed Marketing Chairman, American Institute for Decision Sciences, Northeast Region, 1972.

Joseph P. Gultinan

1. "Forecasting Within a Decision Framework" (with Donald Frederick and Parker Worthing) Proceedings of Third Annual Meeting of the American Institute of Decision Sciences.
2. Paper delivered to Institute of Decision Sciences, St. Louis, "Forecasting Within a Decision Framework".
3. Lecturer HWV Program for European Business School Graduates (co-sponsored by UMass School of Business and Experiment in International Living) Topic: Marketing Research (with Donald Frederick)
4. Participating member: Massachusetts College of Pharmacy Continuing Education Program in Pharmacy Administration (Topic: Expense Management) May 1972.
5. Participating member: University of Massachusetts Continuous Education Program in Marketing Management. Topic: Sharpening Sales Management. March 1972.
6. Coordinator of student marketing projects for: Holyoke Model Cities Program, Western Bank and Trust Co. (W. Springfield), Stanley Home Products Co. (Easthampton), Street Academy of Springfield.

Bertil Liander

1. Organized three summer programs at UMass for Summer 1972. 1) JET, 6 weeks. 2) group of Swiss students (HWV) 6 weeks, 3) group of French students (ESCP) 6 weeks.
2. "Great Decision Series. Member of a 3 man radio panel February 1972 on "Europe-USA-Japan".



3. Conducted seminar on "Marketing Abroad", April 1972.
4. America and Asia: Problems of Trade, University of Massachusetts, May, 1972 (in "America and Asia 1972").
5. Chairman, UMass Senate's Foreign Student Committee 1971-1972.
6. Member, UMass Committee to Congress (U.S.) for support of a Productivity Center at Amherst (April 1972). Also meetings at National Science Foundation and National Bureau of Standards.
7. Member, UMass Freiburg Committee.
8. Co-director at expert panel for a UMass Conference on National Productivity. Connecticut, March, 1972. Conference to be conducted in September 1972.

Kent B. Monroe

1. Presented a paper on "Some Findings On Estimating Buyers' Response Functions For Acceptable Price Thresholds" at the Northeast Conference of the American Institute for Decision Sciences, Boston, May 12, 13, 1972.
2. Presented a paper on "Teaching Applied Quantitative Courses to Non-Quantitative Students: A Modified Programmed Learning Approach" at the Northeast Conference of the American Institute for Decision Sciences, Boston, Massachusetts, May 12, 13, 1972.
3. "The Concept of Price Limits and Psychophysical Measurements: A Laboratory Experiment" reprinted in J. L. Taylor and J. F. Robb, Fundamentals of Marketing: Additional Dimensions, Selections From the Literature, McGraw-Hill Book Co., 1971, 366-76.
4. "Measuring Price Thresholds by Psychophysics and Latitudes of Acceptance" Journal of Marketing Research, 8 (November 1971), 460-4.
5. "Information Content of Prices: A Preliminary Model for Estimating Buyer Response" (abstract) in Hugh E. Bradley (ed.) International Abstracts in Operations Research, 11 (August 1971), 247.
6. "What Are The Benefits of Unit Pricing?" Journal of Marketing, 36 (July 1972).
7. "Buyers' Subjective Perceptions of Price" in H. Kassarian and T. Robertson (eds.) Perspectives In Consumer Behavior, 2nd edition, Scott Foresman & Co. 1973.
8. "Measuring Price Thresholds by Psychophysics and Latitudes of Acceptance" (abstract), Journal of Economic Literature.
9. "Information Content of Prices: A Preliminary Model for Estimating Buyer Response" (abstract), Zentralblatt fur Mathematik.



10. JET Program, Summer, 1971. Title: "The Program for the Summer of 1971: Decision Making"
11. Marketing Seminar, "New Tools for Solving Marketing Problems", University of Massachusetts, May 10, 1972.

George Schwartz

1. "Marketing: The Societal Concept", University of Washington Business Review, Autumn, 1971, pp. 31-38.
2. Review of Walters and Paul book on consumer behavior in Journal of Marketing, October, 1971, p. 106.
3. Two papers submitted in the AMA Educators Conference competition for the August, 1972 conference: "Marketing Education in an Era of Social Turbulence" and "Advertising in a Free Enterprise Competitive Economy".

M. Venkatesan

1. Presented paper at AMA Fall Meeting, Minneapolis, Minn. (August 1971) "Personality and Product Usage Revisited: An Exploration with PRF". (with Parker Worthing).
2. Program Chairman, ACR Meeting, Fall, 1972.
3. Chairman, AAUP Faculty-Welfare Committee.

James L. Wiek

1. "Discrepant Perceptions in Vertical Marketing Systems" in Fred C. Allvine (ed.), Combined Proceedings 1971 Spring and Fall Conferences of the American Marketing Association, September 1971, pp. 181-188.
2. Delivered paper "Discrepant Perceptions in Vertical Marketing Systems", at the Fall Conference of the American Marketing Association. Minneapolis, Minn., September, 1971.
3. Research in area of "Development of a Pretesting Technique to Determine The Deceptiveness of Advertising"
4. Conducted, with Parker Worthing, a one-day Marketing Seminar on "Adding Successful New Products", December 15, 1971. Campus Center.

Parker M. Worthing

1. "American Consumers' Perceptions of Imported Products: An Analysis of 'Made in' Images", Markeds Kommunikasjon (Instituttet for Markedsforing, Oslo), 3, 1971, Argang 8, pp. 47-59 (with M. Venkatesan).
2. In Fred C. Allvine, ed., Marketing In Motion/Relevance In Marketing (Chicago: American Marketing Association), 1972: "The Marketing Management Role: Insights, Inferences and Inputs for Marketing Education", p. 38-43 (with Gordon Paul); "A Modified Approach to the Exploration of Personality and Product Use", pp. 363-367 (with Venkatesan), "Forecasting With Bayesian Regression", pp. 510-112 (with Frederick.)



3. Three papers cited above were presented at the Fall Educators' Conference of the American Marketing Association, August, 1971, Minneapolis.
4. "Forecasting Within a Decision Framework presented at the American Institute for Decision Sciences Conference, October, 1971, St. Louis.
5. "Marketing Education and the Managerial Role" (with Gordon Paul) presented at the Southern Marketing Association Meetings, November, 1971, Miami (abstract of this paper to appear in forthcoming Southern Journal of Business).
6. Faculty Coordinator, One-Day Marketing Executive Seminars.
7. Faculty Advisor, Marketing Club Team which won the Second Annual Arthur S. Hassell Tournament, University of Hartford, April, 1972.
8. "Forecasting Within a Decision Framework" in Manfred W. Hopfe, ed., Beyond Profit-Decision Making in a Non-Profit Context, Proceedings of the Third Annual Meeting of the American Institute for Decision Sciences, 1971, pp. 199-203 (with Frederick and Gultinan)
8. Book Review. Product Management: Product Life Cycles and Competitive Marketing Strategy by Chester R. Wasson (St. Charles, Illinois: Challenge Books, 1971), Journal of Marketing, Vol. 35, No. 4 (October, 1971), p. 110.
9. Abstract. "Forecasting With Bayesian Regression" in John L. Harpell, ed., Abstracts For the Third Annual Meeting of the American Institute for Decision Sciences, St. Louis, Missouri, 1971, p. 21.
10. "Personality and Product Use Revisited: An Exploration with Personality Research Form (PRF)", Journal of Applied Psychology (with Venkatesan and Steve Smith).
11. Editor, Planning and Managing Products (General Learning Press: D. H. Mark Publications), Summer, 1972.





Gordon Paul

1. Speaker--New England Apple Institute--Farm Apple Market Conference
2. Director, Western Mass. Chapter of the American Marketing Association
3. Coordinator of Marketing Planning Seminar, April 24, Campus Center
4. Seminar Leader--Practical Marketing Research, University of Massachusetts, Marketing Series
5. Paper--"Marketing Education and The Managerial Role", Annual Meeting, Southern Marketing Association, November 5, 1971, Miami, Florida.
6. "The Marketing Management Role: Insights, Inferences and Inputs for Marketing Education", in Relevance in Marketing: Problems, Research, Action, ed., Fred Allvine (Chicago: American Marketing Association, 1971), pp. 38-43 (with Professor Parker Worthing)
7. Paper--Fall Conference, American Marketing Association, September 1, 1971, Minneapolis, Minnesota.
8. Acting Head, Marketing Department, second semester.
9. Abstract--Southern Journal of Business, "The Marketing Management Role: Insights, Inferences and Inputs for Marketing Education."
10. Education Session Chairman--Southern Marketing Association Annual Meeting, November 5, Miami.



Appendix 4 E

Center for Business and Economic Research

Director - William B. Whiston

OBJECTIVES

- . To encourage and support original and applied research by faculty and students in all areas of applied economics and administrative science.
- . To provide financial, technical, editorial, clerical and promotional support for research and innovative teaching programs within the school.
- . To initiate and promote applied research and technical assistance projects.
- . To provide field study opportunities for empirical data in support of academic research.
- . To provide financial support and field work for graduate student research.
- . To extend the facilities of the School of Business Administration into avenues of service and practical help for the Commonwealth of Massachusetts.

PROGRESS TOWARD THESE OBJECTIVES

1. Faculty Research, Locally Funded

The departmental sections of this report detail the increased level of faculty research at the School of Business Administration. Many of these were or would have been executed without any assistance from the Center. Some examples resulting directly from promotion and assistance from the Center are:

- a. Working paper competition, fall colloquium on Comparative, International and Global Survival Studies.

Three faculty papers were prepared for university-wide competition. The proposal "Environmental Pollution and Economic Development" by Professor Arthur Elkins received one of the five awards granted.



b. The SBA Summer Research fund competition.

Twelve faculty proposals were submitted and ten awards were made. The awards were made to the following faculty members:

Meyer W. Belovicz, "Theoretical Developments in Portfolio Theory."

D. Anthony Butterfield, "The Process of Management Assistance to Less Developed Countries."

A. Elliott Carlisle and Stephen R. Michael, "Hierarchical Intervention in Decision Making Systems."

James Clapper, "Adaptive Control in Marketing."

Richard D. Evans, "Representation, Participation and Influence in Comprehensive Health Planning."

Martin L. Gosman, "Environment Conducive to Accounting Changes."

Kent B. Monroe, "Adaption Levels and Assimilation Contrast Effects as Anchoring Stimuli on Subjective Price Perceptions."

Kenan Sahin, "Statistical Significance of Managerial Performance Variance."

Donald E. Stone, "Financial Statement Simulation as a Pedagogical Device."

Gerald Zeisel, "Management Changes and 'Big Bath' Write-offs."

c. Faculty Research Grants

Proposals were developed and submitted by faculty members for University funded research grants. Those who received awards during the past year were:

Joseph P. Gultinan and James L. Wiek, "Improving Marketing Channel Performance Through Behavioral Analysis."

Eugene E. Kaczka, "A Computer Simulation Model to Aid University Planning."

Kent B. Monroe, "Influence of Price on Choice."



Grant M. Osborn, "European Insurance Programs."

George Schwartz, "Improving the Social Performance of Marketing."

M. Venkatesan, "Multidimensional Scaling Computer Programs: Comparison and Analysis."

William B. Whiston, "Linear Estimation for Decision Makers."

In addition to the seven new grants this year, six additional grants are still active from last year. These are:

Gordon K.C. Chen, "Economic Lot Theory."

John T. Conlon, "Arbitral Standards of Review."

Donald G. Frederick, "Multivariate Methods for Business Research."

Kent B. Monroe, "Buyer's Subjective Perception of Price."

Walter G. O'Donnell, "Towards Unifying the Management Sciences."

Gordon W. Paul, "Synagraphic Mapping of Consumer and Store Spatial Distributions."

## 2. Faculty Research, Outside Funding

### a. Newly funded projects this year.

Although there have been additions to present grants and faculty members have participated in successful proposals through other schools in the University, there have been no new grants or awards secured through the Center for Business and Economic Research this past year. This is the area of current chief emphasis for the Center.





b. Faculty research proposals in preparation.

Twenty separate research proposals by seventeen individuals are presently in first or second draft form. These proposals request funds in excess of one million dollars. Most of these proposals were originally secured for submission as part of a larger proposal to the NSF for a Productivity Institute at the University. These proposals are good enough to stand alone and will be submitted separately if the Productivity Institute is delayed in its funding.

3. Technical Support for Research Activity

The Center employs three staff members in addition to the director. These staff members give excellent support to the research administrative effort. Center typing services include skilled mathematical typing and chart construction. During the past year some 41 different faculty members have used these services for 171 research papers, speeches or journal articles. Four books were typed including as many as three drafts. This represents an output of better than one journal article per working day. This was accomplished in addition to regular support of school activities by way of reports, correspondence and curriculum materials.

The assistance offered by the Center covers all phases of proposal preparation and technical report writing. Editorial, layout and budget preparation assistance are important parts of this assistance.

Complete journals and ledgers are maintained for twenty seven active projects. Financial services include purchase order, voucher, check authorization and invoice preparation and processing. New granties and their employees are trained in policies, procedures, payroll and budget methods.

4. Faculty Working Papers and Regular Research Seminars

There is need for circulation of research information among faculty. A series of working papers is an excellent way to accomplish this end. The Center will start such a series in September together with a seminar series on current faculty research.

5. Management Development Programs

Professor Victor Buell heads the Management Development Program. While Professor Buell is not formally a part of the Center, the Center supplies the space and the staff support for this program. Much of Professor Buell's work was reported as part of the Marketing Department section of this report.



The Center is attempting to secure outside funds to assist in the expansion of this program. Such programs directly serve the citizens of the Commonwealth, increase the prestige and visibility of the school, bring faculty and students close to current business problems and develop opportunities for field work and empirical research.

The Center should continue to support this program as actively and extensively as possible.

## 6. Recent Organizational Changes

This past year saw the introduction of active participation by the faculty in Center administration. This was accomplished through a committee with members from each of the departments. This committee, together with the dean, selected the new director. The committee has been asked to approve all major policy decisions and to review the operations of the Center once each month.

The result has been an increase of interest and support for the Center, largely through the efforts and availability of these departmental representatives. It is now up to the Center and its staff to convert this interest into funded projects. To this end proposal writing will be second only to the working paper - seminar program among the Center's plans and activities for 1972-3.

## 7. Community Relations

The Center continues an active working relation with the Lower Pioneer Valley Regional Development Commission, the Greater Springfield Chamber of Commerce and the Committee on the Development of Western Massachusetts.

### a. Lower Pioneer Valley Regional Development Commission

Assistance was given to the Commission in the planning and preparation of a proposal for a Water Quality Management demonstration grant. It appears that this proposal will be funded and the University will work closely with the Commission during the detailed planning which will follow.

b. The Greater Springfield Chamber of Commerce has requested a plan for industrial expansion and job creation. They wish to fund and implement our suggested method for evaluation of growing firms. Budgets, plans and literature are now in preparation.

c. The Committee on the Development of Western Massachusetts overlaps the membership of the Chamber of Commerce. It is expected that successful elements of the Chamber program will be extended to this group and its region.



Appendix 5

Business Advisory Council

School of Business Administration

University of Massachusetts

Amherst

- Mr. William Burnham  
Senior Vice President  
The First National Bank of Boston  
67 Milk Street  
Boston, Massachusetts 02106
- Mr. Roswell L. Derby  
Vice President  
Forbes and Wallace, Inc.  
1414 Main Street  
Springfield, Massachusetts 01101
- Dr. George Ellis  
President  
Keystone Custodian Funds, Inc.  
50 Congress Street  
Boston, Massachusetts 02109
- Mr. E. S. Groo  
Vice President  
J.B.M. World Trade Corporation  
821 United Nations Plaza  
New York, New York 10017
- Mr. Robert S. Harper  
Vice President & General Manager  
Greenfield Tap and Die  
Greenfield, Massachusetts 01301
- Dr. Saul B. Klamon  
Vice President and Chief Economist  
National Association of Mutual Savings Banks  
200 Park Avenue  
New York, New York 10017
- Mr. Charles J. Maloun  
Vice President  
General Electric  
100 Woodlawn  
Pittsfield, Massachusetts 01201



Mr. Robert K. Mueller  
Arthur D. Little, Inc.  
25 Acorn Park  
Cambridge, Massachusetts 02140

Mr. Louis Oldershaw  
President  
National Blank Book Co.  
Holyoke, Massachusetts 01040

Mr. Philip Singleton  
Consultant  
1072 South East Street  
Amherst, Massachusetts 01002

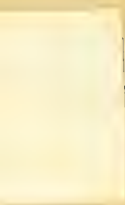
Mr. Donald B. Straus  
American Arbitration Association  
140 West 51st Street  
New York, New York 10020

Mr. Herman Stuetzer, Jr.  
Lybrand Ross Brothers and Montgomery  
60 Broad Street  
New York, New York 10004









ANNUAL REPORT

1971-1972

SCHOOL OF EDUCATION

UNIVERSITY OF MASSACHUSETTS





*The Commonwealth of Massachusetts*

*University of Massachusetts*

*Amherst 01002*

SCHOOL OF EDUCATION

July 26, 1972

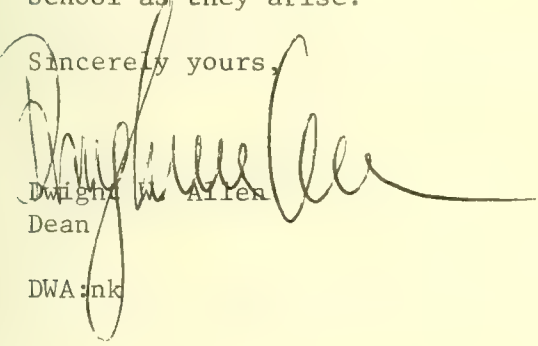
Chancellor Randolph W. Bromery  
Whitmore Administration Building  
University of Massachusetts  
Amherst, Massachusetts 01002

Dear Chancellor Bromery:

I am pleased to forward the attached Annual Report of the School of Education as part of your data for your Annual Report to the Board of Trustees.

Though the year ended on a rather stormy note, our progress this year has been substantial. It is hoped that this report will provide you with a comprehensive overview of our progress and goals and will assist you in answering questions about the School as they arise.

Sincerely yours,

  
Dwight H. Allen  
Dean

DWA:nk



ANNUAL REPORT  
1971-1972  
SCHOOL OF EDUCATION

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## Overview

The fourth full year of the "new" School of Education has been challenging as well as tumultuous. No longer growing at an astounding pace, the School of Education has entered a phase of maturation and consolidation combined with new challenges which test its basic fabric.

As the School of Education embarked on a course of major reform as an educational institution, it faced the challenge of three crucial issues: resources, diversity, and dissent. These issues are common to all institutions seeking growth and change in contemporary America. In the last four years, we have been effective in solving the issue of resources: the number of hard money faculty has almost tripled; and the School's soft money funding has increased by a factor of seven. The number of graduate students enrolled in education has tripled.

In terms of diversity, no graduate school in the country has more minority graduate students than the School of Education (over 150). Three of our five Assistant and Associate Deans are members of minorities. All new faculty positions at the School of Education are being filled by minority and/or women candidates.

The School of Education has also updated its recruitment and admissions criteria in order to attract a more diverse student population which we feel will contribute to an increased understanding of the forces which underly today's social crises. Hence, the graduate student population now at the School spans a wide variety of backgrounds and experiences, including many excellent students whose



credentials for acceptance into our program would be required and screened through a more narrowly defined admission policy.

The largest off-campus endeavor of the School, the Career Opportunities Program in Brooklyn, Springfield, and Worcester, has contributed significantly to our diversity and provides over three hundred poor and minority undergraduates with professional growth opportunities in urban education, opportunities that ordinarily would be unavailable to them. These COP programs are especially important in that they are not merely examples of special funding or University outreach to minorities, but because they constitute significant new models for teacher training, cooperative efforts of schools of education and school districts.

Any institution which has so actively pursued additional resources and diversity must necessarily face the possibility of dissent, for diversity necessarily breeds different conceptions of what the current crises are in our society and what actions are needed for their resolution. Furthermore, having attracted considerable resources to the School provides the ingredients for conflicting bids and competition for those resources. For four years, the School of Education has consistently attempted to modify its institutional processes to reflect the viewpoints of the many different groups working within the School.

Since no one organization or institution can ever aspire to contain all the legitimate elements of diversity or be all things to all people, the School of Education, after a period of growth and experimentation, now faces the difficult task of defining itself and setting



limits. Parallel governance as a way of expressing minority power and points of view may be legitimate in certain institutional situations, but it is beyond the limits we have set for ourselves in our goal to combat institutionalized racism and create a multi-racial institution.

This coming fall we will be instituting a completely modularized curriculum which will function within a larger context than the limits of classical educational curricula. Within that larger framework we must resolve for ourselves and for those who will be joining us those issues which relate to our self-definition and the extent to which we can embrace dissent.

In the past, while we were still a vulnerable and growing young institution, our unspoken motto was "everything is permitted unless it is prohibited." We built few walls and encouraged testing new ways and new routes. Now we must recognize the function of some walls to promote stability and continuity while remaining willing to move walls when necessary and tear down walls that only obstruct.

In the year ahead, the School will take a hard look at its governing structures. What was appropriate for growth may not be appropriate for consolidation. Despite the problems we have encountered, we intend to remain firmly at the forefront of institutions attempting to deal with racism and to develop leadership to forge a new environment of racial and ethnic cooperation. The way will not be easy, but we have come too far to return to a position of complacency and disconcern.

In our various educational programs, we will continue to seek further depth and consolidation. With the appointment of an Assistant



Dean for Graduate Affairs, we have completed an administrative structure which will allow us to devote full energies towards our most pressing needs.

Heavy emphasis will continue to be placed on strengthening undergraduate programs. With the proposal for a Commonwealth Institute, we hope to extend our resources and assistance through inservice training for University and public school teachers.

We will continue to expand efforts for inter-university cooperation such as the bilingual/bicultural program and to encourage interdisciplinary efforts such as the joint positions now shared between the School of Education and the Hispanic Department.

With the implementation of the Completely Modular Curriculum, we will continue scrutiny of our entire grading and curricular structure. Concomitantly, our faculty is considering an alternative to tenure.

In summary, a look at 1971-72 at the School of Education is a look at crisis in perspective, a view of a stage in the metamorphosis of the School when many issues surfaced in the process of testing the basic fibre of the School. We can be proud of the creative advance in education achieved at the School of Education since 1967. We now look to the future with a greater understanding of the challenges and responsibilities that come with change. A preliminary view of 1972-73 holds prospects for a successful year of in-depth consolidation, recognizing the need for imaginative and thorough follow-through for the hopes and aspirations we have created.

Dwight W. Allen, Dean





SCHOOL OF EDUCATION  
FUTURE PLANS AND NEEDS

Personnel

The School of Education currently finds itself in a state of dynamic self-renewal as opposed to the dynamic growth of earlier years. Efforts are now generally geared toward keeping responsive to our complex clientele through continual program evaluation, redirection, and occasional development. Our ability to remain a dominant force in the educational institutions of Massachusetts and the country will be primarily a function of our success in these efforts.

Although current budget cuts have prevented us from actively pursuing the strengthening and the selective development of programs that were outlined in last year's Annual Report, we feel confident that all appropriate efforts will be made in the future to give the School of Education the maximum possibility to remain in the forefront of American education.

Within the general context of improving our dysfunctionally high (32/1) student/faculty ratio, qualitatively improving existing programs, and selectively developing new programs, most of our emphasis for the coming year will be on strengthening our interdisciplinary efforts in teacher education. It has become increasingly evident that the education process is at the minimum a multifaceted, highly interactive experience and that teachers and administrators must have an increasing sophistication in dealing with the resulting implications.



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Additional specific programs under consideration or preliminary operation include the following: (1) Special Education - Our position here is that existing programs in Special Education are generally deficient and we have no desire to duplicate these efforts. We would, however, like to develop a program based on some new models that have a high relation to the Special Education reality in our society today. (2) Futuristics in Education - Plans for a Futuristics Program are based on our belief that the study and application of various futuristic methodologies is an essential ingredient in the understanding of education dynamics.

Programs involving in-service teacher education for public school teachers (Commonwealth Institute) in addition to the University's (including the School of Education) faculty are at the beginning stages and will probably require additional faculty as the demands and needs of the various clientel develop.

#### Facilities and Equipment

Space for classroom, faculty, and administrative use continues to be a major concern for the School of Education. In this regard, space allotment has not kept pace with the increased enrollment and overall growth of the School.

The University inserted with its FY 1973 Capital Outlay Request, a \$12.6 million segment for the construction of a new School of Education building that will provide 147,000 square feet of space. In addition, part of the \$12.6 million will be used to renovate the existing School of Education building and the Marks Meadow elementary school. The combined space provided by this new construction will



total 207,000 square feet. This total space contemplates a 20 percent reduction in student enrollment at the School of Education from 2,500 to 2,000 students.

Construction of the new building and renovation was planned for completion in the spring of 1976, but the Governor's office has recommended that no capital outlay be appropriated for higher education in FY 1973. This, in effect, will delay the availability of this space until 1977 and the School of Education will have to continue to operate in facilities widely dispersed throughout the Amherst campus.

The School community is presently situated in four separate buildings: the School of Education Main Building, Wsocki House, Montague House and the Graduate Research Center. Space in the Graduate Research Center is temporary and will be maintained until a modularized education center is erected behind the School's main building. This new center, which will provide 7,000 square feet of classroom and faculty office space, was due to be completed in the fall of 1972. Difficulties in finalizing vendor specifications has delayed completion of this facility until the summer of 1973.

In the interim, the planning office will attempt to provide some faculty and program office space in various buildings throughout the Amherst campus. This additional space will alleviate the immediate need for the school, although this wide dispersement of School personnel will hamper effective administration within the School.

On the positive side, construction of the School's commonwealth micro-teaching institute facility will be completed this fall. The facility will provide classroom space devoted specifically to the needs of micro-teaching. Full-scale operation of this facility, however, is heavily dependent on the availability of media equipment



which has been requested as part of the FY 1973 budget.

The equipment budget request also encompasses media equipment needs not directly associated with micro-teaching. This includes updating and replacement of equipment for our TV studio, establishing a darkroom facility for our expanded photographic work, and meeting the new equipment and production needs for our educational film program.





ANNUAL REPORT

SCHOOL OF EDUCATION  
UNIVERSITY OF MASSACHUSETTS

Personnel--Professional, Academic

	<u>1969-70</u>	<u>1970-71</u>	<u>1971-72</u>
Dean	1	1	1
Associate Dean		1	1
Assistant Dean	3	3	3
Professor	9	14	17
Associate Professor	18	16	22
Assistant Professor	21	27	28 3/4
Lecturer	6	7	6 3/4
Instructor	4		
Visiting Lecturer	1		
	<hr/>	<hr/>	<hr/>
TOTAL	63	69	79 1/2

Personnel--Professional, Non-Academic

Staff Assistant	1	1	1
Staff Associate			2/3
Assistant Director			1
Professional Technician			1
	<hr/>	<hr/>	<hr/>
TOTAL	1	1	3 2/3

Personnel--Non-Professional

Electronic Technician	2	1	1
Technical Assistant	1	2	3
Technical Specialist		1	
Department Assistant			2



Personnel--Non Professional (con't)

	<u>1969-70</u>	<u>1970-71</u>	<u>1971-72</u>
Department Aide			1
Principal Clerk	2	2	3
Senior Clerk			1
Junior Clerk			1
Senior Clerk and Stenographer	2	2	2
Junior Clerk and Stenographer	7	8	7
Senior Clerk and Typist	1	2	1
Junior Clerk and Typist	3	1	2
	<hr/>	<hr/>	<hr/>
TOTAL	18	19	24



ANNUAL REPORT  
SCHOOL OF EDUCATION  
UNIVERSITY OF MASSACHUSETTS

1971-2

Appropriations -- Operational Budget

	<u>Actual 1969-70</u>	<u>Actual 1970-71</u>	<u>Original 1971-72</u>	<u>Additional 1971-72</u>
03 Services, Non-Employee	\$165,459	\$386,100	\$443,200	\$ 7,700
10 Travel	9,000	14,900	11,000	5,000
12 Maintenance	1,968	6,700	10,000	- 5,000
13 Special Supplies	13,000	42,200	65,000	
14 Office Expense, Telephone, Postage	13,000	28,400	30,000	12,400
15 Equipment	30,000	30,300	30,000	- 3,500
16 Rentals	<u>10,000</u>	<u>16,300</u>	<u>16,200</u>	<u>- 3,000</u>
TOTALS	\$242,427	\$524,900	\$605,400	\$13,600



ANNUAL REPORT  
 AUDIO-VISUAL CENTER  
 SCHOOL OF EDUCATION  
 UNIVERSITY OF MASSACHUSETTS

1971-2

Appropriations -- Operational Budget

	<u>School of Ed.* Allotment</u>	<u>University* Allotment</u>
03 Services, Non-Employee	\$13,800	
10 Travel		
12 Maintenance	4,000	
13 Special Supplies	7,000	
14 Office Expenses, Telephone, Postage	1,200	1,200
15 Equipment	<u>5,000</u>	_____
TOTAL	\$31,000	\$1,200

\*The School of Education allotted to the Audio-Visual Center \$31,000 out its state allotment.

\*The University allotted an additional \$1,200 to the Audio-Visual Center.





ANNUAL REPORT  
 SCHOOL OF EDUCATION  
 UNIVERSITY OF MASSACHUSETTS  
 1971-72

Students or Clientele Served

	<u>1st Semester 1969-70</u>	<u>1st Semester 1970-71</u>	<u>1st Semester 1971-72</u>
Undergraduate Majors	1213	1371	1421
Graduates	<u>1050</u>	<u>1277</u>	<u>1660</u>
Total	2263	2648	3081

	<u>2nd Semester 1969-70</u>	<u>2nd Semester 1970-71</u>	<u>2nd Semester 1971-72</u>
Undergraduate Majors	1213	1410	1520
Graduates	<u>1050</u>	<u>1277</u>	<u>1660</u>
Total	2263	2687	3180

Enrollment 1971-72

1st Semester	3081
2nd Semester	<u>3180</u>
	6261



FUNDED PROJECTS



PROJECTS - GRANTS - FELLOWSHIPS

<u>Project Name</u>	<u>Account Number</u>	<u>Director</u>	<u>Allocation</u>	<u>Date</u>
Alternative Schools	16-069221	P. DeTurk R. Nichols	\$249,609	7/1/71-6/30/72
Alternative Schools	16-069222	R. Mackin	\$ 50,000	7/1/71-6/30/72
Applied Research	16-068230	W. Wolf	\$ 33,300	6/1/71-8/31/72
Behavioral Technology in Deaf Education	16-069225	H.T. Eachus	\$ 15,376	6/30/71-6/29/72
Career Opportunities Program - Boston	15-026552	C. Abraham A. Gentry	\$ 22,600	6/28/71-6/30/72
Career Opportunities Program - New York	15-026551	A. Gentry C. Abraham	\$368,820	7/1/71-6/30/72
Career Opportunities Program - Springfield	15-026553	A. Gentry C. Abraham	\$ 19,600	7/1/71-6/30/72
Career Opportunities Program - Springfield	15-026554	A. Gentry C. Abraham	\$ 68,350	7/1/71-6/30/72
Career Opportunities Program - Worcester	15-026550	A. Gentry C. Abraham	\$220,962	7/1/71-6/30/72
Carnegie-Modular Curriculum	15-044601	D. Allen P. Christensen	\$ 53,000	7/1/71-9/30/72
Center for the Deaf	20-069200	R. Wyman	\$365,303	9/1/71-8/31/72
Compensatory Education, Title I	20-068309	J. Fortune	\$129,876	Extended 3/31/72
CSEI - Network	11-026666	J. Eiseman	\$ 9,600	1972
Dade County/Florida	15-046850	R. Peck D. Carey	\$ 9,000	-6/30/72
Domestic Action Program	07-028750	R. McCoy	\$435,000	Summer 71-closing6/
Department of Education	15-047851	K. Ertel	\$ 86,445	-6/30/72
Development of Teacher Education/ANISA	15-043120	D. Jordan	\$175,121	6/1/71-12/1/72
Ecuador	19-061100	J. Bing	\$112,862	1/1/72-12/31/72
Esso Education Foundation	15-048200	D. Day	\$ 2,096	1971-1972
Ford Foundation - Administration	15-048608	D. Flight	\$287,750	9/1/71-8/31/72



Ford Foundation - Humanistic	15-048605	G. Johnston	\$182,700	7/1/70-6/30/73
Headstart	16-069102	D. Day W. Durant	\$120,095	9/1/71-6/30/72
Institutional Allowance Grant	11-010800	R. Suzuki	\$ 20,000	
Integrated Day	15-050300	M. Rudman	\$ 95,000	-6/30/72
Kellogg Community College	08-032600	W. Lauroesch	\$ 61,597	-6/30/72
Martin L. King Fellowship	08-032601	E. Seidman	\$ 625	
Mass. Dept. of Ed. Adult Basic, Title III	15-047855	M. Rossman	\$ 20,000	Extended Indef.
Mass. Dept. of Ed. #1	15-051431	K. Ertel	\$ 44,733	9/1/71-6/30/72
Mass. Dept. of Ed. #2	15-051432	K. Ertel	\$ 92,875	9/1/71-6/30/72
Mass. Dept. of Youth Services/Amherst	15-051430	L. Dye	\$ 15,000	4/1/71-6/30/72
Mass. Executive Office for Administration	15-051108	A. Eve	\$ 47,863	3/20-7/20/72
Media Specialists for Deaf Education	16-069227	R. Wyman	\$ 68,451	10/71-9/30/72
MESPU	16-069213	R. Miltz	\$ 32,623	Extended 6/30/72
National Endowment/ Humanities	16-061706	G. Urch D. Schimmel	\$ 40,000	9/1/71-8/31/72
New England Distributive Education Conference 1972	15-051441	K. Ertel	\$ 5,990	7/1/71-6/30/72
Pilot Program/Integrated Doctoral Program	15-052405	D. Carew J. Hinckley	\$ 17,404	9/1/71-8/31/72
Project JESI	15-051201	W. Conway	\$216,235	7/71-6/30/73
State of N.Y./Mass. Evaluation	15-052410	K. Ertel A. Rios	\$292,000	11/1/70-6/30/72
Teacher Corps - 6th Cycle	16-068310	W. Tutman	\$239,212	3/15/71-9/1/72
Teacher Center Program	16-069223	H. Reed	\$ 14,990	7/1/71-6/30/72
Teacher Education Revolution	16-068229	D. Allen K. Beattie	\$ 21,492	3/15/71-1/30/72





Uganda AID/AFR 281	19-061300	M. Haviland	\$301,308	6/30/70-6/30/72
Union Experimental Colleges/ Universities	15-058190	F.T. Clark	\$ 19,000	6/15/71-6/30/72
University State of N.Y.	15-058203	W. Gorth	\$ 4,000	3/1/72-7/30/72
University Without Walls	15-058191	F.T. Clark	\$ 19,000	6/15/71-6/30/72
Worcester School Dept.	15-058701	M. Rossman	\$ 44,738	9/1/71-8/31/72



## SPECIAL AND OFF-CAMPUS PROGRAMS

The School of Education continues the commitment to the diverse mix of special and off-campus projects. They are major experiences for achieving the School's goals of reality based innovations in education.

Many new projects which were initiated during the summer and fall of 1971 are now operational and have been or will be refunded as of July 1972; the funding for this next year is substantial. The projects will involve undergraduate and graduate students as well as faculty, and will in some way field test an educational innovation in the public sector.

The Staff Development Cooperative consisting of representatives from selected school districts in three New England states was formed during the summer of 1971 in order to prepare for, plan, and implement an Integrated Day approach. The program is designed to bridge the unusual gap between pre-service and in-service teacher education. A workshop on the Integrated Day approach is planned from July 5-26 at the School of Education and participants will be drawn from cooperating school districts.

Project J.E.S.I. (Jobs, Education, Self-Improvement) - a cooperative distributive education program, funded through 1973, secures employment for disadvantaged youth - in this case between 100 and 150 high school drop-outs. The youth fill employment shortages identified by the business community and will receive training both on and off the job. The program is designed to focus on three areas paramount to the development of human potential - occupation, education, and self. It demonstrates a workable system that could be adopted by local schools or other concerned agencies.

Completely Modular Curriculum is a project funded by the Carnegie Foundation to transform the School of Education to a Modular System by this September. For the last three years, the School of Education has operated a partial



modular credit - modular offering system under which university credits have been subdivided into credit modules, which are then offered for a variety of unconventional and conventional learning experiences. (The success of the educational marathons -"Alternative Futures in Education" and "Alternative Schooling in an Urban Society" has depended largely on the modular credit system). This fall all courses and grades will be replaced by modules thus increasing tremendously the flexibility for both offering and participating in learning experiences.

The National Alternative Schools Project funded by the Office of Education in July, 1971, is one of the most important programs of the School of Education. Under this program, the School has developed alternative planning process models for the planning, training of staff, implementation, and operation of alternative schools in the public sector. Two planning sites are now in operation and others will be in operation by September, 1972.

In addition to the "alternative" Teacher Education programs, several long term projects continue major programmatic thrusts of the the School. The Model Elementary Teacher Education Program in its fourth year of operation and funded by the Office of Education is an attempt to create and institutionalize a new approach to teacher training which utilizes instructional alternatives and performance criteria in place of more traditional core requirements. The Northeast Regional Media Center for the Deaf has been in existence for six years and is concerned primarily with the improvement of instruction and services to deaf individuals. The Center sponsors workshops, conferences, and a yearly media institute for teachers of the deaf in the northeastern United States, conducts research in the application of educational technology to the education of the deaf, develops materials for use with deaf individuals, and provides consultive



services to those interested in improving educational technology for the deaf.

The Teacher Corps Program continues to focus on the integration of Africa into American curriculum. In the past it has operated in connection with the Worcester Public Schools, but beginning with the sixth cycle it was transferred to the public school system of Providence, Rhode Island. An added dimension to the Providence program integrates METEP components - competency based instructional modules - in the areas of community involvement, urban education, and human relations to the introduction of innovative African curriculum.

The Career Opportunities Program is a federally funded program designed to provide an educational career ladder for low income minority group personnel who aspire to positions in the field of professional education. This combination work-study program enables teacher aides and associates in school systems to earn a college education and B.A. while continuing to serve as paraprofessionals in their local school systems. Close to 200 paraprofessionals from Brooklyn, New York, and some 90 paraprofessionals from Worcester and Springfield, Massachusetts, started with the program in the summer of 1970 and are continuing through to their B.A. degrees.

Administrative Leadership, supported by the Ford Foundation, allows the School to involve a carefully selected group of committed graduate students and faculty in developing courses, modular experiences, structures, and advisory procedures aimed at better preparation of educational leaders.

The Humanistic Education Center is also supported by the Ford Foundation in its program to develop learning experiences and other curricula which would integrate affective learning with cognitive learning, and to train teachers and other professionals in humanistic curricula and methods.





In addition to the above mentioned projects which represent a continued commitment of many individuals in the School and substantial funding levels, many no less important projects will be continued during the coming year. The following list includes all active School projects and the centers responsible for that project. The status of projects changes so rapidly that there may be inaccuracies in this list.



## Educational Research

Comprehensive Achievement Monitoring System,  
System, the National Center at Amherst  
Development of Three Applied Research  
Training Programs

## Higher Education

Research and Development to Prepare for  
Operation and Evaluation of University  
Without Walls  
Community College Professional Development  
Programs  
Survey of State Funded Programs for  
"Disadvantaged" Students

## Humanistic Education

A Project for Planning the Organization  
and Operation of a Center for  
Humanistic Education

## Human Potential

Development of a Comprehensive Teacher  
Education Program Based on the  
ANISA Model  
Program for Massachusetts Department  
of Youth Services/Amherst

## Human Relations

Pilot Doctoral Program in Human  
Systems, Design and Administration

## Innovations Center

Domestic Action Program

## International Education

Uganda Tororo Girls' School  
Non-Formal Education Project in Ecuador  
Teacher Corps  
Middle Eastern Studies Program

## Leadership and Administration

Executive Leadership Program



## Media Center

Northeast Regional Media Center for  
the Deaf  
Media Specialists Program  
Communications Training Program  
Behavioral Technology in Deaf Education  
Workshop in Classroom Photography

## Special Programs

The National Alternative Schools Program  
Clearinghouse for Student Initiated  
Change  
Comprehensive Early Childhood Education  
Resource and Training Center  
Headstart Leadership Development  
Training Program  
Integrated Day Consortium/Interstate  
SDC  
Completely Modular Curriculum  
Bent Twig Alternative School (Leader-  
ship Training for Alternative Schools)  
Cooperative School Service Center (CSSC)  
SASSI Prep

## Teacher Education

Teacher Education  
Demonstration of an Intern Contracting  
Model for the Pre-Service Preparation  
of Teachers Utilizing Teacher  
Clinicians in a Modular Approach

## Urban Education

Career Opportunities Program--New York  
Career Opportunities Program--Worcester  
Career Opportunities Program--Springfield  
Boston Teacher Program

## Occupational Education

Massachusetts and New York Evaluation  
Service Center for Occupational  
Education  
Cooperative Distributive Education  
for Disadvantaged Youth/Project J.E.S.I.  
Leadership Development--Career Education  
(EPDA) Massachusetts Department of  
Education, Division of Occupational  
Education.  
Agriculture and Distributive Teacher  
Education Program  
Adult Basic Education Project  
Adult Basic Education  
Distributive Education Post-Secondary  
Transfer Program



FACULTY PUBLICATIONS  
AND  
PROFESSIONAL ACTIVITIES





ALLEN, DWIGHT E.

- "The Decline of the Textbook." Change Magazine, Vol. 3, No. 1, (January-February 1971), pp. 37-40.
- "Curriculum for the 80's." The Secondary School Principal in Action, Part 3, Chapter 3, (February 1971), pp. 83-85.
- "The Seven Deadly Myths of Education." Psychology Today, Vol. 4, No. 10, (March 1971), pp. 70.
- "Computer Programs for Test Objectives Banking." Educational and Psychological Measurement, April 1971.
- and James C. Cooper. "Microteaching: History and Present Status." Association of Teacher Educators Bulletin, Microteaching: Selected Papers, No. 9, (Summer 1971), pp. 1-32.
- and Allen Ivey. "The Implications of Microcounseling for Teacher Education." Phi Delta Kappan, February 1972, pp. 373-74.

Activities

- American Association for the Advancement of Science
- American Education Research Association
- American Personnel and Guidance Association
- Association for Educational Data Systems
- National Council for the Social Studies
- National Education Association
- Massachusetts Teachers Association
- National Society of College Teachers of Education
- National Society for the Study of Education
- Phi Delta Kappan

ALSCHULER, ALFRED S.

- Preface: After The Turn On, What? By P. Houts, and M. Serber, Philadelphia: Research Press, 1972.

ANDERSON, G. ERNEST, JR.

Activities

- Instructor, pre-session of Operations Research in Education, American Educational Research Association, Jan. 30-Feb. 4, 1971.
- Presented session on Small Simulation Models, Convention of Association for Educational Data Systems, April 14, 1971.
- Presented invited seminars on various aspects of our simulation work:
  - Harvard Graduate School of Education, Oct. 29, 1970
  - Ontario Institute for Studies in Education, Dec. 13, 1970
  - University of Pittsburgh (Learning Research and Development Center) May 10, 1971
- Tutorial Sessions in use of simulation models:
  - S.P.U. - L.T.I., Oct. 18-21, 1970
  - Beaverton, Oregon, Public Schools, Jan. 19-22, 1971
- Appearance at Connecticut Association of School Business Officials Convention for reuse of Data Processing in schools, May 24, 1971.

ANDERSON, NORMA JEAN

- and James Kent. "A Message to the Establishment." What Black Educators are Saying. ed. by Nathan Wright, Jr., New York: Hawthorn Books, Inc., 1971, pp. 63-70.



- Families and Their Needs. Contemporary Social Science Curriculum, Morristown, New Jersey: Silver Burdett Co., 1972.
- Communities and Their Needs. Contemporary Social Science Curriculum, Morristown, New Jersey: Silver Burdett Co., 1972.

#### Activities

- Panel: APGA Convention, Atlantic City, NJ, March 1971.
- Membership: School of Education, University of Massachusetts Committee on Community Admissions.
- Consultant: Amherst Regional H.S., Black Experience Workshop for Teachers, Oct. 1970; Louisville Public Schools, Jan., Feb., 1971; HEW, OCD, Evaluation Team, Providence, RI, April, 1971; HEW, OCD, Conference, Lynnfield, Mass., May, 1971; State Department of Educational Regional Centers and Model Cities, Conference - "Schools for Whom," Springfield, Mass., May, 1971; Alabama Cultural Center, UMass., Sept. - June, 1971.

#### BLANCHARD, KENNETH H.

- "Twenty Years of Consideration and Structure: A Reaction." Discussed and reacted to paper by Edwin A. Fleishman at Southern Illinois Univ. Centennial Event symposium "Contemporary Development in the Study of Leadership", Carbondale, Illinois, April 29, 1971.
- and Paul Hersey. "Tri-Dimensional Leader Effectiveness Theory." Readings and Leadership, U.S. Naval Academy, Dept. of Behavioral Science, 1971.
- and Paul Hersey. Management of Organizational Behavior. Second Edition, Englewood, NJ: Prentice-Hall, Inc., 1972.
- and Paul Hersey. "Change and the Use of Power." Training and Development Journal, Volume 26, Number 1, January, 1972.
- and Paul Hersey. "Change Through Behavior Modification." Training and Development Journal, Volume 26, Number 2, February, 1972.
- and Paul Hersey. "Planning and Supplementing Change." Training and Development Journal, Volume 26, Number 3, March, 1972.

#### BUNKER, R. MASON

##### Activities

- Consultant: Plymouth, Mass. Public Schools and Mattapoisett, Mass. Public Schools.
- Workshop participant and leadership: "Clinical Supervision", Miami, Fla. (Dade County). Planning of "Supervision Workshop" (Summer of '71).
- Planner: Fall off-campus Teacher Preparation Program. METEP - Integrated Day Teacher Preparation Program.
- Presenter: "New Directions in In-Service Training of Teachers" (Joint Conference on Teacher Education).

#### CABAN, JUAN P.

- "Neglected Educational Area: The Puerto Rican." The Journal, School of Education, Univ. of Mass., Volume 6, Number 3, (May 1971), pp. 3-5.

##### Activities

- Panel Participation on Puerto Rican Culture, January 6, 1971, at UMass. Presented to a group of 4-H nutritionists working with members of Puerto Rican community in Massachusetts.



- Produced and directed five 30-minute Spanish television programs. The "One Tail, Animal" series was broadcast from Hartford, Conn. during the period of Oct. 8 - 22, 1971.
- Participated in Spring '71 Marathon in "Spanish Communications, Its Benefits to the English-Speaking Community," a two-hour program on April 15, '71.
- Spring Graduate Colloquium, UMass April 29, 1971: "Eye Movement Preference as Individual Differences in Learning from Color to Non-Color Pictures."

#### CAPPELLUZZO, EMMA M.

- "Modularization of the Foundations of Education." Presented to the American Educational Studies Association, Dallas, Texas April 5, 1971.
- Book review: The Way We Go to School - The Exclusion of the Children in Boston. American Educational Studies Association Journal, Boston: Beacon Press, 1971.
- "Guidance and the Migrant Child." Guidance Series Monographs, Minority Groups and Guidance, Series VI, Houghton Mifflin Co., 1972.

#### Activities

- Panel Participation: Kindergarten Education Conference, Boston, Mass. Fall 1970, State Department of Education.
- Discussion leader and speaker: Elementary School District: Shutesbury, New Salem, Wendell, Union 28. "Analysis of Curriculum Guide" March 3, 1971 in Shutesbury, Mass.
- Consultant: "Integration of the Foundations of Education". Invitation: University of Puerto Rico, March 29 - April 2, 1971. "Integration of beginning courses for Medical Personnel" a seminar for Directors of Medical Complex: Puerto Rico, April 1, 1971.
- Off-campus supervision of interns: Ramah, New Mexico - 7 interns at School of Education for 2 weeks involving seminars and evaluation of program, April 12-22, 1971.
- Speaker: Applied Anthropology Seminar: "Education and Anthropology" Anthro. Dept. at UMass. May 13, 1971.

#### CLARK, RICHARD

##### Activities

- Member, Career Opportunities Program, Leadership Training Institute, National Talent Pool.
- University of Mass. representative to the "Seven Year Teacher Education Study" (meeting in St. Louis, Mo., May, 1971).
- Consultant to U.S. Office of Education, January 1971, designing new programs for the public schools and the University of Puerto Rico.
- Consultant to projects Focus and Impact in the Louisville, Kentucky public schools, January 1971.
- Presentation "The Role of Professional Organizations in Differentiated Staffing" October 1970, The SPU National Conference, Colorado.
- Presentation "Effective Team Planning", at Conference of Louisville, KY Public School Staff, January 1971.
- Consultant to or working on cooperative efforts with a variety of school systems including Quincy, Mass., Greece, N.Y., Hanover, N.H., Pittsfield, Mass., and various national SPU project sites.



## COFFING, RICHARD

- and Stanley Young, and Michael Johns. "Operationalizing Educational Goals for the University." Working paper for the President's Committee on the Future of the University, June 1971.

Activities

- Producer, "A Method of Operationalizing a Goal or Intent," self-instructional written and audio materials.
- Panel reactor, Center for Reserach (SMERD) Colloquium on Evaluating Social Change, 1971.

## CONWAY, WILLIAM J.

- "Parents Use of Behavior Modification to Enhance the Self-Concept of Their Children." Spring Grad. Colloquium, UMass, April 29, 1971.
- Recorder for presentation "Inquiry Role Approach: A Model for Counselor Involvement in Learning." APGA (American Personnel and Guidance Association) Convention at Atlantic City, NJ, April 6, 1971.

## DAMERELL, REGINALD G.

- "The Massachusetts Alternatives." a 4-page newsletter published in the Daily Collegian, April 13, 1971, announcing programs of the Teacher Preparation Programs Council (TPPC).

## EVANS, DAVID R.

- "Secondary Schools as Agents of Socialization for National Goals." Kenneth Prewitt (ed.), Education and Political Values. Nairobi, Kenya: East African Publishing House, 1971, pp. 104-137.
- "Decolonization: Does the Teacher have a Role?" Comparative Education Review, Vol. 15, No. 3, (October 1971), pp. 276-287.
- "Inspection of a Diversified Educational Pogram on Career Goals: Tororo Girls School in the Context of Girls Education in Uganda." A research report presented jointly with Gordon Schimmel to U.S. AID and the Ministry of Education Uganda.
- "Decolonization: Does the Teacher have a Role?" paper presented at the Comparative Education Society's Annual Meeting.

Activities

- Consultant to Peace Corps for Teacher Education, Kampala, Uganda, July 1970.
- Consultant to CREE/Univ. of Cali, Cali, Columbia, October 1970.
- Panel participation on Innovation and Excellence in Education at the Univ. of Nigeria, Lagos, Nigeria, May 1971.
- Lecture Tour sponsored by U.S.I.S. to Leshoto, Botswana, Republic of South Africa, and Uganda, June 1971.

## FISCHER, LOUIS

- Review Article: Ronald G. Corwin, "Militant Professionalism: A Study of Organizational Conflict in High Schools." (Appleton-Century-Crofts) 397 pp., Educational Studies, Spring 1971.
- A chapter in Louis Rubin, ed. Inservice Education: New Processes and Procedures. Boston: Allyn and Bacon, 1971.





-Educational Philosophy and Theory. London: Pergamon Press Ltd., Univ. of Mass. series in Education.

Activities

- Consultant: several publishing houses and to the Hawaii State Dept. of Education.
- Chairman of General Session, American Educational Studies Assoc., Chicago, Ill., Feb. 24, 1971.
- Chairman, Nominating Committee of the John Dewey Society, 1971.

FORTUNE, JIMMIE C.

- and David Berliner and Thomas E. Hutchinson. "Analysis of the 1969 Consolidated Program Information Report (CPIR)." Volume I, March 1971.
- and Larry G. Harding and John R. Petry. "The Effects of Motion in Lock-Wiring Instruction." Educational Quest, Fall 1971.
- "Problems Facing the Evaluator of Social Action Programs." a paper presented at the American Educational Research Association Annual Meeting, Chicago, April 1972.
- "Profile Analysis of the Academically Disadvantaged Child as Targeted by Teachers." a paper presented to the New England Educational Research Organization Annual Conference, Hartford, May 1972.
- and Thomas E. Hutchinson, Anthony S. Comunale, Fredrick A. deFriesse, Steven Edberg, Michael P. Hagerty, Kathryn A. Hecht, Elizabeth C. Proper, and Lawrence Wightman. Data Analysis of the 1969-1970 Survey of Compensatory Education (Title I): Technical Report. Washington, D.C.: U.S. Department of Health, Education and Welfare, Office of Education, 1972.

FREDRICKSON, RONALD H.

- and Thomas Fonda. "College Admissions Assistance by Secondary School Counselors." Personnel and Guidance Journal, January 1971, pp. 49, 383-389.
- and Leo Vigneault. Guidance Paraprofessionals: Role and Implications for the School Counselor. Moravia, NY: Chronicle Guidance Publications, 1971.
- and D. Zimpfer, M. Salim, and A. Sanford. Support Personnel in School Guidance Programs. (monograph) American Personnel and Guidance Association, Washington, D.C., 1971, pp. 1-78.
- and R.M. Bingman, and Benson. "A Model for Counselor-Student-Teacher Involvement." Personnel and Guidance Journal, No. 50, (April 1972), pp. 655-660.
- Chairman of Program at American Personnel and Guidance Assoc. Conference, entitled Inquiry Role Approach: A Model for Counselor Involvement in Learning, Atlantic City, NJ, April 4-8, 1971.
- and J.W.M. Rothney. (Editors and Authors) Recognizing and Assisting Multipotential Youth. Columbus, Ohio: Charles Merrill, 1972.

Activities

- Chairman of Program at American Personnel and Guidance Assoc. Conference, Atlantic City, NJ, April 4-8, 1971, entitled Inquiry Role Approach: A Model for Counselor Involvement in Learning.



- Consultant for Mid-Continent Regional Educational Laboratory, Kansas City, Mo., in Development of Inquiry Skills and Affective Component using the computer in language analysis to measure attitudes of adolescents in a classroom setting.

FRENCH, NATHANIEL S.

Activities

- Taught a three credit Introduction course at the University of Michigan. "Curriculum Revision," Summer 1970.
- Keynote speech to the Alumni President's Council in Albany, NY. "The Contribution of Independent Education," October 1970.
- Stockbridge School trustee and member of the Search Committee charged with finding a new headmaster, October 1970.
- Speech addressed to the parents, faculty and students of the Northampton Girls School in Northampton, Mass. "The Important Questions in Making Changes," October 1970.
- Spoke on a panel in Philadelphia addressing "One or More of the Important Issues of Education," November 1970.
- Wrote curriculum for combined Williston Academy/Northampton School for Girls, February 1971.
- Spoke at a public school symposium in Byram Hills, N.Y., "The Soft Revolution," April 1971.

GENTRY, ATRON A.

- and David Yarrington, and Albert Mazurkiewicz. "Reading, Writing, and Racism." submitted to Saturday Review of Literature, 1971.
- and Bobby F. Gentry, and Byrd L. Jones. "Differentiated Staffing for Urban Schools." Career Opportunity Research Memoranda Series, No. 12.
- and Barbar J. Love. "Teacher Training for Urban Schools." The Journal, 1971.
- and Byrd L. Jones, Carolyn C. Peelle, Royce M. Phillips, John C. Woodbury, and Robert L. Woodbury. Urban Education: The Hope Factor? Philadelphia: Saunders, 1972.

Activities

- Speech to Worcester administrators and principals about "Education for the Future", Sept. 1970.
- White House Conference of President's Commission on Youth which involved six months of planning and one week in Washington, Fall 1970.
- Panel participant in a discussion of the Hope Factor for Urban Education at the University of Ohio at Athens, Feb. 1971.
- Consultant to N.Y.C. School System on Learning Cooperatives, March 1971.
- Consulting with Hartford Equal Education Institute on "Why We Need Integration in Our Schools?" April 7, 1971.
- Consulting at Patterson State College in NJ April 29, 1971.
- Speech in Worcester to the paraprofessionals working there on "Future of the COP Program" April 30, 1971.

GLENN, HODGES, SR.

- "Predicting Academic Achievement of Special Admit Students." submitted for publication to PDK and AERA.

Activities

- Panel participant in Dallas, Texas at NAEA Conference on "Teacher Education", April 4-9, 1971.



- Presented report on "Testing Programs and Issues - Educational Opportunity Program," at National Testing Project Directors Conference, April, 1971 in Washington, DC.
- Presentation "CEE and Problems of CEE Programs," Ed. "Marathon" on November 20, 1970.
- Discussion leader, "A Case Study in Special Admissions" at UMass Faculty Conference on Nov. 11, 1971.

#### GORTH, WILLIAM P.

- The Loci Of Authority In Schools During Educational Change. (Doctoral dissertation, Standord University). Ann Arbor, Mich: University Microfilms, 1971.
- and R.K. Hambleton. "Criterion-Referenced Testing: Issues and Applications." Technical Report No. 13, Center for Educational Research, School of Education, University of Massachusetts, Amherst, 1971.
- and D.W. Allen, and A. Grayson. "Computer Programs for Objective and Item Banking." Educational and Psychological Measurement, No. 31, (1971), pp. 245-250.
- and R.K. Hambleton and R. Rovinelli. "Efficiency of various item-examinee sampling designs for estimating test parameters." Proceedings, 79th Annual Convention, APA, 1971, pp. 103-104.
- and P.E. Schriber and R.P. O'Reilly. Comprehensive Achievement Monitoring: Its Design and Use. (Preliminary edition). Amherst, Mass.: Center for Educational Research, School of Education, University of Massachusetts, Amherst, June, 1971.
- and R.P. O'Reilly. "Alternatives to accountability: Stool pigeon versus servant and soulmate." In Proceedings of the 1971 Invitational Conference on Educational Records Bureau, 1972, in press.
- and R.P. O'Reilly. "Alternatives to Accountability: Stool Pigeon Versus Servant and Soulmate." Planning and Changing, 1972, in press.

#### Activities

- American Educational Research Association
- National Council on Measurement in Education
- American Association for the Advancement of Science
- American Chemical Society
- Educational Research Association of New York State
- National Association for Research in Science Teaching
- Association for Educational Data Systems.

#### HAMBLETON, RONALD K.

- A review of the new forms S and T of the Bennett Mechanical Comprehension Test. O. Buros (Ed.) The Seventh Mental Measurements Yearbook. Highland Park, New Jersey: Gryphon Press, 1972.
- "Assessing student progress: A criterion-referenced measurement approach." R. Delone (Ed.), Controversies in Education. New York: Saunders, 1972. (in press).
- and R. Rovinelli. Review of W. Clemans, Educational Uses of the Computer: An Introduction. Educational and Psychological Measurement, 1972, in press.



- and P. Rozinelli, and A.S. Smith. "Evaluation of Self-Administered Multiple-Choice Tests: An Experimental Study." Proceedings of the 79th Annual Convention of the American Psychological Association, No. 6, (1971), pp. 101-4.
- and P.E. Traub. "Information curves and efficiency: Three ability test models." British Journal of Mathematical and Statistical Psychology, No. 24, (1971), pp. 273-281.
- A report on the research and evaluation activities in the Jamesville-DeWitt individualized Instruction Program in ninth grade science. Final Report submitted to the New York State Education Department, Division of Research, 1971.
- An evaluative study of the Educational Project to Implement Conservation. A Title III project in the Westfield Public School System.
- and W.P. Gorth. "Criterion-referenced testing: Issues and applications." Technical Report #13, School of Education, University of Massachusetts, Amherst, August 1971.
- and W.P. Gorth, and P. O'Reilly. "A formative evaluation model for classroom instruction." Technical Report #16, School of Education, University of Massachusetts, Amherst, September, 1971.
- and M.R. Novick. "Towards a theory of criterion-referenced tests." American College Testing Technical Report, Iowa City, Iowa, 1972.
- and R. Rovinelli. "A computer program for simulating various test score distributions." Center for Educational Research, School of Education, University of Massachusetts, Amherst, 1972.
- and R. Rovinelli. "A computer program to analyze semantic differential data." Center for Educational Research, School of Education, University of Massachusetts, Amherst, 1972.
- and T. Powers and R. Rovinelli. "An investigation of the effects of test administration procedures and scoring on the reliability and validity of achievement tests." Paper presented at the annual meeting of A.E.R.A., Chicago, 1972.
- "Applications of Bayesian Statistical Methods to Individually Prescribed Instruction Programs." Paper presented at the annual meeting of N.C.M.E., Chicago, 1972.

#### IVEY, ALLEN E.

- Microcounseling: Innovations in Interviewing Training. Springfield, Illinois: C.C. Thomas, 1971.
- and J. Hurst. "Communication as Adaptation." Journal of Communication, No. 21, (1971), pp. 199-207.
- and J. Hurst. "Towards a Radicalization of Student Personnel." Journal of College Student Personnel, No. 12, (1971), pp. 165-168.
- "Review of R.R. Carkhuff's Helping and Human Relations." Personnel and Guidance Journal, No. 49 (1971), pp. 408-411.
- and D. Allen. "The Implications of Microcounseling for Teacher Training." Phi Delta Kappan, No. 53, (1972), pp. 373-4.
- "Measuring Up or Finding Oneself: An Alternative Degree Program in Human Relations." A Different Drummer, No. 1, (1972), pp. 5-8.
- "Attending Behavior: The Basis of Counseling." Gladwin, N., and Seligman, M. (Eds.) Counselor Education and Supervision: Readings in Theory, Practice and Research. Springfield, Illinois: C.C. Thomas, 1972.





- "Case Commentaries." Gallie, M. and Corwin, W. (Hous.) (1971)  
Incidents in Counseling. New York: Frontiers.
- and S. Rollin. "A Behavioral Objectives Curriculum in Human Relations: A Commitment to Intentionality." Journal of Teacher Education. Also In Press in the British Journal of Educational Technology.
- "Microcounseling: Teacher Training as Facilitation of Pupil Growth." British Journal of Educational Technology.
- and R. Wilsons. "Perceptions of College Environment: A Four Year Longitudinal Study." Journal of College Student Personnel, No. 12, pp. 177-178.
- and S. Rollin. "A Guide to Preparing a Journal Article." (Editorial) Counselor Education and Supervision.
- and A. Alschuler. "The Human Side of Competency Based Education." Educational Technology.
- and C. Miller, C. Morrill, C. Normington, and M.W. Uhlemann. "Microcounseling: Training in Assessment of Clients' Attitudes Toward Guidance Tests." Counselor Education and Supervision.
- "A Time for Action: Can Counseling Psychology Respond to Systematic Training Programs?" Counseling Psychologist.
- "Demystifying the Group Process: Adapting Microcounseling Procedures to Counseling in Groups." Special Issue of Educational Technology on Groups (invited article).
- "Microcounseling and Media Therapy: The State of the Art." Counselor Education and Supervision.
- "Media Therapy: Educational Change Planning for Psychiatric Patients." Journal of Counseling Psychology.
- "Needed: An Activist Orientation to Community Mental Health." Professional Psychology.
- "Attending Behavior: The Basis of Counseling." The School Counselor, No. 18, pp. 117-120.
- and G. Weinstein. "The Counselor as a Specialist in Psychological Education." Personnel and Guidance Journal, No. 49, pp. 98-107.
- and W. Morrill. "Confrontation, Communication and Encounter: A Conceptual Framework for Student Development." NASPA: Journal of the National Association of Student Personnel Administrators, No. 7, pp. 226-234.

#### Activities

- Editorial board of three journals: Journal of Counseling Psychology, Journal of College Student Personnel, and Journal of the National Association of Student Personnel Administrators.

#### JONES, BYRD L.

- and Atron A. Gentry, et.al. Urban Education: The Hope Factor. Philadelphia: Saunders, 1972.
- "The Role of Keynesians in Wartime Policy and Postwar Planning, 1940-1946." American Economic Review, American Economic Association, Spring, 1972.
- Compiler and annotator, "A Selected Bibliography for Urban Education." (Revised) Career Opportunities Research Memoranda Series, No. 11, Fall, 1971.
- and Atron A. Gentry, and Bobby F. Gentry. "Differentiated Staffing Model for Urban Elementary Schools." (revised), Career Opportunities Research Memoranda Series, No. 12, Winter, 1972.



Activities

- Speech in Worcester in December of 1970: "Use of Paraprofessionals in a Differentiated Staff for Urban Elementary Schools."
- Panel participant at the Univ. of Ohio at Athens, "Hope Factor for Urban Education." February 17, 1971.

JORDAN, DANIEL

- "Educating the Disadvantaged." chapter in Handbook for Teachers, edited by Dwight Allen and Eli Seifman, 1971.
- "The Arts - Neglected Resources in Education." chapter in Controversies in Education, UMass Series, Philadelphia: W.B. Saunders.
- "Presenting Psychological Principles in Musical Analogies." WORLD MINDEDNESS/The World: Context for Teaching in the Elementary School, Edith W. King, Dubuque, Iowa: William C. Brown Co., 1971, pp. 54-62.
- "The ANISA Model-- A New Educational System for Developing Human Potential." World Order, v. 6, no. 3 (Spring 1972), pp. 21-30.

KESSELHEIM, A. DONN

Activities

- Chairman, Conference on relating Outward Bound to teacher education for Outward Bound administrative personnel, Univ. Of Mass., March 10-11, 1971.
- Member of Education Commission, Division of Overseas Ministries and National Council of Churches, New York City, Jan. 18-19, 1971.
- Participant in consultation on long-range plans for Thompson's Island in Boston, April 5-6, 1971.
- Member, representing the Graduate School of Education, Board of Directors associated with Harvard Alumni, Harvard Univ., May 7-8, 1971.
- Convener, third consultation of Tarsus College in Tarsus, Turkey, at Leverett, Mass., May 15, 1971.

KONICEK, RICHARD

- and Jacobson, et.al., Investigating in Science. Six volumes, New York: American Book Co., 1972.

KORNEGAY, WILLIAM

- Review of Education and State Politics, The Developing Relationship Between Elementary-Secondary and Higher Education by M.D. Usdan, D.W. Minar, and E. Hurwitz, Educational Forum, XXXV (Nov. 1970), pp. 121-122.

MASALSKI, WILLIAM J.

- Presented paper titled "Strategies for Involving Children in Mathematical Exploration" at the Annual Convention of the National Council of Teachers of Mathematics in Anaheim, Cal. on April 17, 1971.

Activities

- Consultant to the Skinner Laboratory School at the Center for Human Development, UMass.



- Kappa Delta Pi
- National Educational Board member
- Faculty Counselor

PELLER, HOWARD A.

- APL/360 U-Programs. Programming (IMB Corp), January 1971.
- Self-instructional materials on introductory APL (A Programming Language) for high school and college faculty and students learning computer programming.
- and T. Martyn. "Do You Plan to Teach in 1990? -- or -- The Computers are Coming." Trend magazine, Spring 1971.

Activities

- Liaison between School of Ed., UMass. and Hampshire College, Sept.-June.
- Panel discussion "CAI: Panic or Panacea?" (Dept. of Computer Science), October 1970.
- World Future Society, presentation of talk on "AI and CAI in the Future" May 1971, Washington, D.C.

REED, HORACE

Activities

- Assisted in preparation of grant proposal to USOE, dealing with the Masters College Project; acted as consultant, July-Aug. 1970.
- Presented paper on "Selection Criteria Research" at Mass. State Colleges and Universities Joint Conference on Teacher Education, March 1971.
- Keynote address at Regional Conference on Non-Western Cultures for Teachers in Massachusetts, March 1971.

RUTSTEIN, NATHAN

- Booklet: "Dealing with the Television Child: An Educational Crisis." to be distributed to educators throughout the state.

Activities

- Executive Producer of film: Education, S.O.S. for White House Conference on Children.
- Executive Producer of "Que Tel, Amigos/TV", a cultural and educational TV show for Spanish speaking people, shown in Hartford, Conn.
- Keynote speaker at Mass. Audio Visual Assoc. Spring Conference.
- Spoke to the Mass. Junior Humanities and Science Assoc. on the impact of communications technology on society.
- Communications consultant to Holyoke Free School.
- Member of Advisory Board of Street Academy of Springfield System, Inc.
- Spoke to the Massachusetts Business Teachers Group re: Media Communications in the School.
- Spoke to the Holyoke Community College Faculty re: Media Communications in the School.



- Member of Ad Hoc Subcommittee, Health, Strategy and Education Relationships in Massachusetts. Article to be in the Fall Yearling Wood.
- Consultant to Worcester State College President in connection with Media Communications Institute for Summer Session.
- Advisor to the Video Video Telecasts Program.

SCHIMMEL, DAVID

- "Conditional Decision-Making: An Alternative to the Committee Octopus." The Journal of Higher Education, Volume XLIII, No. 2, (February 1972), p. 85.

SEIDMAN, EARL

- Introduction to The Hope Factor, edited by Byrd Jones, Atron Gentry, et.al., Philadelphia: Saunders, 1972.

SIMON, SIDNEY B.

- "Nourishing Sexuality in the Schools." National Elementary Principal, Vol. 1, No. 4, (February 1971), pp. 56-60.
- "Promoting the Search for Values." School Health Review, Vol. 2, No. 1, (February 1971), pp. 21-24.
- and Merrill Harmin. "Relevance and the Kissing Curriculum." National Elementary Principal, Vol. 50, No. 1, (September 1971), pp. 40-43.
- and Pat Daitch, and Marie Hartwell. "Value Clarification: New Mission for Religious Education." Catechist, Vol. 5, No. 1, (September 1971), pp. 8-9, 31.
- and Pat Daitch, and Marie Hartwell. "Value Clarification: New Mission for Religious Education, Part II." Catechist, Vol. 5, No. 2, (October 1971), pp. 36-38.
- "The Search for Values." Edvance, Vol. 1, No. 3. (1971), pp. 1-3, 6.
- and Merrill Harmin. "Values." Teachers Handbook. Edited by D.W. Allen and Eli Seifman, Chapter 7, 9, pp. 690-698, 1971. Chicago: Scott Foresman.
- and Howard Kirchenbaum and Rodney Napier. Wad-ja-get? The Grading Game in American Education. New York: Hart Pub., 1971.

Activities

- Panel member of NBC T.V. show, "Moral Standards of Youth." Channel 4, NYC. May 23, 1971.
- Panel member at annual John Dewey Society Meeting, St. Louis, Mo, March 1971.
- On Editorial Boards of School Review, National Elementary Principal, and Colloquy.

ULIN, RICHARD O.

- "Behavioral Objectives: Vietnam of the English Profession?" The English Leaflet, LXX, 1, pp. 3-10.

WEINSTEIN, GERALD

- "One Way Feeling Glasses." Methods and Media, October 1971.
- and Mario Fantini. Toward Humanistic Education: A Curriculum Affect. Praeger Press, 1971.





- "The Transport: A Guide to Understanding Learning Disabilities in the Classroom",  
Theory Into Practice, December-January 1973.
- "What Happens? Diagnosing Students' Real Concerns." Journal of  
Education, 1972.

WILSON, MARY ALICE

- "Using Comprehensive Achievement Monitoring in the Classroom."  
 Working Paper, No. WP-22, School of Education, The University  
 of Massachusetts, Amherst, 1971, Grant No. 642, C.F. Kettering  
 Foundation.

WOLF, WILLIAM JR.

Activities

- Advisory Board, Far West Educational R&D Lab., Berkeley, Calif.  
 -Executive Council, Mass. ABE State Program  
 -Executive Council, Mass. ASCD.  
 -Executive Council, AERA's Special Interest Group on Research Utilization  
 -Chairman, AERA Publication Committee  
 -Member ex officio, AERA Executive Council.

WUERTHNER, ROBERT

- Project Director of a Title III Grant to improve the faculty  
 advising system at Greenfield Community College.  
 -Panelist at the New England Junior College Student Personnel Assoc.  
 Spring meeting, April 30, 1971, "The Greenfield Plan--An Innovative  
 Academic Advising Model."

WYMAN, RAYMOND

- "And Now, A Word to Our Sponsors." Audiovisual Instruction, Volume 16,  
 Number 7, (September 1971), pp. 46-47.  
 -"Choosing an Overhead Projector." EPIE Report, Number 39, (December  
 1971), pp. 33-38.  
 -"An Open Letter to the Manufacturers of Audiovisual Equipment."  
 April 1971, pp. 82-83.

Activities

- Chairman, Technical Standards Commission of Assoc. for Educational  
 Communications and Technology.  
 -Chairman, American National Standards Committee PH-7.  
 -Consultant to Syracuse Univ. project to train doctoral media specialists  
 for education of the deaf.  
 -Chairman, Regional Media Center Directors Council.  
 -Member of Executive Committee of Special Education, Instructional Media  
 Center Network.  
 -Member, University Broadcasting Council  
 -Consultant, Cybernetics Research Foundation, Washington, D.C.  
 -Member, Mass. Advisory Council for the Deaf.  
 -Consultant, Northampton Public Schools, "Speech through Vision" project.



YARINGTON, DAVID J.

- "Training Developmental Reading Teachers: A Proposal." Reading Horizons, Western Michigan Univ., July 1970.
- "A Review of Research Literature Dealing With High School and College Students' Time Spent Reading and Studying." The Journal of the Reading Specialist, V. 10, No. 2, (December 1970), pp. 96-107.
- "Change and the Reading Establishment." Midwest Education Review, Vol. 3, No. 2, (Winter, 1971), pp. 37-45.

Activities

- Chairman of Professional Standards and Ethics Committee of the International Reading Assoc., May 1971.



CENTERS



CENTER FOR THE STUDY OF AESTHETICS IN EDUCATION

The Center for the Study of Aesthetics in Education has expanded in terms of its graduate membership and instructional staff. We are pleased to have the contributions of several prominent musical artists. Chris White, Jimmy Owens, Bill Barron, Billy Taylor, Roberta Flack and Yusef Lateef have committed themselves to the roles of student, researcher, and interface between the objectives of the Center and critical social and educational goals. The Center's commitment to the development, organization, and evaluation of innovative multi-arts courses for the TPPC program included the addition of Susan Brainerd as part-time faculty and Myra Capy as teaching assistant. Polly Jimenez served in the role of administrative assistant, in addition to providing special counselling and classroom instruction.

Graduate courses emphasizing both innovative and practical approaches to the Interrelated Arts were added and expanded. A series of modularized learning opportunities was introduced. The Center initiated a weekly seminar, the Administration and Philosophy of Aesthetics, which dealt with the concerns and commitments of Center members and the management of projects and workshops designed to meet these needs. Considerable effort was spent in researching the uses of certain electronic and technological hardware as an aid to the improvement of urban school curricula. The selection and correlation of principles from disciplines such as logic, linguistics and lexicography in their various relationships to aesthetic processes and experiences were explored. In collaboration with a government-sponsored community project in nearby Springfield, funds have been sought to sustain this research and to develop materials for an experimental school.





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Various projects during the past year have included: coordination of music education workshops at The Black and white Music Center in Chicago; coordination of and participation in workshops on group dynamics and aesthetics with students and staff from the Massachusetts State High School in Roxbury; development of in-service training in aesthetic experiences with teachers in DeBerry School in Springfield; consultation with the developers of Choices, a proposed model for meeting the educational needs of court-referred youth in Pittsfield; computer analysis of rhythmic styles in contemporary Black music; a computerized piano project with the Franklin Institute Research Laboratories in Philadelphia. The events of the year were highlighted by a weekend Center retreat, which addressed itself to our commitment to combat institutionalized racism. The Center has increased its national visibility by the participation of its membership in several events. Included in these were both the regional and national conferences of the Association of College and University Concert Managers; the Annual Convention of the Associated Councils of the Arts; membership on the board of the newly formed organization--People United to Save Humanity (PUSH); panel participation in the conference of the National Black Academy of Arts and Letters; appearance on an NBC television panel with Dorothy Maynor; a radio broadcast with Chestyn Everett of Cornell University, on Black aesthetic creativity; participation on the National Black Educators planning board; the composition and arranging of Spirituals for a concert performance for full chorus and dance troupe (Philharmonic Hall, New York); the organization of a national symposium on creative Black music (Bedford Stuyvesant). A benefit jazz concert for the Amherst ABC program, workshops with Lorin Hollander and David Amram, and the hosting of a video presentation and discussion by the Kodaly Institute represent some of



the Center's involvement in the community. Articles by and about Center members were published in the Drum and Jet magazines and the Japanese version of Downbeat.

It is hoped that the experiences gained in any historical usage of Western art forms as a basis for aesthetic education programs and our present inclusion of minority art forms will be expanded to include the exciting new resources of comparative aesthetics.

#### CENTER FOR THE STUDY OF EDUCATIONAL INNOVATIONS

The Center has been involved in three courses in the University of Massachusetts this past semester. Education and the Ideology of Capitalism was concerned with discerning the processes of schooling--the reactions of both pupils and teachers in classes--linking these processes and the larger curricular structure of education (grades, tests, etc.), and then relating this to the social and economic foundations of this behavior.

A Practicum in Innovations in Education provided a vehicle for students who wished to co-author a publication on innovative designs for educational behavior and practices--mostly aimed at the inner city.

Leadership in Administration and the Urban and Minority Perspective discussed the criteria for the selection of urban administrators and how it is viewed by the community people and the establishment, as well as the role of the administrator in confrontation and conflict situations.

In addition to the above classroom activities, the Center is conducting for the second year in concert with community representatives from a number of Massachusetts towns, a summer camp for children from these cities who ordinarily would not have the chance at this kind of experience. Three camps are presently envisioned by the city representatives--one in the Springfield-Holyoke-Chicopee area, one in the New Bedford area, and



on all facilities of Worcester -- will utilize resources --  
by the Office of Senator Edward A. Brooke from the U.S. Department of  
Labor, and private sources under the auspices of the Domestic Action  
Program.

It is our specific responsibility to develop and implement educational  
programming in the areas of dance, drama, science, mathematics, aesthetics,  
ecology, and language arts, as well as Portuguese and Puerto Rican culture  
and Black studies. These programs, while being broadly educational in  
nature, will hopefully reflect the School's commitment to radical  
innovations in teaching techniques. The educational content will be  
conveyed in a manner suitable to a summer day-camp operation. Last year's  
funding level for the Domestic Action Program was \$425,000. This year  
the anticipated level is \$520,000.

In addition, we have expended much energy in attempting to negotiate  
a massive and substantive center involvement with the Springfield Public  
Schools (Operation Crack); though dormant at the moment, it represents our  
commitment and continued efforts.

#### CENTER FOR EDUCATIONAL RESEARCH

The Center for Educational Research has experienced steady growth  
and expansion during the last year. Its resources have been utilized to  
improve the course offerings available in educational research to many  
constituencies within the School of Education as well as to particular  
students within the Center. A variety of projects have been undertaken  
which have contributed to the reputation of the School of Education in



the area of research. Partially due to the good reputation of the Center for Educational Research, the School of Education at the University of Massachusetts was voted #13 in national reputation in educational research.

Although both students and faculty have been actively involved in the development of many activities within the Center, the following briefly describes the activities which the Center's faculty have coordinated and supported.

Dr. Ernest Anderson has significantly expanded the courses available in "Introductory Mathematics and Computer Techniques in Research" and "The Uses of Computers in Education." In addition, he has established stronger ties with the Center for Leadership and Administration by offering a course in "Quantitative Management Techniques" for students of that center.

Dr. David Coffing has been concerned with extensions of his research in eye-movement and aptitude-treatment interaction.

Dr. Jimmie Fortune has completed the analysis of the compensatory education expenditures under Title I. He has been active in the American Educational Research Association and he has contributed to the Evaluation Service Center for Occupational Education by coordinating the development of tests in the areas of electronics, machine shop, wood working, and automobile mechanics.

Dr. William Phillip Gorth has coordinated the planning and initiation of a series of research studies for the New York State Education Department project called "System for Pupil and Program Evaluation and Development" (SPPED). In addition, he has coordinated the development of self-instructional training modules in evaluation. He has continued to promote the use of improved evaluation techniques in education.





Dr. Ronald Hableton created a system of standards for educational measurement. He has taken on a large scale evaluation of an innovative school in Concord, Massachusetts and is in the process of analyzing and reporting results to the school. He is working on new models for instructional management in the classroom and running a large scale experiment in the Jamesville-Dewitte Public Schools in Syracuse, New York.

Dr. Tom Hutchinson has been active in project evaluation within the School. He has developed new methodological techniques and training materials in evaluation. He was selected to be a discussant for several symposia at the American Educational Research Association Meeting in Chicago.

Dr. Hariharan Swaminathan has added several new courses to the offerings of the Center for Educational Research. In particular, he is offering advanced courses in factor analysis and multi-variate statistics. His own research has developed new techniques in factor analysis.

The above projects and activities of members of the Center for Educational Research serve as examples of the activities with which the Center has been involved. Many graduate students are involved in the areas of designing, collecting, and analyzing research data as well as teaching courses.

CENTER FOR FOUNDATIONS IN EDUCATION

The Foundations Center provides three basic kinds of services to the School of Education: (1) it performs a service function for its various teacher education programs; (2) it offers graduate programs for masters and doctoral candidates desiring specialization in one of the three foundations sub-areas--social, historical and philosophical; (3) it currently operates a teacher education program of its own, which in effect competes



with other such programs offered in the school.

1. State teacher certification laws allow potential candidates to meet part of their requirements by taking courses either in the department of education, or in alternative areas approved at the state level. A very substantial proportion of the energies of our center members is devoted to providing this service, through teaching foundations courses offered directly by our center or by offering such courses in conjunction with the programs of other centers.

Since most doctoral students in the foundations field graduate to jobs in which teaching such courses is a primary responsibility, we have instituted a program which provides them with experience in doing so under faculty supervision. All assistantships granted our center this year have been teaching assistantships which have been utilized to man sections of the basic foundations course offered to students seeking a teaching certificate. These assistants have simultaneously enrolled in a graduate level seminar in the teaching of foundations of education, which has involved both discussion of theory and supervised practice. We feel that this program has been quite successful and we seek to continue it next year.

2. Our center includes persons competent in the areas of sociology and anthropology of education, social psychology of education, history of education, philosophy of education, and comparative education; we currently enroll graduate students pursuing work in all of these areas. Some students seek broad coverage of all of these areas in their programs; others choose to specialize in one or two of them. Since our concern is to bring the tools of these various disciplines to bear on the problems of education, we encourage our students to take course work in related departments in the College of Arts and Sciences.



3. Commencing this spring, our center has established its own graduate education program. Students choosing to enter it commit themselves to a fifth year of study beyond the bachelors degree level, upon completion of which they are awarded a Master of Education degree. The undergraduate portion of the program occupies three and one half years, plus a concentrated summer component taken between the junior and senior years. The graduate portion commences at mid-term of the senior year, and occupies the remaining year and one half of the program.

The program has a two-fold emphasis: (1) it seeks to develop the critical thinking skills we believe necessary for students to have in order to become intelligently innovative teachers, and to provide broad social perspective on the problems of education; (2) it stresses in various ways close integration of theory and practice in the teacher education process. Illustrative of the latter is the specially devised theoretical component deliberately scheduled as late as possible in the summer between the junior and senior years so as to permit no gap in time between it and a teaching internship commenced the ensuing fall. Further, the theory taught in this session is to be explicitly tailored to the kinds of teaching problems likely to be encountered in the internship.

It might be added that since graduate students in the center were heavily involved in initial planning of the program and continue to be in its execution, the emphasis on integration of theory and practice persists in their own education as prospective foundations professors. Finally, one of the endeavors of the program is to provide a far more extensive and rigorous course of study than is typically provided by most teacher education programs, in part to make its graduates better able to compete in the currently tight job market.



## CENTER FOR HUMANISTIC EDUCATION

The Center for Humanistic Education is committed to improving schooling through programs that directly foster the psychological growth of learners. In order to move toward more humanistic learning environments, the Center has served three priority functions during 1971-72: 1) a laboratory for developing humanistic curriculum; 2) an innovator of a program for educating students, teachers, and administrators in the theory and practice of humanistic schooling, and 3) a consultant for initiating systematic implementation of humanistic education.

In its function as a laboratory for developing humanistic curriculum, the Center developed a curriculum in self-science education for grades K-12, including an introduction for teachers, both a deductive and an experiential introduction for students, procedures for classroom-climate setting for teachers, and the application of psychological models such as transactional analysis to the self-sciencing procedure.

In its function as an innovator of programs concerning humanistic schooling, the Center implemented a humanistic curriculum in a number of demographically different elementary and secondary schools in New England. A week-long workshop for project teachers in these schools was held in August, 1971, followed by three one-day workshops during the school year. The Center's doctoral students have assisted teachers in implementing the curriculum throughout the year. Two of the school systems involved in this project have recently been awarded Title III grants for three year periods and will be working closely with graduate students from the Center.

In its function as a consultant, the Center offered services to persons interested in learning more about implementing humanistic education.





Workshops, for educators interested in adding the humanistic dimension to their classrooms and curricula, were one form of the consultant services offered by the Center. A newsletter describing the Center's activities and research, and a brochure describing the Center's objectives were other forms of the services. Also, the Center's staff has provided a clearinghouse for collecting and disseminating information about humanistic programs being conducted throughout the country.

For on-campus students, the expansion of humanistic education course work has been varied. In the area of racism, courses were offered in "White on White" and "Black on Black" groups as well as racially mixed groups to look at the intra and inter-personal dimensions of race relations. Education of the Self has been expanded to include sections with a primary focus on racism, sexism, human sexuality, and body movement. Strength Training, in addition to regular sections, also was offered to students in the C.O.P. program. Two additional sections of Value Clarification for undergraduates were provided in dormitory complexes. The new courses included: Psychological Education, Eriksonian Theory, Advanced Seminar in Humanistic Education, Advanced Curriculum Development, and Leadership Laboratory in Humanistic Education.

Future plans for the Center call for an increased emphasis on evaluation. We are in the process of establishing guidelines and designs that will help us collect some empirical data concerning the effects of our particular curricula as well as the effects of "self-knowledge" on behavior in general. We also intend to expand our investigation of the relationship between personal growth and social issues.

#### CENTER FOR THE STUDY OF HUMAN POTENTIAL

The Center for the Study of Human Potential came into existence during the latter part of Spring semester, 1971. The program of the



Center is organized around a two-fold mission: 1) to understand more fully the nature of human potential and the ways by which it becomes actualized through biological maturation and learning; and, 2) to apply that ever-expanding understanding to the needs and problems of education. At the present time, the Center has several basic thrusts:

An Undergraduate Teacher Preparation Program in Early Childhood Education, constituting one of several teacher preparation programs offered to undergraduates in the School of Education was begun this year. Forty education majors seeking elementary credentials, but specifically interested in the education of young children, were selected to spend an entire year studying the dynamics of the child in school and nursery. This program was an attempt to integrate theory and knowledge of human development, learning, and socio-cultural influences on behavior with teaching practice in different educational settings.

A new faculty member, Ernest Washington, was hired and has been active in the Undergraduate program. More importantly, Dr. Washington brings added depth and breadth to the graduate programs in early childhood education. He combines expertise in pre-school education, special education, and research design and methodology.

The Center was successful in receiving a \$175,000 planning grant from The New England Program in Teacher Education, an affiliate of the New England Regional Commission, for the purpose of developing a new comprehensive early educational model (ANISA) which emphasizes the development of learning competence. The final report of the planning grant is due in December of 1972. Refunding is anticipated for the purpose of more fully developing a teacher preparation program based on the model and plans are underway for implementing the model in a



variety of sites with the possible objectives for involvement in studies from the New England Program in Teacher Education, DESE (1970-1971), and an implementation and evaluation grant from the Office of Child Development, Department of Health, Education and Welfare. Some 20 staff members comprised of doctoral candidates, masters degree candidates, and faculty are participating in the project.

The Comprehensive Early Childhood Resource and Training Center was established in the fall of 1970 as a successor to the leadership development program for Head Start which had operated during the two previous years. The mandate for each of these programs, which are funded by the Office of Child Development through the regional office, was to serve selected Head Start grantees by providing training and technical assistance to their staffs and parents. At the present time the regional training center carries out the following functions

- 1) field training for 42 grantees in New England who have been organized into 14 training groups;
- 2) workshops on campus for these grantees and other Head Start and Day-Care personnel;
- 3) identification of relevant materials and their accumulation in a resource center for the region;
- 4) development of model processes for the implementation of Head Start objectives, through a cooperative arrangement with local Head Start programs, and
- 5) development of new training materials for use by local programs in improving the capacity of their staffs to carry out comprehensive child development services.

Materials and training are focused on the knowledge and skills needed to design and implement child development programs, including the setting of educational objectives within the Head Start philosophy; early childhood growth and development; diagnosing children's needs; and curricular design, as well as a support area of parental involve-



ment in education, staff development, and limited medical attention. This program is supported by a grant from the Office of Child Development totalling \$120,000.

Staff members and students of the Human Potential Center have been busily engaged in a wide variety of activities related to the provision of educational services to youngsters in correctional settings or those who are detained pending a court hearing. One program involves staffing and replanning the program at the Westfield Detention Center, Westfield, Massachusetts. The Center was successful in obtaining a \$30,000 grant for the purpose of establishing a juvenile opportunities extension (JOE) program which entailed moving a number of juvenile delinquents from a traditional correctional setting to the University of Massachusetts campus where each one was assigned an advocate -- a member taking an experientially based course of study in this area under the auspices of the Center. Additional proposals for funds to expand these basic programmatic concepts and implement them have been written and submitted to the State Division of Youth Services. Prospects that additional funding will be forthcoming for the expansion and development of these programs both for the young offenders themselves and training programs, for a new kind of educator who plans a professional career in educational programming in correctional settings, seem promising.

Staff members are starting to develop materials related to drug education under the auspices of the Center. Since drugs are invading all areas of the school system such knowledge becomes important in dealing with the youth.





## REPORT FOR THE YEAR 1967-1968

The major accomplishments of the Center in Human Relations have been in the areas of course offerings, consultation, collaboration, growth, and racial awareness. The Center's faculty and doctoral students offered a wide variety of courses this year to both graduates and undergraduates. Most of the courses combined theoretical knowledge with a behavioral laboratory or field experiences so that an integration of theory with practice was encouraged. Some of the new courses that we offered this year were: Personal and Group Development for Classroom Teachers (graduate and undergraduate); Application of Behavioral Modification in Educational and Mental Health Systems (graduate or undergraduate); The Release of Creative Potential Through Human Relations (undergraduate); Social Phenomenology in Learning Situations (graduate and undergraduate); Research Issues in Group Counseling (graduate); Seminar in Affirmation (graduate and undergraduate); Gestalt Therapy Applications in Education (graduate and undergraduate); Female Awareness for Women Teachers (undergraduate); Counseling and the Counterculture (undergraduate). In addition to many classroom type courses, we offered several practicum and internship experiences with supervision in such areas as personal and family counseling, group leadership, and organizational development.

The Human Relations Center has provided major consultation in personal, group or organizational development for the following (among others): Janus House, half-way house on Cape Cod; Rhode Island School of Design, Providence, Rhode Island; The Omnibus School, Falmouth, Mass.; University of Rhode Island's Counseling Services, Providence, Rhode Island; Easthampton, Mass Day Care Center; Amherst Human Relations Council; Amherst Junior High School; Room to Move Drop-in Center at the University; several residential areas at the University; Montgomery



County Schools, Maryland; Registered Nurses of Ontario; and Division of Nursing at NIMH on an equal employment opportunity basis.

The Human Relations Center has been developing a collaborative relationship with the National Training Laboratories, Bethel, Maine, whereby we share training resources and client populations. Several of our faculty have co-taught courses with faculty in other Centers and have joined together with other Centers for special projects. Some Centers and projects we have been involved with are: Centers for Leadership and Administration, Higher Education, Teacher Education, Humanistic Education within the School; the U. of Mass. Psychology Department; Southwest Residential College. The Center's faculty presented a 4-hour organization development module focusing on the School of Education as the organization in question during Fall Marathon week. Over 50 people participated in this.

This year the Human Relations Center presented weekly forums for the School of Education community. The objectives of this program were: to provide a platform for the exchange of ideas that faculty and students were working with and to provide a vehicle for cross-fertilization between Centers, Departments, and other area Colleges. Some of the topics presented at the Forums were: Microcounseling; Drug Counseling; Suicide; Developmental Theory; Social Phenomenology; and The Albany Project.

In the area of racial awareness, the Human Relations Center students and staff held a series of racism awareness sessions during the year at which time we shared ideas and personal statements. We also considered how to combat racism via our courses and the various aspects of our personal lives.



## CENTER FOR INTERNATIONAL EDUCATION

The Center for International Education has made major accomplishments in its undergraduate teacher preparation program, Global Survival course, and workshops. The undergraduate teacher preparation program was developed and implemented this last year. The interns were placed at the New University of Ulster, Ireland, and Cotapaxi Academy, Quito, Ecuador, and an additional two sites in England have been secured for next year. A Master's degree program in International Education has been implemented, and upon this year's positive evaluation the program will continue next year. A course in Global Survival was developed for graduate and undergraduates, and will be expanded this next year.

The Center sponsored a variety of workshops this last year. They included in-service teacher workshops, an innovations workshop, cross-cultural workshops, a publications workshop, and a proposal writing workshop. In-service teacher workshops covering the areas of innovations, proposal writing, value clarification, and non-western studies have been organized and implemented for East Longmeadow, Sturbridge, Westhampton, Chesterfield, Goshen, and the Western Massachusetts Association of Social Studies Teachers. Also the Center sponsored an in-service workshop for the teachers of the Tororo Girls' School and surrounding schools in Tororo, Uganda. The one-week workshop had as its principle objective the improvement of international teachers' skills. Work during the week was centered on a micro-teaching laboratory and discussion of new techniques available for use in teaching secondary school subjects.

A one-week Educational Innovations Workshop was organized and administered by the Center members for six Nigerian educators. The sessions included micro-teaching, open classroom, competency-based education and non-formal education, and the process of adapting innovations to Nigeria's educational needs. Also, a series of cross-cultural



workshops were designed and facilitated with the foreign student office for undergraduate and graduate foreign American students.

For the benefit of the Center members, a publications workshop and a proposal writing workshop were organized this last year. The objective of the publications workshop was to encourage the publication of individuals' and groups' ideas and activities. In the proposal writing workshop, the faculty and students were asked to state areas of project and academic interest in the field of education. This information served as a basis for forming several proposal writing groups which attended the two-part workshop. The first part was a module focusing on the technical aspects of proposal planning, writing, and budgeting. The second follow-up portion brought together the members of each group for a proposal writing session. During this segment, each group produced outlines and timetables for their proposed project. It is anticipated that the documents produced in the workshop will be submitted to various agencies for their support.

Uganda Project - In November, 1971, the Dean, Dwight Allen, and the Campus Coordinator, R. Michael Haviland, attended the official ceremonies which transferred to the Government of Uganda total administrative responsibility for the Tororo Girls' School. After ten years of University involvement under which the Tororo Girls' School was planned, built, and administered, the project goals were reached. The Tororo Girls' School is now the largest secondary school for girls in the country.

Non-Formal Education in the Ecuador Project - A one-year USAID-funded project whose goal is to create and field test a wide range of non-formal educational methodologies. These methods should meet the criteria of low cost, administrative feasibility, effectiveness in transmitting basic





education skills, and attractiveness to rural and disadvantaged Ecuadorian agencies with only minor modifications of existing structures. The low cost and effectiveness of the methods should make them attractive models for large scale implementation in the future.

National Endowment for Humanities Program - This program is developing a model curriculum for exposing elementary and secondary students to the non-western world, as well as, preparing instructional materials designed to familiarize these students with non-American perceptions and interpretations of the non-western world. The three phases in this curriculum development project include research, material development, and evaluation. The final results will be disseminated as widely as possible.

Teacher Corps Project - The Teacher Corps Project involves fifty-four Corps members in eight teams working in each of eight Middle Schools in Providence, Rhode Island. Interns are M.Ed. candidates working in the areas of African Studies curriculum development, team teaching, differentiated staffing, and competency-based education. The project began in March, 1971, and will terminate in June, 1973.

American Forum - This summer several members of the Center will direct study-travel projects on the continent of Africa. Programs are anticipated in Nigeria, and Ghana. This is the second consecutive year in which the Center for International Education has been chosen to develop and lead the study travel program.

Undergraduate Program in Comparative, International and Global Survival Studies - This project, funded by the Office of Education, includes faculty improvement and development, creation of new courses and restructuring of existing ones, and the development and dissemination of curriculum materials for general undergraduate education at universities, colleges, community colleges, and in teacher training programs; and workshops



for faculty from such institutions and programs. The program will concentrate on five broad areas of mission related to the needs of men and this planet, including 1) social and economic development and resource distribution; 2) deterioration of the environment and depletion of resources; 3) population growth and planning, and 4) cross-cultural communication and conflict resolution.

These areas will provide the focus for the various activities including a faculty Task Force Colloquium involving the University and the Five College Consortium; five semester-long faculty/student/teacher seminars concentrating on one of the five issues; workshops for faculty from state colleges, junior colleges, community colleges; teacher training programs; and curriculum development and materials, adaptable for a variety of educational situations, based on the work of the above participants.

Tanzania Summer Workshop - A summer travel/study program for twenty-one women in Tanzania will be conducted by two fellows of the Center for International Education under the sponsorship of the Women's Division Board of Missions, United Methodist Church. The program will seek to involve the women in the on-going programs of various communities and school systems in Tanzania.

A Manual of Teaching Techniques for Inter-Cultural Education - The Youth Office of UNESCO contracted with the Center for International Education to produce a handbook of inter-cultural educational techniques and exercises for use by UNESCO and other international agencies. Written by members of the center and others, the booklet includes general information on inter-cultural and cross-cultural training descriptions of specific methodologies such as critical incidents, games and simulations, role plays, and group leadership exercises. At the present time, the booklet is still unpublished but is expected to become available by



late 1972.

UNESCO Mexico Project Training Materials - These materials were designed for training a group of high-school juniors from UNESCO Associated Schools in North America and Sweden, prior to their four-week residence with a rural family somewhere in Mexico to work on a development project. The emphasis of the materials was in three areas: cross-cultural awareness, development issues, and knowledge of Mexico. They were divided into three parts: a pre-training individual packet to be mailed to each participant at home, an in-training module of activities for the training period in Mexico, and evaluation materials and suggestions for a final week after the experience with a Mexican family. Very little direct information was given in these materials; they relied primarily on situational exercises, observations, interviews, games, and discussions.

UN Study of Aspirations of Youth - The Youth Office of UNESCO requested that a specific Center member do an analysis of data collected from eighteen countries on the aspirations of youth in the 70's. The report seeks to make explicit youths' search for identity and fuller self-expression, their educational and occupational needs and aspirations, and their interest and involvement in national and international life. The report utilizes the trends and patterns approach.

#### CENTER FOR LEADERSHIP AND ADMINISTRATION

Twenty fellowship students were registered in CLA under provisions of Ford Foundation funding agreements for study and program development within the Executive Leadership Program which is completing its second of three years of operation at the present time. About two-thirds of this new group are minority group members; they joined in September about fifteen students in the program continuing in a second year of work



and study under terms of the Ford project. The impact of this group of thirty-five "fellows" has been dynamic within the overall Center program, and strong and pervasive, if less visible, within the School of Education at-large. Members of the group have been responsible for the development of major program components in our leader preparation sequences, and have been major workhorses in school-wide committees and programs such as the Teacher Preparation Program Council, and the Admissions Committee and Admissions Appeal Board.

The Center assumed responsibility for the Undergraduate Administrative Intern Program funded in part by the University Provost's Office. Under terms of the funding agreement, twelve undergraduate students were paid for parttime work in as many campus administrative offices from the Provost and Dean of Students, to Fraternity and Sorority Affairs and the University Press. The interns committed themselves to participation in a weekly seminar and to activities emanating from these regular sessions for a total time equivalency of three to six academic units. Faculty and graduate students provided leadership for the group in a series of readings and discussions, guest resource person appearances, and collaborative work on a proposal for extended impact on the undergraduate student body through offerings now being planned for next fall in various aspects of organization administration.

Plans have been completed throughout this semester for CLA sponsorship of the Amherst Elementary Teacher Program, a new unit within TPPC. Over a hundred undergraduates have already been enrolled for participation in a four phase sequence extending from orientation to the profession---seminars during late freshman and sophomore years, to full semester internships during junior and senior years. Major involvement of graduate students and faculty from the Center will be involved in counseling, supervision, and modular substantive offerings.





Under the leadership of Nat French of the CLA faculty the former Cooperative School Service Center has been enlarged and revitalized by a merger of the original organization with an accumulation of contributions drawing from a large section of the Connecticut Valley. With graduate student assistance in substantial measure, publication efforts have been extended beyond those of previous years, and services to participating school systems have expanded proportionately. A funded project offering small grants to individual teachers was secured, and a second grant proposal for school system consortium funding of special projects is pending. A major forward move in revitalizing relationships between the School of Education and the Western Massachusetts school community is represented in these activities.

Apart from the program of CSSC, and in conjunction with the field experience program component of the Center, a number of involvements have been initiated in school systems throughout the state. Representative of these efforts is a project involving several CLA students and faculty members in Pittsfield, where school-community collaboration is a major focus of activity. At the other end of the state in Quincy, another group within the CLA constituency is working with members of the school system and school community, along with representatives of the Arthur D. Little Company in seeking funding for a community based program proposed to include extended involvement of UMass students on stipend in a wide range of curricular and community development efforts.

A total of over \$25,000 was secured from the Ford Foundation for major program experimentation in the areas of survival skills for minority leaders and Outward Bound in leadership preparation. In the first instance, a six day institute has just been concluded during which acknowledged leaders within the nation-wide minority community were brought on campus for presentation and discussion of the techniques



involved in their assuming leadership roles. The second of two outward bound experiences on our Dean's list is about to take place. Several dozen CLA participants, faculty, and students will have been involved in this experimental development.

Several program components planned and piloted in previous years have been brought to advanced stages of refinement during the current academic year. The Information Center or Resource Bank Concept has been operationalized this year and has proven valuable to students and faculty within and outside of the Center. A series of substantive "cores" is being developed to augment options available to students throughout the School of Education within fields generally applicable in leadership preparation. A field experience or clinical education program component has been enlarged and consolidated around a new concept in the meshing of theory and practice which may have implications for the preparation of practitioners in a number of fields. Finally, Center-wide implementation of the learning group component, an advanced seminar in educational administration involving virtually every student and faculty member within CLA has proven of significant value for most participants. Refinements proposed for next year should bring this program element to a significant place within the composite office of the Center.

#### MEDIA CENTER

The Media Center's staff and students have actively been engaged in furthering the uses of educational media in both the classroom and the community. Many of the projects they have undertaken during the 1972 fiscal year are representative of their efforts. Involvement of the Center's students in these projects has been especially stressed because of the practical experience that can be gained in the field. This year's



projects were undertaken with a great deal of expertise and zeal, and their single largest drawback was lack of necessary support in terms of equipment and "software."

Kideo Video. During the year forty students participated in this project coordinated by John LeBaron and Louise Kanus. The teams worked with teachers and children in area elementary schools. The UMass students visited each school once a week for four or five weeks, working with the children to plan a program. Teachers worked with the children between visits revising scripts and rehearsing. Emphasis was placed on the children producing their own show rather than having adults impose their ideas on the children. The program was videotaped by the children and aired over WHYN-TV, Channel 40, Springfield.

Cable TV Project. Coordinated by Hoagy Carmichael, fifteen students produced seven community affairs programs for broadcast over local cable television stations. Several more programs are scheduled for completion before the end of the summer. Some of the major programs concerned consumer affairs, a news show for children, senior citizens, jazz concerts, the Northampton County House of Correction, and the Belchertown State School.

Bilingual/Bicultural Program. The Media Center has been working with the Bilingual/Bicultural Task Force in the development of the Summer Institute and an on-going program in Bilingual/Bicultural Education. Juan Caban of the Media Center has been especially active in this capacity, and has offered the Bilingual Television Workshop in conjunction with the program.

Longmeadow Project. During the fall semester (1971), from November through January, a team of Media Center graduate students worked with the faculty of Glen Brook Middle School in Longmeadow, Massachusetts. Scheduling times in advance, the team members came



to the school on the average of once a week, to work with individual teachers on media projects mutually decided upon. Teachers provided the curriculum material that they had to work with and sometimes indicated the particular A-V medium they wanted to try. The UMass students suggested some ways in which the medium (or perhaps a better medium) could be most effectively used, provided technical assistance, and then helped the teacher and students in implementing the ideas. Both teachers and students had the chance to utilize the school's excellent store of A-V equipment and explore new possibilities for producing their own software which was put to immediate classroom use. The project culminated with a media exhibit for the faculties of the city's two middle schools. Films, videotapes, audiotapes, slides, photographs, and transparencies were displayed and presented.

In a sense, the project provided a kind of "media internship" for the UMass students. Their job was not to "do their own thing" with media, but rather to meet realistically the needs of students and teachers in that school. In short, they had the practical experience of working with a wide variety of educational media within the context of a school setting. However, the "interns" were just as truly serving as consultants; most of them having had professional teaching experience themselves, they had a good understanding of how to relate media to the curriculum.

Que tal Amigos. A series of programs for the Spanish-Speaking community was broadcast over WEDH-TV, Channel 24 in Hartford last year. The Media Center sought funding from the Corporation for Public Broadcasting with letters of support from many government officials. The Corporation for Public Broadcasting must fund public television stations directly; therefore, they awarded seed money to a program to be produced by the 21" Classroom for the Spanish-Speaking community. Juan Caban is





now acting as a consultant to that program.

Environmental Protection Agency. At this time there is a planning stage effort towards the development of a training course in Automotive Emission Control for Air Pollution Control Agency Field Inspectors and Engineers which will utilize the services of one full-time media coordinator, a full time technical director, and two graduate assistants. The University of Massachusetts Media Center in the School of Education will work closely with the Engineering Department in developing an instructional systems curriculum in pollution control. A lengthy proposal has been submitted to the Federal Government, and we are waiting for the word about funding for this project.

#### THE NON-CENTER

The Non-Center consists of all graduate students and faculty who are not formally associated with a Center. As such, the Non-Center is a place where people who do not believe in centers may locate their degree programs as well as a gathering place for people with similar interests, not presently represented by a center or a program, to get together to build a new program or center. Moreover, two recent statements from two of our graduate students further describe the scope of the Non-Center

"I just don't see myself as being a disciple of any faculty member in any center. I can see that they need people to help them try out their ideas; but I want to try out my own ideas, in my own way; and I'm willing to take the responsibility for finding the people and resources to do that without support of center status and perogatives."

"I see it as a base from which many of us can offer a critical perspective on the rest of the School and try to promote a healthy



dialogue between centers. Higher education helps people overcome their vested interests."

This year the Non-Center has worked hard to strengthen its commitment to both combatting institutional racism and improving the quality of undergraduate education programs at the school. In an effort to support the school's commitment to combat institutional racism, the Admissions Committee recruited and accepted a significant number of Third World students while also admitting a group of non-minority people who have been confronting the problems of racism. In addition, the graduate students and faculty have devoted considerable effort to confronting the issue of racism in their courses and modular offerings.

Likewise, in the area of undergraduate education, CADRE, under the direction of Linda Reisser and in association with the Non-Center, has provided significant opportunities for undergraduates to gain credit for non-traditional learning experiences. Also, the CADRE staff has made an invaluable contribution to the development of a new and improved undergraduate advising system for next year.

Finally, after emerging as a new program last year, both the Program for Instructional Applications of Computers and the Program for the Study of the Future in Education have further developed their resources and talents to the point where they are now independent of the Non-Center. This is encouraging and it is hoped that in the coming year a few more new programs will once again emerge under the umbrella of the Non-Center.

#### CENTER FOR OCCUPATIONAL EDUCATION

The Center for Occupational Education has experienced a year of both consolidation and expansion. The number of students



served by the Center, particularly those in doctoral programs, has increased and the projects sponsored by the Center have expanded in scope. Much of the energy of the Center has been directed into the five major programs or projects, however; the Center itself has become more than the sum of those programs. In many respects, the Center as a mix of its projects, has become a harmonizing agent and has provided an idea base for future development, redirection and expansion of the program.

The five funded programs or projects of the Center for Occupational Education are: the Evaluation Service Center for Occupational Education, the JESI Project (Jobs, Education, Self-Improvement), the Agricultural Education/Distributive Education Program, the EPDA Program for Leadership Development, and the Adult Basic Education Program. The funding of these projects from non-University sources totalled over \$521,000.00 and involved over forty graduate and eighty-five undergraduate students.

The Evaluation Service Center for Occupational Education which is directed by Alfred R. Rios is completing its second and final year of operation. This project has been jointly funded by the states of Massachusetts and New York for \$156,000.00 each year. E.S.C.O.E. has involved nine graduate students and two undergraduate students in its operation to develop a state-wide evaluation model for Occupational Education. The principal activity of the project has been to train in-service teachers to develop behavioral objectives which became part of a central data bank for designing criterion reference testing for vocational education. The project involved 35 schools in New York and Massachusetts which teach occupational courses at the secondary



and post-secondary level. Approximately 70 persons (facilitators) from the participating schools' staffs were trained by E.S.C.O.E. to develop objectives for evaluated student performance. Over 10,000 objectives has been developed. Also developed has been a model for constructing performance tests which are based on stated objectives. The test items are related directly to synthesized objectives which were written by teachers in E.S.C.O.E. participating schools.

The JESI Project is in the first year of a two year contract with the Massachusetts State Department of Education, Division of Occupational Education. The funding for this year has totaled \$186,000.00 and has engaged nine graduate students and five undergraduate students in its operation.

Dr. William Conway, assistant professor, is the Director of the JESI Project, the purpose of which is to rehabilitate drop-out youth in a model program involving jobs, education and self-improvement. The project has operated in Boston, Worcester and Springfield, Massachusetts. Dr. Conway has directed and supervised the entire project and offered courses both on campus and at the JESI sites.

Three JESI centers have been established in Boston, Springfield and Worcester. Staffs for each have been hired and trained, and a University travelling team has been assembled to assist each center and to act as resource persons. Approximately forty persons are currently on full or part-time staff positions, some from the local communities and others from the University.

Local advisory boards have been established in each community to provide local perspective to meet the needs and to help make overall policy decisions. Approximately eighty youths have been or are being served by this project.





The Agricultural Education/Distributive Education Programs have been two separate undergraduate teacher training programs which have been joined in a single contract for funding purposes. These programs are funded by the Massachusetts State Department of Education, Division of Occupational Education for \$42,952.00. The Agricultural Education program is directed by Dr. Robert C. Jones and the Distributive Education program is directed by Dr. Jack Hruska. The Agricultural Education program involved eighteen undergraduate students in preparation for teaching vocational agriculture at the secondary level. The program provided instruction, internship placement and experience, and supervision for these interns. One graduate student was involved in the field supervision of the interns.

The Distributive Education Program has prepared teachers for distributive education positions and provided in-service programs for experienced teachers. Sixty undergraduate students, one graduate student, and nine in-service students were engaged in this program. The faculty has been heavily involved with selecting and advising undergraduates in the program and actively engaged in placing and supervising the teacher interns. The program grew from a pilot project of 24 students in June of 1971 to over 60 students in May, 1972. The program has continued its unique feature of selecting students from community colleges, but it has initiated a recruitment procedure from other schools on the University of Massachusetts campus as well.

On April 9, 10 and 11 a New England Distributive Education Conference on Racism was held at the Campus Center. Over 100 teachers and student teachers attended. This conference was symbolic of the intent of the faculty in charge of this program to expand and broaden the curriculum in Distributive Education. This conference has sparked a



proposal for the funding of a curriculum guide in Distributive Education. We have reaffirmed our intention of introducing black teachers into Distributive Education. Black undergraduates have been recruited from community colleges, particularly Chamberlayne, in Boston. Our first black student teachers will intern in spring, 1973.

The Occupational Education Leadership Development Program of the Center for Occupational Education has completed its first year of operation to provide leadership training for Occupational Education administrators, and to develop and produce future leadership personnel for Occupational Education positions. This program, which has been funded for \$92,875.00 by the Massachusetts State Department of Education, Division of Occupational Education, is directed by Dr. Kenneth Ertel and Dr. Roger Peck. This program has provided course work for 55 graduate students and involved seven graduate students in research, internships, and service practica. The faculty has worked closely and individually with over a score of graduate students in planning and developing individualized graduate programs. A wide variety of non-university resources were drawn upon to complement the instructional program. These included New England Telephone Leadership Assessment Group, Institute for the Future, Project Careers, and Massachusetts State Department of Education leadership figures.

The in-service component of this program has been developed as a series of workshops and conferences which have involved over 275 in-service and pre-service occupational education administrators. The first two of these workshops were held at the Amherst campus and focused upon Career Education curriculum development and implementation, and upon leadership procedures and techniques as they apply to occupational education. Dr. Clifford Helling, Vocational Director of Minneapolis, Minnesota,



Project, full-time personnel, and special services. The Massachusetts State Department of Education played a major role in these activities and subsequent workshops which were offered in Rockland, Massachusetts, Great Barrington, Massachusetts; and in Springfield, Massachusetts.

The Adult Basic Education Project is directed by Dr. Mark Rossman at the University and at in-service sites; the project attempts to develop and improve the competence of adult basic education instructors, and the desirability of adult basic education teachers. This project has been funded for \$43,000.00.

The A.B.E. project has been engaged in developing and producing a 26 minute documentary film concerning adult basic education in Massachusetts. This film will be utilized to attract adult students to the educational opportunities available through the A.B.E. Three workshops and a needs assessment have been conducted which detailed the needs of A.B.E. personnel in full-time adult learning centers in Massachusetts. The identification of these needs has formed the basis of a three year staff development project. In addition to these activities, course work for adult basic education teachers has been offered at the Amherst Campus.

The diversity of the five major programs of the Center for Occupational Education have been coordinated and administered by the director of the Center, Dr. Kenneth A. Ertel. Dr. Ertel has been principal investigator of all of the center programs and has served in an administrative advisory role to each of the project directors. Dr. Ertel has offered course work on campus in occupational education curriculum and in contemporary trends in occupational education. He has also acted in liaison with other agencies who share this center's involvement in occupational education.



### CENTER FOR URBAN EDUCATION

During the 1971-72 year, our Center concentrated three major areas with faculty and student involvement leading to clusters around one or two of the areas.

One interest was in the Integrated Day - METEP program. This is a rather complex project with pre-service and in-service teacher preparation emphasis, within the context of the Integrated Day (sometimes called Open Classroom) concept and performance criteria for establishing teaching competency. Funding has been through a grant from the New England Regional Council. This project is one of the alternative teacher preparation programs related to TPPC's thrust, and is for undergraduates and Master Degree candidates.

A second interest was the Teacher Center concept, using some of the main ideas from British experience. A Federal grant supported the program, with the result that models for implementing Teacher Centers in different school situations have been completed.

A third concern has been in the overall issues and problems of innovation in teacher preparation. Both through courses and work with TPPC, theory and application emphases have been followed in preparing graduate students for careers in the teacher preparation field.

In the later part of the academic year, the Integrated Day - METEP Program became an independent program.

### CENTER FOR URBAN EDUCATION

Throughout this year, the Center for Urban Education has been concerned with developing resources and maintaining motivation for Center members to carry an extraordinary load of responsibility with only





three full-time faculty members and a team of 40 graduate students.

1. The Center has developed and offered a full program of teacher preparation for inner city schools which has involved about one fifteenth of the undergraduate majors in the School of Education. The four primary components of the program are: a) pre-practicum, b) internship, c) externship, and d) second practicum experience. The pre-practicum includes course experiences aimed toward introducing students to the field of urban education. Following the pre-practicum is the internship, which involves students interning in groups of ten to thirty in a given city (anywhere from 4 to 6 in a given school). Sites for the interning experience include Boston, Worcester and Springfield, Massachusetts; Philadelphia, Pennsylvania; Brooklyn, New York; Paterson, New Jersey; and Louisville, Kentucky. The interns are encouraged to completely adapt themselves to the city and community in which they are located.

2. The Center has offered a comprehensive range of courses for about 35 M.Ed. students and an equal number of doctoral students. Those students have been engaged in developing and testing a new model for higher education, melding practical experience and academic work.

3. The Center staff has taught a major course both semesters in Brooklyn, Worcester, and Springfield for more than 300 paraprofessionals.

4. The Center has served as a focal point for planning courses, offering counseling, and generally facilitating the curriculum provided by other departments to on site paraprofessionals.

5. The Center has also managed the Boston Program for the Certification of Minority Teachers involving 20 teachers with temporary certification.



6. Center personnel have undoubtedly played an active role in service to the School. For example, Barbara Love not only coordinated CEE-TEP and taught a course in Instructional Strategies for Urban Schools, she also served on the Committee to Combat Racism, the Personnel Committee, the Executive Committee, and chaired the School Council. Cleo Abraham voluntarily checked the finances for the Career Opportunities Programs, facilitated sessions for the racism retreat, advised approximately 30 M.Ed. candidates, wrote three proposals for possible funding, produced an article for the COP Research Memoranda Series and got his dissertation accepted for publication. Bob Suzuki acted as faculty adviser to the Brooklyn COP, served on the Racism Committee, and was promoted to a dean's position in December. Roscoe Cook taught a course open to undergraduates, in addition to his assigned duties for COP students; and he also served as a faculty adviser to the NES tutoring program in Springfield. Byrd Jones has served as Center Director, as a member of the Personnel Committee, the Racism Committee, and the Admissions Committee.



SPECIAL PROGRAMS AND PROJECTS



## AUDIOVISUAL

On July 1, 1972 the Audiovisual Center will be transferred tentatively to the University Library from the School of Education. We wholeheartedly support this move. The University Library has traditionally served the print needs of all faculty and students. It can now serve the media or non-print instructional needs of the faculty and the media or non-print learning resources for students. It is logical to acquire, catalog, store, and retrieve all educational materials in one comprehensive center on campus. Appropriate financial support for an expanded service should be possible through a large and clearly identified campus wide academic service agency.

Details concerning the anticipated new organization, personnel, and facilities have not yet been worked out. We certainly hope that such details can and will be tended to in the immediate future.

The Center has had a busy year. This is a time when instructors are increasingly concerned about improved instruction, and the wider and wiser uses of media inevitably are considered. Due to static personnel and resources, we have been unable to advertise our services at departmental or school meetings. We have been pushed to capacity simply by the faculty who hear about our services and who travel to our center.

This is also a time when students are increasingly concerned about producing audio-visual responses to course requirements as alternatives or supplements to formal written reports. Our "do it yourself" media laboratory has been very busy with a great variety of students doing a great variety of mediated projects.

Our technical staff maintains and repairs most of the AV equipment on campus, whether it is on the AV Center or departmental inventory. This service





makes our very limited equipment available almost 100% of the time, and it also eliminates high off-campus service charges.

The general lack of instructional materials still requires considerable much packing, transporting and setting up of equipment. We keep two vehicles going almost constantly. We also operate equipment for many special functions.

The film library continues at a low level. No University funds have been put into expansion or even replacement of films for teaching or individual study. The cooperative library of films purchased by the schools that use them continues to expand at a moderate rate. Repairs and maintenance of films and other software are done constantly. Several small special libraries of films purchased by others are serviced by the Center. Arrangements for the use of films by many departments continue to be made.

Demand for graphics' production and 2x2 slide preparation is far greater than we can handle. This service needs to be expanded in order to improve particularly the large group presentations that are so common on campus.

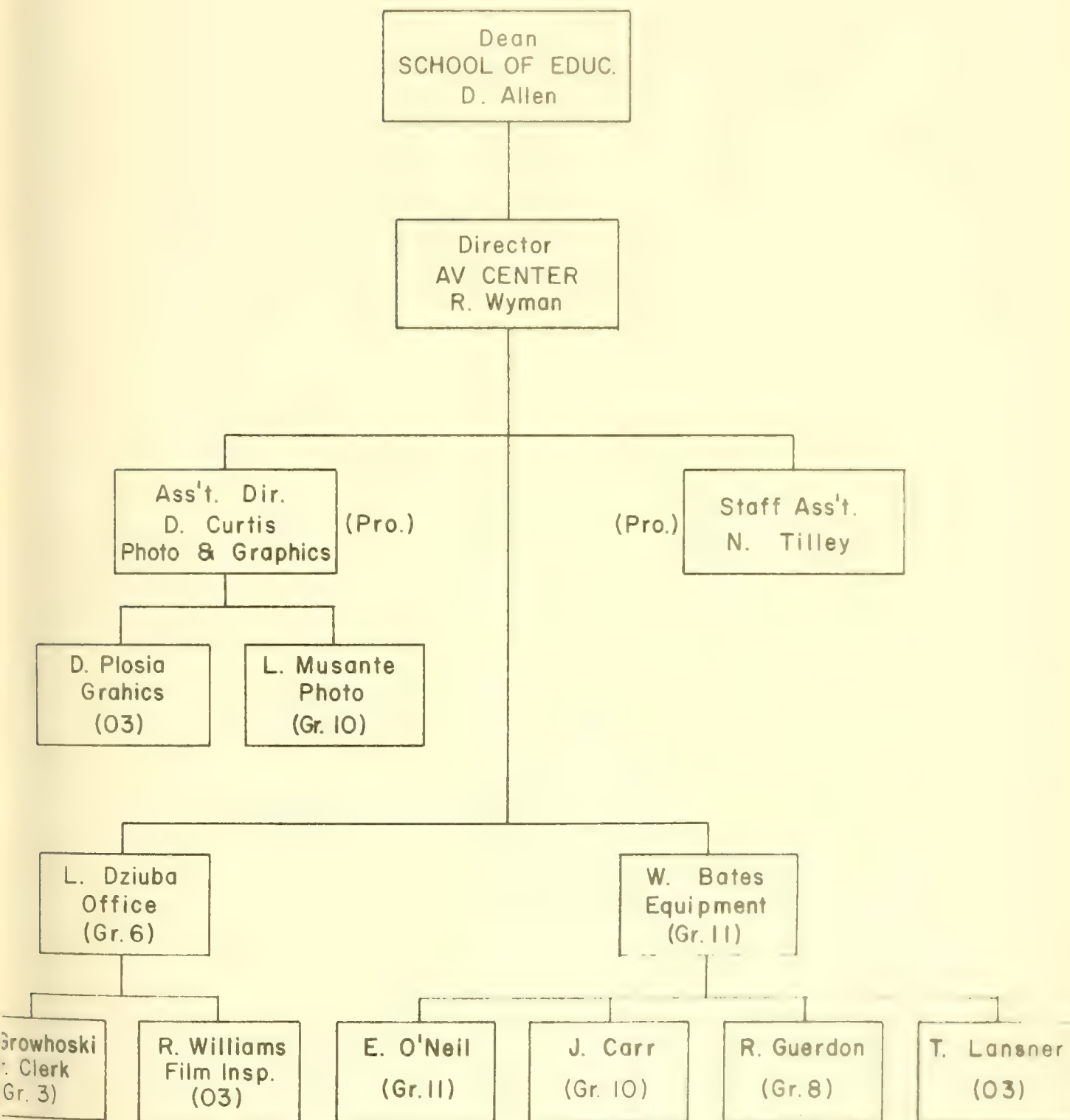
Extemporaneous conversion of paper materials to overhead projection transparencies is done constantly in our office and media laboratory. This service needs to be available in every major academic area on campus, and it should be tied to our Xerox duplicating centers.

The AV Center has been housed in Thompson Hall with the Northeast Regional Media Center for the Deaf and the Media Specialist Program. Much sharing of resources has been necessary. There seems to be agreement that the AV Center should move to level three of Goodell Library as soon as possible and that new and appropriate facilities should be constructed.

The AV Center budget for 1971-72 has been identical to the previous year except in travel which was reduced to 40%. This has meant no expansion during a period of increased emphasis on and interest in media.



AUDIOVISUAL CENTER  
UNIVERSITY OF MASSACHUSETTS  
June 1972





## PROGRAM IN INSTRUCTIONAL APPLICATIONS OF COMPUTERS

The program in Instructional Applications of Computers is a specialized program of graduate study with emphasis on uses of computers in learning and teaching. In February, 1972, Instructional Applications of Computers was formally approved as a program by the Executive Committee of the School Council.

Study in the program is interdisciplinary -- involving fields of computer science, psychology, statistics, mathematics, futuristics, and educational philosophy. While the program does not explicitly stake out claims on areas of study, major foci of interest are: Computer-Assisted Instruction, Simulation and Gaming, Programming Languages, Computer Art, and Artificial Intelligence.

Current topics of research are (1) use of artificial intelligence techniques in computer-assisted instruction, (2) "Learning by Teaching a Computer", (3) "Sexism, the Pathology Underlying Institutional Racism as seen in the use of Computers and the Teaching of Mathematics", and (4) exploration of a programming language as a conceptual framework for 'teaching children thinking'.

Operation of the program has been independent (subsumed under the Non-Center) although contacts with other Centers and programs within the School are ongoing. Working relationships have developed with other departments within the University and with schools and colleges in the area, specifically: Mark's Meadow Elementary School, Amherst Regional High School, Hampshire College, and UMass Department of Computer and Information Science.

Three informal projects were carried out during 1971-72. The Teaching Children Programming Tutorial Project involved approximately 50 fifth and sixth graders, from Mark's Meadow Elementary School, who were individually tutored in APL computer programming techniques for about four weeks each



on an average of two hours per week. Also, Computer-Assisted Learning with Artificial Intelligence Games, a research study (conducted as part of a doctoral dissertation) of the effects of artificial intelligence techniques in a computer-assisted learning setting was completed using a sample of 84 children.

Programming Language Development, a prototype version of LOGO, a special purpose, easy-to-learn computer programming language developed at M.I.T. for use by children was implemented on the UMass computer system.

The program maintains a Computer-Assisted Instruction Laboratory dedicated in conceptualizing and testing new approaches to curriculum development. Two datel telecommunications computer terminals (Time-Sharing Terminals, Inc.) and accompanying acoustic couplers (Omnitec, Inc.) currently reside in the lab, and access to a CDC 3600 time-sharing computer is provided by a grant from the University Computing Center.

The future outlook for the activities of this program are bright, especially when viewed from a long-term perspective. Progress is expected to be slow at first, but quickening with time as advanced educational technology ceases to be alien to educators.

Plans for next year include adding one part-time faculty member, admitting 4 additional graduate students, hiring a graduate assistant to supervise the Computer-Assisted Instruction Laboratory, acquiring a graphical display terminal, and pursuing several new topics of research.

Space needs and expenditures are expected to increase correspondingly.

#### THE CONNECTICUT-VALLEY SUPERINTENDENTS SERVICE CENTER

Early in the fall of the academic year, a long planned merger between the Connecticut Valley Superintendents Association and the Cooperative School Service Center was consummated, and the new organization with a





the school system. In the past, the organization has expanded the organization slightly, but the heart of the organization in terms of membership, in terms of program, and in terms of financing came from the Cooperative School Service Center.

The new organization, like the old, is both a creature of dues-paying school systems and independent schools, and at the same time, a creature of the University. The income for the budget consists of dues paid by members, fees charged for services, and a substantial contribution from the University in form of office space, part of a professor's time, a part-time secretary, a graduate assistant, and telephone and mailing costs. In short, the University is the larger contributor by far. It is my opinion that the contribution of the University through CSSC to the schools of Western Massachusetts is a two-edged sword in that the State University is making a substantial effort to improve the opportunity for children in the schools of Western Massachusetts, and secondly, in the process of doing this, it makes friends where once there was indifference or even animosity.

During this past year, we have published three eight-page newsletters, sending them to some 8000 teachers in Western Massachusetts, and to subscribers all over the country. Each of these newsletters had a central theme, the first of which was Performance Criteria, the second, Media, and the third, Flexible Scheduling. A magazine of some 28 pages on the subject of Creativity will be mailed out to the schools on May 30. These publication efforts seem to be well received, and yet we recognize that they are far short of our potential.

A good deal of graduate student time and energy went into an attempt to establish a fund designed to provide teachers with small amounts of



overdrawn budget. Although we received warm congratulations for the idea, only one foundation came through with a gift, and that was hardly large enough to pay the expense of our efforts. This fund idea has been temporarily shelved until such time as we can find an initial gift to establish it.

The Executive Committee of the organization meets monthly, and the total membership has met less frequently. They met on one occasion to discuss with the State Commissioner of Education the problems of school systems in Western Massachusetts, and another meeting was a cracker barrel session to share concerns.

We did less well in arranging workshops this year than we had hoped to do, or in fact did a year ago. One workshop was provided in Belchertown for teachers in the high school to discuss performance objectives, and an extensive course in human relations was offered to teachers in Monson. A variety of workshops were made available in an effort to be of assistance. Early in June of 1972, there is scheduled a meeting for a committee whose task it is to plan a more ambitious program for this coming academic year, and to see that publicity for that program begins during the summer weeks. This should extend the influence of CSSC and with a little luck make a significant improvement.

Finally, it might be said that plans are underway to incorporate the organization so that it may be free to receive grants and individual gifts with a tax-free status.



## EDUCATION LIBRARY

During the summer of 1971, preparation for the move from the School of Education to the new Graduate Research Center, Room A102, on the first floor. Suddenly on Friday, August 20, we were informed we would be moving Monday morning. Professional movers packed the books and brought them to our new quarters, leaving one man to deliver four boxes of books at a time to the staff members who unpacked them in 95° temperature when the air conditioning was not operating! By the end of the week the library was ready to function again with all books in place.

The new quarters are spacious and light with plenty of room for the books. The best feature is the carpeting on the floor which diminished the noise to a marked degree. We regret that we do not have as much study area as in the old library and we miss the short visits by the faculty. When we see them now, we know that they have a real purpose to use the library, having made the effort to get here.

As of May 1, the library has acquired 1492 additional volumes, since July 1, 1971. For the previous fiscal year, the Education Library added 1979 books. The acquisitions for the two years will be similar as there are two months of acquisitions to be added to the figures for 1972. A list of the new titles usually appear weekly in the BEACON.

The periodical subscriptions received increased by 37, making a total of 398 periodicals taken at the Education Library. In addition, there were several gifts of periodicals, and a semester subscription to the CHRISTIAN SCIENCE MONITOR was given anonymously.

There were some changes in personnel. Noretta Taylor was transferred to the Physical Sciences Library where one of her duties is the processing of the Education Reserve books which are circulated from the Physical Sciences



Library on the second floor. The elimination of circulating Reserve books has afforded the staff to spend more time with reference problems, which has been rewarding.

Barbara Sapp, another full-time assistant, was promoted to Monographic Searching in Goodell Library. To take her place, Nancy Kelleher was hired, a 1971 graduate from the School of Education.

Joan Goodridge remained the children's librarian for the juvenile collection located in Room 20. As of May 1, 868 books were added during this fiscal year, making a total of 5353 books in this library. The circulation is over 11,000 a year. Mrs. Goodridge instructs in library skills and conducts story hours. Upon request of the teachers, she collects material for special projects, and helps the Marks Meadow pupils constantly.

The students at the School of Education also avail themselves of this children's library, particularly those taking Children's Literature, and those who are practice teaching, as well as occasional faculty wives who have discovered this source of books for their own children.

As of July 1, 1972, this library will be operated by the Town of Amherst and a new librarian has been appointed who has a Masters in Library Science. Mrs. Goodridge has been a teacher and is working on her library degree. She will continue to pursue her studies in the field of Library Science.

In the new quarters, the Education Library has been open longer hours. Saturday hours are two hours longer and it is also open on Sundays from 2 to 10 p.m. The students and faculty appreciate this added service as demonstrated by their attendance. The use of the Education Library has remained similar to last year, except the use by the faculty has





dropped from 257. About 75,000 books are included in the Reserve Books and the Children's Books. The comparison will be available at the end of the fiscal year.

#### PROGRAM FOR THE STUDY OF THE FUTURE IN EDUCATION

During the past academic year, the Program for the Study of the Future in Education has undertaken several projects and expanded its academic work substantially. The projects undertaken have included a series of presentations for the two School of Education marathons, publication of three documents completed in the name of the program by Bill Rojas (Future Studies Bibliography, Syllabus and Directory), numerous in-service teacher workshops throughout New England, and the formation of a consortium of teachers in the greater New England area. The presentations for the marathons have focused on the area of Global Survival since we have worked very closely with the Center for International Education on a joint Global Survival project. The three publications are being produced by the University Book Store and will be sold under their auspices. In addition, we have begun to publish an information exchange newsletter for the members of a consortium formed after many teacher workshops throughout New England and a weekend conference held in late March. The members of this consortium have shown an interest in the type of curriculum materials and teaching skills we are developing and plan to work with us in field testing these. We have hopes of putting together some sort of a curriculum series based on the information exchanged by this group for use by any teacher sometime during the coming year.

In addition to these activities, we have also put a lot of energy into the continuing development of our academic programs. Besides offering



our new course for undergraduate students. In addition, we have developed a new graduate course, we have developed a second, new 12-credit course for the fall and an undergraduate Teacher Training program (M.Ed.) for the first time next fall. Our advanced graduate seminars have proven to be a great success during the past year since they have allowed all the students in the program to interact with each other on the basis of the work that each is doing. This has proved to be rewarding for all concerned and has allowed everyone to learn and grow as a result.

During the coming year, we hope to involve the 9 new graduate students accepted into the program in both the activities of our program and the activities of the School of Education. They will be involved in introductory course work in the fall and observing undergraduate sections so that they can have an input into them in the future.

#### SCHOOL OF EDUCATION MARATHON

The School of Education Marathon is a semi-annual week long concentration of educational seminars, lectures, films, and workshops. School of Education regular classes are suspended for the week and Marathon events are scheduled from 8 a.m. to 10 p.m. daily throughout the week.

University of Massachusetts students may receive modular credit for attending Marathon events. However, the Marathon is open to the public free of charge without any pre-registration. There is always a large number of in-service professional education personnel in attendance.

The Fall 1971 Marathon was held during the week of November 8-12. The salaried staff for the Fall Marathon consisted of the following people: Thomas Paquin, Coordinator; William Heward, Assistant Coordinator; and Kathy Radimer, Student Assistant.



Several other students helped in the organization of the Fall Marathon for modular credit.

The Spring 1972 Marathon was scheduled for April 17, 1972. Due to internal problems at the School of Education, the Spring Marathon was officially cancelled on the evening of April 17.

#### MARK'S MEADOW SCHOOL

The Mark's Meadow Laboratory School underwent significant changes in the 1971-72 school year, both in organization and in program. Organizationally, the school moved a step further in the direction begun in the 1970-71 school year by operating four vertically-grouped and overlapping teaching teams.

This organization facilitated our non-graded approach and also allowed us greater flexibility in meeting the individual needs of children by permitting children to move from team to team where appropriate.

Programmatically, the entire school moved further in the direction of the Integrated Day approach originally developed by Team I. This was characterized by richer classroom environments, more flexible time schedules, and greater student participation in goal-setting and activity selection.

The year was exceptionally full of visitors from New England. From February through May, 1972, we had 489 visitors from other school systems, as well as intensive use of our observation corridor by students from the School of Education.

Perhaps the most significant new program at Mark's Meadow was the introduction of the Teacher Education Program at Mark's Meadow (TEPAM), one of the TPPC Programs open to undergraduate education majors. The following brief description of this 2 1/2-year program is taken from the undergraduate



course description booklet:

The TEPAM program offers an individualized, an extensive and varied set of experiences within the elementary school community at Mark's Meadow Lab School. Students enter the program as sophomores, and because the program lasts for five consecutive semesters, there is a strong sense of community which develops among the members of the program as well as among the TEPAM students and the children and teachers of Mark's Meadow. TEPAM combines theory and experience to create an integrated learning experience. This is in harmony with the "Integrated Day" philosophy of Mark's Meadow. Direct experience is the primary "text" of TEPAM.

TEPAM consists of five consecutive phases. Students may enter the program either the first or second semester of their sophomore year.

Phase I - Introduction to Educational Careers. This course introduces its members to the complex groupings of persons which are the elementary school community. Attendance at School Committee meetings, parent and teacher meetings, observation of central office, playground and classroom activities, and discussions with teachers, parents and administrators are some of the activities of this phase.

Phase II - The Child and His World. This course focuses on child development and learning theory. TEPAM students are assigned two children of different ages and sexes to observe and interact with. This relationship will extend throughout the two years of the program. There are weekly seminars which relate the experiences with children to theories of child development and learning.

Phase III - Full semester of student teaching, methods, and curriculum development. During this phase you are working in Mark's Meadow classrooms full time. Methods and curriculum development are integrated with your student teaching experience.





Phase IV - Individually arranged course work. This semester is spent away from Mark's Meadow, taking courses at the University and the School of Education. Based upon your previous semester's satisfactoriness, you will know what skills and knowledge it would be profitable for you to acquire further through systematic course work. During this semester you will also be able to work towards fulfilling your university graduation requirements.

Phase V - Full-time teaching at Mark's Meadow. You return to Mark's Meadow during Phase V as an "adjunct staff member". You will be given greater responsibility for classroom management, curriculum organization, and diagnosing student needs.

The program seems to have gotten off to a good start. The TEPAM students have developed a feeling of close affiliation with the school, and the teachers have enjoyed developing a new relationship with the TEPAM students. The integration of student teaching, methods, and curriculum development provided a real challenge to members of the Mark's Meadow staff, one which with further experience will permit the staff to grow professionally while taking a major responsibility for the preparation of future teachers.

It has been a year of continued growth and exploration at Mark's Meadow. We anticipate no major organizational or programmatic changes during the 1972-73 school year, but instead plan to enhance the programs we have already begun to develop.

#### MEDIA SPECIALIST PROGRAM FOR THE DEAF

As a result of establishing the Northeast Regional Media Center for the Deaf based on an existing comprehensive media center in the School of Education, the U.S. Office of Education and its Bureau of Education of



The Handicapped Children's Act of 1968 provided the impetus for the program. The program was to train media specialists to work in schools for the deaf. The program was to be a two-year program consisting of a one-year master's degree graduate program and one year of fieldwork. The participants were not to be trained to be teachers of the deaf, nor were they to be former teachers of the deaf.

The program now has approximately thirty students enrolled and supported with stipends. The first three students will receive masters degrees this June and two of them are already employed as media specialists for the fall.

The School of Education has now employed Dr. Rober Gonzales to replace Mrs. Largent as project coordinator and primary instructor in this program.

Students in the program have had a remarkable opportunity to gain a wide variety of experiences in the education of the deaf and in media. They have gone on many field trips and have participated in many conferences and workshops. They have had an opportunity to see many new pieces of equipment and to try them in actual and simulated teaching-learning situations. Many outstanding professionals in the field have been brought to our campus to work with these students. Students in this program are now directly involved in the in-service teacher training program being conducted by NRMCD. We are planning to use advanced students in this program as media laboratory instructors as soon as a suitable media lab can be established.

Evaluations of this program have been favorable. We expect that it will be continued into the future. It may be well integrated into a more general program for special education which is now being planned.



NORTHEAST REGIONAL MEDIA CENTER FOR THE DEAF

During this year the Center continued on the work started in 1966 under contract with the Bureau of Communication of the U.S. Office of Education. The Center has been funded each year and the current level is approximately \$350,000 per year.

NRMCD is one of the four regional media centers (others are in Nebraska, Tennessee and New Mexico) designed and equipped to provide a broad range of services in the general area of media to serve those who teach the deaf. There is a general feeling that the education of hearing impaired students can be much improved through the wide and wise use of appropriate media.

This Center has approximately twelve full time employees, six graduate assistants and several part time people. Raymond Wyman, the Director, spends approximately one-third academic year time on this and the Media Specialist project as a contribution to the University. He is employed full time by NRMCD during ten summer weeks.

The Northeast Regional Media Center for the Deaf is housed in Thompson Hall with MSP and the University Audiovisual Center.

During the summer of 1971 we conducted a six week media institute on this campus for fifty teachers of the deaf and learning disabilities.

We have conducted several workshops, conferences and consultations.

We have for the first time involved deaf secondary school students in an advisory capacity.

We have completed and distributed several hundred sets of career preparation transparencies to schools for the deaf.

We have developed and are using a system for monitoring, summarizing, and making recommendations for about twenty-five projects funded by Media Services and Captioned Films.



We have developed a new system for equipping all the schools providing individual overhead projectors for each student. It is called "Mediated Interaction Visual response", MIVR. It is now in use in some states throughout the country. An optimal version of this system is being constructed at the Boston School for the Deaf.

A kit of materials about overhead projection for teacher training has been developed and is now being evaluated.

Staff members participated in many conferences, conventions, workshops, and symposia concerned with education of the deaf.

Staff members consulted with many people on research projects, new buildings, media services, curriculum materials, etc. for education of the deaf.

Many pieces of special equipment were purchased, studied, demonstrated, and loaned to various schools for tryout.

A major undertaking involved the creation of a new model for the in-service education of teachers of the deaf. The new model is now being tried and evaluated in Springfield and West Hartford.

Several promising projects are being researched for possible future development.

NRMCD is apparently fulfilling its mission of serving the educators of the deaf. It is also serving the School of Education and the University by making many unusual educational resources available to students and staff.

#### READING PROGRAM

The major accomplishment of the Reading program during the 1971-1972 academic year has been in the area of undergraduate education. With only one faculty member and several doctoral students (with only 2 assistantships), the program has offered nine reading methods courses





specifically for undergraduates - two courses in the Fall of 1971 and seven in the Spring of 1972, and the college reading program, a no credit - no fee course for students seeking to improve their rate of reading and study habits was offered to over 350 students.

The Reading/Study Skills program served at various times during each semester between 150 and 200 persons. This was done through two consecutive 5-week "courses", individual help sessions, and workshops run 2-3 nights weekly at our new Resource Center in the basement of Johnson House. Attendance during the first 5-week sessions levelled out and held fairly constant at 40-50; for the second 5 weeks the figure was 10-15. A fairly consistent total of 10-15 people were helped weekly at the Resource Center; these were not always the same individuals each week.

Why did attendance drop so rapidly, particularly in the second session? A number of factors played a part. There were some individuals who were able to pick up 'speed reading' techniques in 1 or 2 nights, and do their own drill at home. We emphasized that students should not feel compelled to attend if they felt it was unnecessary. In the second session, the group was asked to purchase Power & Speed in Reading, a rapid reading workbook to use as a "text" and home reference for the course. This cost \$4.50, and was announced at the second meeting. Attendance immediately dropped from 40 or so to 10-15, many students freely admitting that they were unwilling to make the \$4.50 investment in reading improvement. By far the most prevalent reason given for not returning, however, was the obvious fact that a sizable portion of the students who came to us were in need of serious remedial work. This we were unprepared and unable to give them within the context of Reading/Study Skills. A brief investigation showed that with the exception of the CEEBS program, there is no agency on campus to help these students.



this past year was an opportunity to discuss the importance of reading and the need for "right to fail". We would like to see the following: It is possible to identify three distinct populations that the R/SS program should serve.

First, there is a need for a rapid reading course along the lines we have traditionally given - people want it, and need these skills in the context of the university work they are asked to complete. A good speed reading course can also touch on many more general educational concerns, and facilitate the development of a healthy critical attitude among students. With a semester's experience, I believe we can do this effectively.

Second, there is a limited number of students who want and need help in specific study areas e.g. vocabulary, time-scheduling, and writing papers. While our speed reading course can touch on many of these areas, additional workshops are needed at our Resource Center. Much of this falls under the category of individual help which should remain a strong component of the R/SS program.

Finally, as we have indicated, there is a crying need for remedial help. Students cannot benefit from speed reading techniques if they are not in possession of reading fundamentals. As we stated, it was the instructors' belief that a clear majority of students who thought they wanted and needed speed reading actually were in need of remedial help.

Unfortunately, we are being forced to move from the Johnson House location as the room is needed for other purposes. Clearly, there are three needs if this program is to continue: a) continuance of the doctoral assistantship, b) a budget of \$4,000.00, and c) space in the School of Education.

Finally, an undergraduate reading specialist program has been



developed to begin in the 1972-1973 school year. The 2000+ students  
graduates have been admitted in the two-year program towards  
certification as an elementary teacher and as a reading specialist.

#### SCHOOL COUNCIL

This was a year of major changes in the operation of the School's governance system. The Executive Committee, by constitutional amendment last spring, was given the power to take immediate action on non-controversial matters. The result has been a more effective School Council. The increase in standing committees has also added to the Council's efficiency by allowing a substantial amount of work to be delegated to clearly defined and responsible groups. Attendance and participation in Council meetings has been significantly improved this year. Important issues have received the deliberation and focussed consideration that they warrant. As a result, several key policy changes were instituted by the Council this year.

First, the Council changed the Center Director selection process to insure greater responsiveness to the Center membership. The policy approved by the Council states:

CENTER DIRECTORS ARE TO BE SELECTED UNDER CENTER POLICIES DETERMINED BY A SIMPLE MAJORITY OF THE CENTER MEMBERSHIP. CENTER DIRECTORS SELECTED UNDER THOSE POLICIES ARE SUBJECT TO THE APPROVAL OF THE SCHOOL COUNCIL AND THE DEAN. CENTER MEMBERSHIP SHALL BE DETERMINED BY THE CENTER.

A CENTER DIRECTOR MAY BE REMOVED DURING HIS TERM OF OFFICE BY A 2/3 VOTE OF THE CENTER MEMBERSHIP, SUBJECT TO THE APPROVAL OF THE SCHOOL COUNCIL AND THE DEAN.

IF FOR ANY REASON THE POSITION OF CENTER DIRECTOR BECOMES VACANT, THE PROVISIONS OF THE FIRST PARAGRAPH BECOME OPERATIVE TO FILL THE POSITION FOR THE REMAINDER OF THE TERM.

Second, in the response to the charges and recommendations concerning sexist hiring practices in the School of Education made by the Women's Caucus of the School, and recognizing the need for a policy of reparation



in addition to fair consideration for both minorities and women, the Council passed the following policy:

(1) The Chairperson of the Committee for the Recruitment of Women and the Chairperson of the Committee for Combatting Institutional Racism will be notified of all new faculty positions and the availability of replacement positions when they occur and be available to be of assistance in the recruitment for those positions. Those individuals responsible for either the new position or the replacement position will take the initiative in being in contact with the Chairperson of the Committee for Combatting Institutional Racism and the Chairperson of the Committee for the Recruitment of Women to seek their assistance in the recruiting process.

(2) The Associate Dean for Academic Affairs is charged with implementing the intent of hiring minority and women candidates. No hard-money faculty appointments will be approved for a candidate who is not a woman or a member of a minority unless it has been demonstrated that all avenues of recruitment for such a candidate have been exhausted. In such situations, the School of Education Personnel Committee will be the deciding body.

(3) The Personnel Committee will be charged with reviewing all proposed faculty appointments with the above general press and specifics in mind. When such a review is being held, the Chairperson of the Committee for the Recruitment of Women and the Chairperson of the Committee on Combatting Institutional Racism will be invited to the Personnel Committee to take part in the discussion.

The realities of the processes involved in developing and implementing funded projects necessitate the following policy for soft-money appointments:





(4) All persons in central and soft-money positions, within the scope of policies 1 and 2 above, are to make all reasonable efforts to identify and recruit minority and women candidates. The administration of the School will make all reasonable efforts to ensure that soft-money appointments are made in the spirit of the policies for hard-money appointments.

(5) The policy will be reviewed and evaluated on September 15, 1972.

Third, following-up on the previous years' decision to explore the possibility of a Completely Modular Curriculum, the Council undertook extensive examination of the results of the CMC's planning year. Approval of the CMC was finally granted on the following conditions:

That six weeks from this date (March 2, 1972), the CMC staff will:

(a) have obtained feedback on CMC from all concerned groups; (b) present to the School Council this feedback plus the CMC staff's plans for dealing with suggestions; (c) begin regular reports to the School Council on its work. Those reports will occur not less frequently than every two weeks.

Finally, as the issues generated by the minority community emerged, the Council assumed a central responsibility for being informed, involved, and decisive. Beginning with the Council's recognition of the Third World Caucus as the legitimate voice of the minority community and ending with the Council's decision to instruct its Negotiation Team to guarantee full funding and self-determination for the on-campus C.O.P. program, the Council found itself exercising, for perhaps the first time, the full extent of its constitutional powers. The governance mechanisms of the School were under a terrific strain during the final months of this spring semester. Perhaps the governance system has finally been tested. Some may feel that it has just failed as a viable governance structure. Others believe that it has just begun to be meaningfully activated, and that problems reflect the gap between what has been in practice and what



that created in paper. ...  
because the ...  
as a governance structure and ...  
improving the School of Education has grown during this year.

TEACHER PREPARATION PROGRAMS COUNCIL

Teacher Preparation Programs Council (TPPC) was created by mandate of the School Council February 4, 1971, and is charged with responsibility for all policy-making, admissions, leadership, administrative coordination, and program interpretation as it relates to teacher preparation. Since that time, it has become fully operational, and is now responsible for serving 3,600 undergraduate and 150 graduate students preparing for teaching or closely related careers in pre-elementary, elementary, or secondary schools. TPPC consists of a ten member executive committee (including one undergraduate, three graduate students, four professors, and two school deans chaired by the Dean Designate for Undergraduate Programs (Dr. Richard J. Clark, Jr.), an executive secretary, and three associate directors (in charge of field placement, advising, and graduate student teacher preparation programs respectively).

Under the direction of TPPC, 16 alternative teacher and related career preparation programs were established to serve students beginning 1971-72 academic year. During this initial transitional year, students were urged, but not required to join one of these programs. However, as of the 1972-73 academic year, all students desiring to complete course work to satisfy University and State Department of Public Instruction requirements for teacher certification will have had to belong to one of the TPPC alternative preparation programs. For the 72-73 year, there will be 22 such programs, some (but not all) of which were among the original 16 in existence in the 1971-72 school year.



The alternative program differs with other programs in its philosophical orientation and central focus, required credits (from 11 to 40 credits), span of time (from one to four years), enrollment (from 10 to 300 students), criteria, and sponsorship (program sponsors include graduate students, a nearby college president, area elementary and secondary school administrators, center directors, "cross-campus" departments). Sponsors submit their programs to TPPC for annual review, a process which includes consideration of each in terms of its stated objectives, operational plans, student participant needs, certification requirements, attention to racism, correlation with job market requirements, and availability of required resources (particularly with respect to qualified instructors). To assist each program, TPPC has had the following minimum resources at its disposal: all supervisory assistantships, half of the teaching assistantships in the school, all services of the student teaching placement office, full cooperation of and services from the undergraduate advising office, travel budget allocated to supervision, secretarial services at least at the present teacher education level, a publications-communications-phone budget at double the present teacher education level, a full time staff assistant or associate, and at least 50% release time from other duties for the Chairman.

Basically, the alternative preparation approach was designed because of three imperatives: (1) undergraduate education is one of the School's most important reasons for existence and therefore deserves a commensurate amount of attention in terms of School resources; (2) there is no one best way to prepare all teachers and related classroom personnel, which implies that a number of responsible but none-the-less varied and at times even contradictory approaches are necessary; and (3) an over-supply of teachers in some areas (e.g., English, social studies) and an under-supply in others (e.g., special education, reading, etc.) requires



a preparatory program which can consistently be available to meet market needs.

In an effort to address these three imperatives, TPPC alternative program directors, and a large number of at-large resources both within and outside the School have concerned themselves with a host of supportive activities, including the following:

1. Development of a comprehensive computerized record-keeping system designed to collect and store all information for each student so that it is accessible to the student, all instructors, the alternative program advisors, various School offices such as the Admissions and Placement, and appropriate University offices. Collected data will also be used by TPPC and other coordinating bodies for planning and evaluation purposes.

2. Development of a new introductory education course (Kids, Schools, and the School of Education: An Introduction) required of all students wishing to join a TPPC program. The course is designed to help each student contemplating teaching as a career to consider it in a more serious manner than has usually been possible in the past. This will be done by introducing students to actual school situations and their implied requirements, current job market supply and demand statistics, school resources (i.e., program descriptions), alternative educational careers, suggested personnel qualifications, and means for assessing one's own potential for a teaching career.

3. Improvement of the advising program, including an increase in advising staff, the appointment of a Dean for Undergraduate Affairs, the appointment of a TPPC Associate Director for Advising, centralization of general school advisors in one office, a new system of computerized record-keeping, requiring each TPPC program to give priority to the provision of adequate advising, and development of the introductory





resulting in the following:

4. Development of relations with the 14 secondary schools in an effort to secure their assistance in identifying appropriate programs and selecting qualified secondary students for teacher preparation programs.

5. Establishment and administration of instruments to evaluate the effectiveness of each preparation program.

6. Creation of a student faculty committee to prepare and propose student admissions criteria by Fall, 1972.

7. Establishment of an increased number of channels for improved student communication including: inviting two undergraduate students to sit on TPPC as voting members, inviting four undergraduate students to sit on the School Council as voting members, utilization of senior volunteers as additional program advisors, and preparation of a number of written descriptions of TPPC programs and policies.

8. Anticipation of the establishment of an undergraduate faculty and/or undergraduate School Council with representatives from each of the TPPC alternative programs. This council(s) could have direct relationship with the TPPC and/or present School Council.

#### SUMMER 72 WORKSHOP PROGRAM

The School of Education at the University of Massachusetts is offering thirty-nine (39) different workshops lasting from 1-6 weeks in length.

The workshops are scheduled between the dates of July 10-August 18 and are held from 8:30 a.m. to 2:30 p.m. each day. The following is a list of workshops available with dates:



- 010 Teaching Children How to Read (Series) - 1000 (10-14) & 1100 (17-21)
- 010 Outward Bound Educational Course - July 10-14, 17-21, & 24-28
- 110 Integrated Day - July 10-14, 17-21, & 24-28
- 120 Use of Computers in Education (Series) - 1000 (10-14) & 1100 (17-21) - July 10-28
- 330 Administrator's Role in Education - July 10-14 & July 17-21
- 220 Use of Photography in the Classroom - July 10-21
- 230 Silk Screen Workshop - July 10-21
- 240 Basic Organizational Processes - July 10-14
- 245 The Process and Implementation of Change - July 17-21
- 100 Introduction to Integrated Day - July 10-14, July 17-21, July 24-28
- 103 Differentiated Staffing - July 10-14
- 106 Survival Strategies for Urban Educators - July 17-21
- 109 The Effective Utilization of Paraprofessionals in the Classroom - July 10-14
- 112 The Writer's Workshop for Teachers - August 7-11
- 115 Planning Educational Futures - July 31-Aug 4, Aug 7-11, & Aug 14-18
- 118 Paper Mache Workshop - August 14-18
- 121 The Teacher's I-View - July 10-14, July 17-21, & July 24-28
- 124 Humanistic Education - July 17-21
- 127 Teaching Secondary Mathematics: New Methods and Materials - July 10-14
- 133 Laboratory Systems to Improve Teaching (Micro-teaching) - July 10-14, July 17-21, July 24-28, & July 31-August 4
- 139 Sex Stereotypes-Implications for Classroom Teachers - July 10-14
- 142 Values Clarification - July 17-21 & July 24-28
- 145 Basic Human Interaction Laboratory - July 10-14
- 148 Life Planning & Creative Problem Solving - July 10-14
- 151 Racism: Individual, Social, and Institutional - July 24-28
- 154 The Black Professional - July 31-August 4



- 157 Group Counseling - July 10-14
- 160 Conflict Utilization - July 10-14
- 163 Comprehensive Achievement Monitoring - July 10-14
- 166 Alternative Schools - July 10-14
- 169 Psychometrics and Applied Statistics - June 19-21
- 172 Student Learning Environments - June 26-28
- 178 Evaluation Methodology - August 14-18
- 175 Criterion-Referenced Tests - July 13-14
- 181 Evolving Creative Behavior - July 24-28
- 184 Curriculum Development: Theory and Practice - July 24-28
- 187 Movement and Dramatic Expression in Childhood Education - Aug 14-18
- 190 Workshop in Drugs - July 10-14 & July 24-28

To reserve a place in any workshop, participants are asked to fill out the application form, include a registration deposit of \$20 per workshop and return by May 15 to: Summer Workshop, School of Education, University of Massachusetts, Amherst, Massachusetts 01002. The deposit is non-refundable unless the workshop is cancelled by the School of Education.

If participants desire only further information on any of the workshops, they check the space indicated on the application form and specify the workshops they wish information on and return forms to the above address.

Registration (except where noted otherwise) is \$75.00 a week for the first person from a school district. The cost for two to five people from the same school district is \$60.00 per person per week. The cost for more than six people from the same school district is \$55.00 per person per week. People from the same districts need not attend the same workshops to be eligible for group rates. Registration forms will be mailed after May 15 to those who request them.



Additional fees: (1) Health Insurance, \$7.00 per week; (2) Activity fee, \$2.00 per week; and (3) Campus Center Membership, \$10.00. Summer-are all required and may be paid on arrival.

One University credit per week will be offered (except where noted otherwise) at the standard tuition rate of \$10.00 per credit (\$15.00 out-of-state) and is optional on an individual basis.

Upon receipt of the application, detailed information is sent regarding accommodations. A wide variety of accommodations are available starting with a minimum cost of approximately \$10.00 per day for room and board. Cafeterias and dining rooms in the Campus Center and adjoining Student Union will be open to all participants.

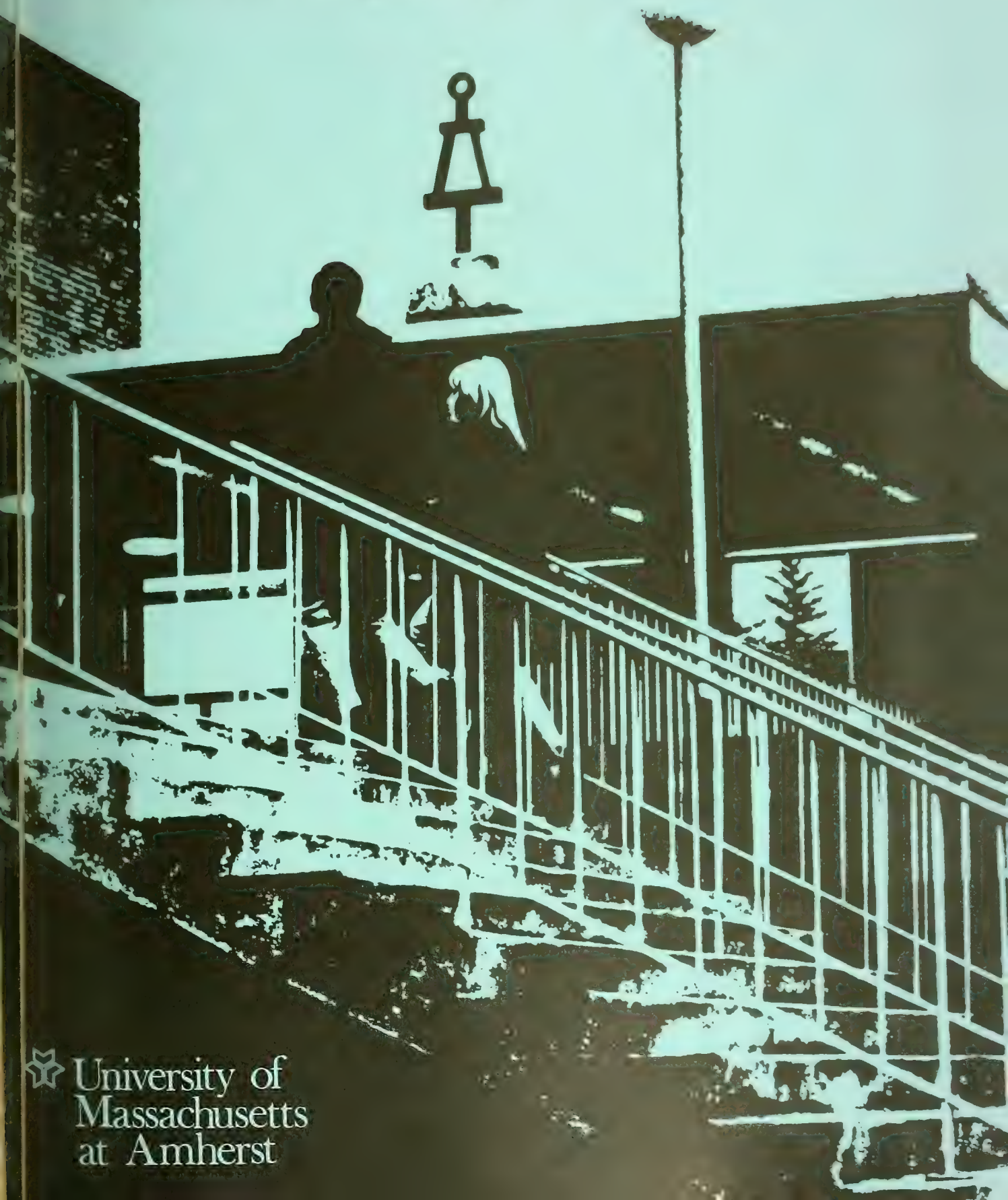






FR. VALLI  
THE FRANCHISE CORPORATION  
ARLINGTON, VIRGINIA

1971-72 Annual Report  
School of Engineering





ANNUAL REPORT  
SCHOOL OF ENGINEERING  
UNIVERSITY OF MASSACHUSETTS  
1971-72

## I Introduction

The statistical data requested by the Secretary of the University have been placed in the appendices as follows:

- Appendix I - Appropriation Data
- Appendix II - Personnel Data and Organization Chart
- Appendix III - Students Served
- Appendix IV - Professional Activities of the Faculty

Continuing the procedures used in previous years, the format of this report contains accomplishments of the School, faculty recognition, planning, and finally, problems of concern to the School.

## II Accomplishments

The School was evaluated by the Engineers' Council for Professional Development accreditation team, chaired by Dean Max Peters of the University of Colorado. We were fortunate to have an extremely able group of evaluators consisting of some of the outstanding engineers in education, government and industry. In addition, two observers were present, one from the United Nations and the other from the State Board of Registration. Although we have not received a written report of the team's observations, the verbal summary report given at the end of the visit included a statement of great praise for the fine engineering faculty which has been assembled at the University. Problems of inadequate equipment support, limited travel budget, and other limited support were mentioned, as expected. Nevertheless, we do expect full accreditation in all of the previously accredited programs.

A review of the faculty's participation in sponsored research and development of new courses and programs during the past year results in one satisfying conclusion. The faculty of the School of Engineering is becoming more and more responsive to the needs of the State and the Nation. The new NSF program, "Research Applied to National Needs", has funded three important proposals; two in enzyme engineering and one in pollution-free engineering source studies. Proposals have been submitted to RANN for research in earthquake engineering, another important socially directed area of inquiry.



It is indeed gratifying to note that the three funded RANN projects involve faculty members and students from several Departments in the School and faculty members and students from Departments outside the School of Engineering. Interdisciplinary research is being initiated because faculty members recognize the need to bring together a variety of talents and disciplines to work on important problems of our Nation. These are just a few examples of interdisciplinary research now underway in the School and others are presented in the research activities of the Departments.

The faculty of the School continue to develop greater national visibility. In the past year, additional faculty members have been asked to serve on important national committees and panels and a new journal on Transportation has been initiated by Dr. Paul Shuldiner.

Recognizing the extremely serious condition of the economy of the Commonwealth, the excessive unemployment problem, and the deterioration of Massachusetts industry, a multi-faceted Productivity Institute is being planned under the leadership of Dean Van Atta, Dr. Howard Segool and Dr. William Whiston of the School of Business Administration. Faculty and several Departments in the School of Engineering are putting together specific proposals for research, education, and service to be undertaken under the umbrella of the Institute. The proposed Institute is to be responsive to the technology incentives program outlined by President Nixon in his technology message last spring.

#### 1. Undergraduate Program

The Freshman Engineering Program discussed in detail in last year's report continues to offer an exciting variety of educational experiences for our freshman engineering students. New modules are being developed by the faculty that challenge the student's creativity and hopefully, will begin developing innovators greatly needed by Massachusetts industry. Some of the faculty who have participated in the Program are now writing a textbook which is already under contract. The ECPD visitation team was extremely enthusiastic about our Freshman Program.

The experimental engineering residential experience has been judged generally successful but modifications of the program are now underway as a result of last year's experience. Freshman engineering students wish to live together in engineering suites but wish to have other students share floors with them. It is hoped that a teaching associate will be available for tutorial assignments in the engineering dormitory.





The Chemical Engineering Department has introduced this year several innovations in career preparation to be offered in addition to its traditional chemical engineering program. These new developments offer much flexibility and provide the opportunity for a student to concentrate in career-oriented and interdisciplinary programs culminating in the award of a B. S. degree in Chemical Engineering with emphasis in one of several chosen interdisciplinary fields of specialization. These include environmental engineering, bioengineering, food science and engineering, and business administration. In the last case, the new curriculum includes all of the core prerequisites (accounting, statistics, business law, business management, etc.) for full admission to the Graduate School of Business Administration, as well as those for graduate study in Chemical Engineering, upon completion of this program. A Master's degree in either Business Administration or Management Science can then be obtained in only one year rather than the two years usually required for students without background in business administration.

A form of independent study is being developed in the Chemical Engineering Department in which students as individuals undertake special, long-term projects focusing on creative solutions to real problems or on engineering entrepreneurship to take a new product or process all the way from its conception to its commercialization or sale. Such a project may extend through the entire four-year degree program, and subject areas both theoretical and experimental which were adequately covered by the student's involvement in his project will be waived for him from the normal course or lab program. Appropriate faculty guidance from within or without the department will be provided as needed in the course of the project.

It is hoped that perhaps it may prove possible to develop via such projects an undergraduate program featuring an orientation toward creativity and innovation which will provide a great deal of stimulation and motivation for both students and faculty, and that such a program offering can be effectively used in competing against other institutions for potential chemical engineering students.

Under the chairmanship of Assistant Professor Webster, an ad hoc curriculum committee has developed a revised undergraduate Civil Engineering curriculum which promises to be much more efficient and flexible than the current one. A new course -- CE 396 Professional Problem -- was initiated in the spring semester, 1971-1972. Under the direction of Professor Hendrickson and with the assistance of a committee and consultants from the department, senior civil engineers worked in teams on a large, multi-discipline project, following as nearly as possible the procedures of a consulting engineering firm. The project selected was a thermal power plant for which environmental consideration, thermal and power aspects, transportation problems, as well as structural questions were involved.



The undergraduate student chapter of the American Society of Civil Engineers received an Honorable Mention in recognition of its 1971-1972 program. In terms of awards, this Chapter is one of the most outstanding in the United States.

A unique educational facility will probably soon become available for undergraduates in Engineering. Under the leadership of Professors Nash, Archer, Crossley (MAE), Colonell and Webster, a proposal was made to NSF for an equipment grant which will probably be approved. This is to purchase computing equipment that can be used with the University computer whereby graphical data can be "drawn in", analyses performed by the computer and the results displayed on a scope or plotted out for permanent record. This equipment will very materially enhance the teaching capabilities of this and other departments.

COMTECH continues to play a role in the job placement of graduating engineers. It maintains a company directory resource for intelligence in the preparation of job campaigns and aids students in resume preparation and in transmittal and interview counseling. Placements resulting specifically from this support have occurred. It assisted in the planning of the November 1971 AIAA/ASME workshops on career orientation.

Dr. Howard Segool is sponsoring one engineering student in a uniquely tailored Bachelor's Degree in Individual Concentration program intended to prepare him to apply science and technology in social and industrial organizations through the management of the engineering function. The student reflects great enthusiasm, initiative and motivation, has found a heavy credit load no barrier to a straight AB performance, has registered for a Senior Honors Thesis, has accelerated his graduation date, and now has serious ambitions for law school.

The second year of the Electrical Engineering Senior Project Laboratories course has been completed. This year, at the end of each semester, each student gave a written and oral presentation of his particular project. The presentations took a form of an all-day technical session complete with prizes for the best papers.

Under the direction of Professor Glorioso the Computer Engineering Laboratory is now in its second year of operation and has expanded its quarters. This past year both graduate and undergraduate projects were carried out in this lab. The development of the PDP-11/20 computer system has reached a high level of reliability and flexibility. This system is now used by the Mechanical and Aerospace Engineering and Civil Engineering Departments as well as the Electrical Engineering Department for on line data gathering and processing. Automatic analog-to-digital conversion of up to 16 channels of data can now be sampled and sent directly from the PDP-11/20 to UMASS time-sharing via a telephone link.



Other developments include the application of single level memory management by means of a hardware virtual memory system. This work has created a great deal of interest on the part of several computer manufacturers. Undergraduates have been involved in many design and interface projects including flying spot scanners and automatic IC testing.

Through the efforts of Professor Richard J. Giglio, two Industrial Engineering and Operations Research undergraduate students have been placed in the University Year for ACTION program. The students will work on scheduling, space-utilization, inventory, and material-handling problems in the Belchertown State School. They are the first engineering students to participate in this program.

Minor revisions were made in the undergraduate curriculum. A basic science elective has replaced the Physics 163 requirement, yielding even greater flexibility for our students. Also, the probability and statistics sequence now begins in the junior year so that transfer students may enter our program with little or no difficulty.

Equipment has been ordered for the beginning of a laboratory for the analysis of noise and vibration effects on human performance. This equipment will be used for both undergraduate teaching and graduate research.

The Department of Mechanical and Aerospace Engineering faculty, recognizing the inadequacies of the existing Aerospace program, the "tight" budget situation for the University which would preclude strengthening the program with additional faculty and facilities, and the bleak employment picture for some years to come, has voted to eliminate the separate degree program in Aerospace. We will continue to offer Aerospace as an option within the basic Mechanical Engineering degree program. Thus, we return to the one degree offering namely, a Bachelor of Science in Mechanical Engineering, but with Materials or Aerospace options if the student chooses to study a more designated program in either of these two areas.

One of the more exciting projects carried on this past year and continuing on into the summer, 1972 is the Urban Vehicle Design program. Under Dr. Paul Tartaglia's direction, 26 students, the majority of whom are M. E.'s but including other disciplines such as Electrical Engineering, the School of Business, and the Economics Department, have designed and are building a car designed to operate exclusively in an urban locale. Operating with very limited funding, the group has none the less progressed to the point where a finished product is expected to be ready for the final intercollegiate competition in August, 1972. Dr. Tartaglia received an NSF grant under the student originated studies program supporting nine undergraduate students to work on this and an allied project this summer.



The Student Section of ASME here at the University received a second place award in the Bendix competition for outstanding student chapter performance in Region I of the ASME.

Mr. Harvey Beeman, 1972, Mechanical Engineering, received a fifth place award in the Region I ASME student papers contest for his paper, "Feasibility of Using Waste Heat from Nuclear Power Plants for Agricultural Purposes".

Dr. Robert Kirchhoff of the Department of Mechanical and Aerospace Engineering received an NSF grant supporting seven undergraduate students for the summer participating in a variety of research projects. A list of the students, topics, and supervisors is included herewith:

<u>Student</u>	<u>Topic</u>	<u>Supervisor</u>
Jay Boot	Working Fluid Selection for a Pollution-Free Ocean Rankine Cycle	Prof. J. McGowan
William Carpenter	Experimental Machining Processes	Prof. W. Wilson
Gary Erickson	Effect of Scale-Up on an Oyster Larvae Harvesting Unit	Prof. J. Zahradnik
John Klebauskas	Hydrostatic Extrusion of Wire from Metal Powders	Prof. C. Nelson
William Ordonowicz	Vehicle Exhaust Emissions	Prof. L. Ambs
Kenneth Rush	Design Changes to Minimize Emission Characteristics of Direct Transit Buses	Prof. W. Goss
Robert Safarik	Hot Wire Anemometry	Prof. R. Kirchhoff

## 2. Graduate Programs

The School of Engineering participated in the University-wide review of graduate programs offered by the University. The growth of our graduate programs has been satisfying but of greatest importance is the increase in quality of our incoming students. Most Programs in the School are now competing for students with institutions listed in the top categories of the Carter Report.





The Faculty and the Administration of the School are optimistic concerning the results of graduate program review. It would be foolhardy to curtail growth in activities directly related to enhancing the economy and industry in the Commonwealth. Furthermore, the Engineering Faculty has amply demonstrated that its research programs are directly relevant to important National needs by attracting substantial funding to support these programs. There is a definite danger that our contributions might be limited by too narrow a view of our programs by top University administrators. Our programs cannot be judged by counting undergraduate student credit hours taught alone. We must also be judged by our contributions to the Commonwealth and the Nation through our service and research programs.

An increasing number of engineering schools are embarking on a Professional Master's Degree Program. Planning for such programs continues in the School and its Departments. The Engineers' Council for Professional Development will begin accreditation of Professional Master's Degree Programs in the coming year and it is clear that we will have to offer such programs when our competitors offer them. But, of greater significance is the fact that customers for our output are becoming more vocal about the need for problem-solving-oriented engineers with an advanced degree. This is not to say that research-oriented people will not be needed in the future but rather a mix of the two kinds of graduates will be necessary for the 70's.

A new set of forces are in play at the moment that are little studied and understood but which will have a major impact on the practice of our graduates. Engineering talent and superior training are no longer a monopoly held by the U.S.. Engineering has become an international commodity purchased anywhere in the world on a competitive basis of the best job for the least cost. Multi-national companies constitute a portion of the competition but newly established U.S. engineering offices of Japanese, English and Western European engineering firms constitute an additional competitive factor. It is clear that our graduates as well as graduates of all U.S. Engineering schools will have to learn how to compete in the international market place. To do this in a society which is becoming increasingly anti-science and technology becomes an almost insurmountable task. But, it is obvious that a Nation that is barely surviving in the international trade and only because of our dominant share of technology intensive products exports, must find a way of assisting bright, young people anxious to make a career in science and technology. Cutting back support for these areas because of decreasing undergraduate interest can only result in catastrophe in years ahead for both the State and the Nation.



The Chemical Engineering Department has been able to continue its success in recruiting high quality graduate students from U. S. schools, and last fall the entering class included ten such full-time students with "cums" ranging between 3.5 and 4.0. The total graduate enrollment in the Department in September, 1971, was 44 full-time and 26 part-time students. Next year's new full-time students include eleven with "cums" above 3.5 (all U.S.), and the total enrollments, both full- and part-time, will be approximately the same.

There was one post-doctoral fellow in Chemical Engineering this year, Dr. Lars Westfelt from Sweden, who worked with Dr. Lenz, and it is expected that there will be either three or four next year. Two of these are already definitely scheduled for arrival in September. They are Dr. Greenfield from Australia, who will work with Drs. Laurence and Kittrell, and Dr. Vidaud from England, who will work with Dr. Vanpee.

Drs. Douglas and Kittrell introduced a major innovation into the graduate program this year with their project-type course on Engineering Entrepreneurship in which ideas generated by the students were developed toward actual commercialization. Exploitation of some of these is still being pursued. A grant is now being sought from NSF to further develop this program in collaboration with the School of Business Administration, and it is hoped to extend later this type of offering down into the undergraduate program to tie in with similar activities just being initiated there as discussed under section II-1.

The Chemical Engineering Department continued its strong participation in the two interdisciplinary graduate programs, Environmental Engineering and Polymer Science and Engineering, and new arrangements with Food Science and Food and Agricultural Engineering.

The Department of Civil Engineering has developed a waste treatment pilot plant which is unique among universities in this part of the United States. This allows large scale investigation of many different types of sewage treatment, both those used in practice and those of an experimental nature. The site, adjacent to the Amherst Treatment Plant, contains 1500 square feet of laboratory space. The advantage of this set-up is that sewage at any stage of treatment can be obtained on a continuous basis for use in experiments.

The Master's Degree Program in EVE has been revised to give each student a basic knowledge of the fundamentals of air, water and solid waste management. Following this, he can either specialize or diversify, according to his desires, with the consent of his advisor.

The air sampling laboratory has been established in the fan penthouse of Marston Hall, combined with a wind sensing system on the nearby radio tower.



The APEX game (simulated government of a political unit) was instituted here during the Spring Semester. The EVE seminar students together with students from other areas of the campus participated.

Development of the Structural Dynamics Laboratory has continued during the year. A device for applying pulse-type dynamic radial loads to thin rings, an apparatus for diametral impact of thin-walled spherical shells having a ring-reinforced circular cut-out, and a 450 psi hydrostatic pressure tank for applying external loads to models have recently been completed.

A program in soil dynamics has been initiated. This field is of considerable current importance in connection with the behavior of soils and of constructions on soil foundations under traffic, machinery, blasting and earthquake loads. As an integral part of this program a soil dynamics laboratory is being developed. A facility for dynamic testing of models of footings and foundations has been completed. This consists of a cylindrical bin about six feet high and 13 feet in diameter containing sand surrounded by and resting on an energy absorbing layer (sawdust). Besides the test bin, resonant-column equipment is being built which will be used to measure the low-amplitude shearing modules of soil.

The graduate student enrollment in the Electrical Engineering Department increased from 51 students last year to 62 this year. Thirty-seven of these were M.S. degree students, and 25 Ph.D. degree students. Of the 62 only 15 were their own B.S. graduates. Nine M.S. degrees and three Ph.D. degrees were completed during the year.

The Mechanical and Aerospace Engineering Department Graduate Committee has carried on an aggressive recruiting program for students entering in the Fall, 1972. It appears that they will enroll approximately 25 new full-time students, and 4 part-time evening program students. This means that their graduate enrollment should be about the same next year as this year.

The subject of manufacturing engineering is one which has been sadly neglected in the U.S.A. Drawing on the combined resources of the M.E. and I.E./O.R. Departments, an M.S. Degree Program in Manufacturing Engineering is being proposed. A request for N.S.F. funds under the Advanced Science Education Program has been made to initiate the Program. We are quite hopeful of securing this grant so that the Program may be implemented this coming year.

A committee within the Department of Mechanical and Aerospace Engineering is preparing a program which stresses the applied practice



of engineering principles as contrasted to the research-oriented objectives of the present graduate degree programs. The thrust of the curriculum will be centered on laboratory and design courses rather than the lecture approach. This program is in line with the recent ECPD accreditation procedures involving first degree accreditation at the five-year or Master's Degree level. Further discussion will be necessary in the Department before the proposal can be brought to the full faculty. The committee is chaired by Dr. Paul Tartaglia and includes, in addition, Professors Geoffrey Boothroyd, John Dittfach, John Dixon and Carl Nelson.

Two Mechanical and Aerospace Engineering graduate students received awards in regional student paper competition. John Barnoski, first-year graduate student, was awarded first place in the AIAA Regional Conference at Rutgers. As winner of this Award, he will compete in the National Competition at the AIAA Annual Meeting in Washington, D.C. in January, 1973. James Connell, second-year graduate student, was awarded first place in the Master's Candidates Division of the Region I ASME written paper contest held at the University of New Haven.

Dr. Hukam Mongia, Ph.D., 1971, University of Massachusetts, has served as a post-doctoral fellow this year working in the area of combustion under Dr. Ambs. He has just recently left to join the AIRResearch Corporation in Arizona as a research engineer in the combustion area.

### 3. Research

Final data on research and sponsored training expenditures for year 71-72 are not yet available. It is estimated that for the first time in six years our expenditures may have decreased. This is due in large part to a reduction in training funds and supported research projects of the Environmental Engineering group. OMB has established policy to phase out its environmental engineering training programs and for EPA to support short-range development projects. These policies will result in substantial problems for schools, like our own, that invested heavily in what was thought a major national need.

The picture for 72-73, on the other hand, looks much brighter. Substantial grants were received from D.O.T., N.S.F. and D.O.D. near the end of FY 72. It can be expected that our usual growth of support of about \$200,000/year will occur again in FY 73. Growth of our research programs has resulted in several crisis situations which will be discussed under the section on problems of the School.





The research activities in the Chemical Engineering Department are continuing to expand and diversify, both in sponsored and un-sponsored projects. Several new grants and renewal grants were received during FY 72, and several other major proposals now awaiting action are expected to receive funding.

The enzyme engineering project of Drs. Laurence and Kittrell (with Dr. Hultin of Food Science and Technology) entitled, "Studies of a Catalytic Reactor Using an Immobilized Multi-Enzyme System", has just been renewed by NSF-RANN for two years for \$205,180 (funded for one year).

Dr. Douglas received a new NSF grant on "Periodic Operation of Chemical Processes", funded with \$26,100 for the first year and with approval for funding at approximately the same rate for two more years.

Dr. Kittrell received a new EPA grant for "Catalyst Deactivation Studies of NO Reduction" funded at \$39,334 for the first of three years. It has now been approved for renewal for the second year at approximately the same level.

Dr. Vanpee received a new NSF grant on "Flames of High Energy Fuels and Oxidizers" funded with \$43,200 for two years. He also received a renewal grant from the Bureau of Mines on his project "Kinetic Studies of Gas Hydrates", with \$26,656 for the second year.

Dr. Middleman received an NIH Biomedical Sciences Support Grant for "Development of an Artificial Kidney Utilizing Microencapsulated Enzymes" funded at \$5,245 for FY 72.

Dr. Middleman and Ms. Rha of the Department of Food and Agricultural Engineering have received a one-year NSF grant for \$30,300 for "Development of Protein Fiber as an Engineering Material".

Drs. Lenz and Eldridge had a continuation of their ONR contract on development of new polymers and composite materials, at \$12,800 for the year.

Dr. Roblee is a participant in a grant just approved by NSF for funding at \$144,000 for "Utilization of Ocean Thermal Gradients and the Cold Water Resource of the Deep Oceans to Generate Pollution Free Energy".

Dr. Howard Segool and the COMTECH office have been strongly supportive to Dean Van Atta and to several faculty members in spear-heading the design of an interdisciplinary Productivity Institute,



a joint project of the Schools of Engineering and Business Administration, which was discussed earlier.

The COMTECH experience has influenced the balance between the hardware and the human factors elements in the proposed Institute program. Significant individual projects resulting from the COMTECH experience are prominent in the Institute program now in the pre-proposal stage for funding consideration.

Prominent among the projects related to the Productivity Institute is one entitled "New Industry Incubator". Principally outlined by Dean Picha and Dr. Segool, and based to a considerable extent on the COMTECH experience, House Resolve Number 3478 was introduced into the Massachusetts legislature. It calls for a commission to study feasible arrangements to enable selected inventors to utilize resources at the University toward the acceleration of their prototype and business plan development. Testimony in support of the Resolve was supplied to the Joint Committee on Commerce and Labor by Dr. Segool on February 24. The concept was adopted by the Executive Office in the Governor's Message on the Economy on March 13, 1972.

Approval for construction of a controlled temperature and humidity soils testing laboratory in Civil Engineering will improve their research and graduate teaching capability in the soil mechanics area.

In Environmental Engineering the development of Bioassay laboratories should be mentioned.

The total expenditures (excluding overhead) for non-University supported research in Civil Engineering during 1971-1972 were \$460,000, a slight increase over 1970-1971.

Professor Hill and his graduate students in Electrical and Computer Systems Engineering continue work on the theoretical problems in connection with the characterization of classes of communication channels with regard to their effect on digital transmission performance. Acoustic arrays are being studied analytically to determine optimum array geometries for oceanographic data requisition. A project in connection with the Civil Engineering Department involved the system design and electronics development for a remote hydrologic data acquisition and processing system at the Quabbin Reservoir. Graduate work in optimum pulse shaping networks and experimental time-varying filter design is also progressing.

Professor Hill and Professor Ehrich supervised a Senior Project in the development of a data communication system through the power line. This system will link together several computers without the need for



handwiring or telephone links. The Digital Equipment Corporation has recently granted development money for the project. Another project involved the development of a hand-held Doppler sonar device to aid blind persons in avoiding obstacles. The PDP-11 computer with its attendant analog-to-digital and digital-to-analog conversion equipment has been programmed to perform real-time voice-signal processing. This set-up is ideal for demonstrations (has been used in Senior communications course, Freshman modules, and for many groups visiting the University) as well as for student projects, as it gives a first-hand view of the sampling and quantizing processes commonly used in modern communications systems as well as data processing systems.

Professor Lewis Franks in Electrical and Computer Systems Engineering supervised communications research directed towards the mathematical analysis of cyclostationary signal processes resulting from sampling or scanning operations. General techniques for representation of such processes and solving for optimal waveform estimators have been developed. Methods for implementing periodically-variable filters for extracting synchronizing and timing information are also under study.

Professors Franks and Hill continued the development of a set of modular packages on PC cards which will contain various combinations of modulators, active filter networks and phase-locked loops. The availability of these packages will allow students to embark on more extensive projects in the communication systems and signal processing area.

Professor Imsong Lee has been supervising two senior projects concerned with the design of communication interfaces between the PDP-15/VT-15 computer graphics system and the UMASS time-sharing system. Three Master's Degree Projects on computer-aided PC layout, computer-aided logic design and interactive graphics in UMASS time-sharing environment have been under progress for the past year and expected to be completed during the summer in 1972.

Graduate student research with Professor Richard Monopoli continued in the areas of design of adaptive control systems, and model reference control of deep submergence vehicles. The first area is supported by a NASA Grant and this last by an ONR research contract. Five senior projects in control were done. These ranged from analog simulation of model reference control systems to experimental projects such as adaptive control of a d.c. motor position control system.



Professor Donald Scott of the Department of Electrical Engineering and Computer Engineering with Professor Dzendolet of the Psychology Department has been working on the development of a linear model of the human postural control system during quiet standing. For the past few years (via several theses) they have been collecting various types of data regarding this biological control system. Finally, this year they have integrated these observations and have arrived at a model which is consistent with all of them. This work has been written up and is now at the final manuscript revision stage. It will be submitted for publication (probably to "Kybernetik"). One senior has been building a small data reduction system which, in conjunction with a PDP-8/I computer, plots the probability density function of the duration of the time intervals between heartbeats of a human subject. It is thought by other researchers in the field that this type of measurement might be very useful in estimating heart-attack victims' chances of recovery. The project will continue next semester.

Professor McIntosh has been leading a group consisting of a research associate, Dr. S. E. El-Khomy, and seven graduate Electrical Engineering students. He is also supporting Professor John Field from the University of Maine this summer. The group is presently considering the propagation of transient electromagnetic signals through various kinds of dispersive media. In particular, theoretical and experimental investigations of the effects that media nonlinearities, randomness and inhomogeneities have on the transmission of these signals are being carried out. A great deal of attention is currently being given to the physical properties of the propagation medium. Spectroscopic techniques are being developed to analyse the behavior of various gas atoms in an effort to better understand the manner in which electromagnetic waves are absorbed and randomly scattered while propagating through plasmas. This work is being sponsored by the Air Force Office of Scientific Research, the Army Research Office - Durham, and the National Science Foundation. The National Science Foundation is also sponsoring Professor McIntosh's work dealing with radio communication with high speed trains. In this study, he is trying to minimize the amplitude and frequency modulation errors caused by random coupling of the surface waveguides used for transmitting communication signals.

A theoretical study of wave propagation in inhomogeneous magneto-plasma was conducted by Professor T. W. Tang, a graduate student, and a Postdoctoral fellow. A theory has been developed to account for the effect of plasma inhomogeneity on the propagation and resonance of electromagnetic and electrostatic waves. An experimental investigation of harmonic generation by nonlinear effects in a magnetized column by a





graduate student was also in progress. An award from the National Science Foundation was able to allow Professor Paul Caron of Southeastern Massachusetts University to participate in the above project during the summer.

Professor Darrell Jackson has continued a study of magnetic and acoustic loss mechanism in yttrium iron garnet. The loss parameters determined from this work are surprisingly large and seem to "explain" the anomalously low domain wall mobilities observed in YIG. One senior has completed a project in microwave acoustics, demonstrating a nonlinear filtering technique for the extraction of periodic signals from noise. Several projects were undertaken by students in the Honors section of the Field Analysis course, including holography, Brewster angle measurements, and radiation pattern measurements for a two-element antenna.

A group of four graduate students under the direction of Professor David Navon under contract with the U.S. Army Electronics Command are engaged in research on power transistor stability and reliability. One graduate student is pursuing work on fundamental conduction mechanisms in nematic liquid crystals. Three undergraduate students participated in project laboratories. One worked on the problem of conduction properties of nematic liquid crystals, one on electrometer circuits for measuring picoamperes and one on limitations of voltage-variable regulated power supply circuits.

Professor Ian Thomas and his graduate students have developed a theory of pitch perception which appears to be a very successful theory and may replace those of Holmholtz, Wear and others. They have had considerable success in work on devices for the hearing impaired. Work is now in progress to computerize a speech display found earlier to have great success in helping deaf children to articulate more accurately. Work is just beginning in research on alpha states and several projects have been planned for the summer.

Extensive equipment facilities have been added to Professor Sigfrid Yngvesson's Maser Laboratory. These include low temperature liquid helium facilities, and superconducting magnets for research on properties of maser materials. Experimental and theoretical research is also continuing on periodic and nonperiodic structures for a three millimeter traveling-wave maser, for cooling of step recovery diodes for efficient harmonic multiplication to millimeter wave frequencies, and on fluctuations in the troposphere and their effect on millimeter wave reception. An eight millimeter radiometer is being adapted for experimental studies in the last area. Professor Yngvesson's group also has designed and is involved in building a K-band traveling-wave



maser in cooperation with the Haystack Observatory later to be used for observations of galactic water vapor emission. Undergraduate projects are concerned with the properties and applications of superconductors, dielectric resonators as filters, a TEA CO<sub>2</sub> laser and with low frequency parametric amplifiers.

The most significant event (in this year of tight research-grant funds) in the Department of Industrial Engineering and Operations Research is the funding received by Professors Edward J. Rising (principal investigator), Richard J. Giglio and Frank C. Kaminsky from HEW for their proposal, "Design and Evaluation Methodology for Outpatient Systems". The grant involves a cooperative research effort between the IE/OR Department and the Sociology Department at UMASS in cooperation with the Department of Preventive and Community Medicine, Albany Medical College, the UMASS University Health Services, the Holyoke Model Cities Health Clinic, and the UMASS Medical School; four IE/OR graduate students, one sociology graduate student, and a research associate are supported through this grant.

Dr. L. M. Branscomb, Director of the National Bureau of Standards (NBS) asked Professor Hugh J. Miser to direct a study (on a consulting basis) of the systems approach for civil-sector government problems with a view to identifying the national interest in such work and defining the role that NBS should play in this field. Professor Miser chaired an external advisory group, consisting of Assistant Secretaries of Transportation and Commerce, the President of the Rand Corporation, the directors of the NBS programs in applied mathematics and computer sciences, the First Deputy City Administrator of New York, other representatives from federal agencies, and top-level managers from industry. A task group from NBS, guided by this committee and led by Professor Miser, carried out the supporting study and issued a final report in June, 1972.

The report identifies its central issue as how best to bring the systems approach to bear on civil-sector government problems. It illustrates potential contribution, surveys the national needs for such work, reviews the required technical activities and how they can be organized, managed and supported, and reaches conclusions on good means of providing these activities and the likelihood of their being employed. Against this national backdrop, the report identified the opportunities that should be seized by the NBS. The results are currently being used by the NBS in the planning for its future program.

Although this work for the NBS was done largely outside the IE/OR Department on a consulting basis, it is directly related to the Department's goals and its activities in pursuit of them -- it develops a



challenging diagnosis for a wide governmental community and derives its implications for a major federal bureau.

Professors H. J. Miser and Randall P. Sadowski are working on the Proposal Committee for a "Productivity Institute at the University of Massachusetts/Amherst". In addition, Professors William J. Duffy and Klaus E. Kroner have worked on proposals that may come under the Institute's umbrella.

A proposal has been written by Professors Richard J. Giglio, Frank C. Kaminsky and Robert F. Ridders to implement the planning methods that were developed under the Water Resources grant. At present the proposal has not been formally submitted because of the lack of an agency with the authority and willingness to implement a well defined regional plan. However, some recent developments may help us in our search for such an agency. The State of Massachusetts has submitted a \$12 million proposal to EPA to develop a regional water-quality management plan for the State and present estimates are that the State has an excellent chance of being funded as of July 1, 1972; in this proposal, the use of models for the development of regional wastewater systems has been stressed. We hope to become involved.

A study of "Models for the Synthesis of Optimal Investment Schedules for Power Generation" by Mr. F. Noonan, one of our graduate students, and funding has been provided by the New England Electric System. Three other graduate students wrote research proposals for a Public Health Service Research Fellowship; one proposal was approved but not funded. A fourth graduate-student proposal for a Pharmaceutical Manufacturers Association Ph.D. Dissertation Fellowship is in review.

Industrial Engineering and Operations Research graduate students received support from other segments of the University -- three are supported through Administrative Services (two on an accounting system project and one on a study of maintenance services), two others are working on an ONR project under Professor Balintfy in the School of Business Administration, and the sixth is supported by the University Health Services to perform a systems analysis of outpatient health care. Four of our faculty are directly involved in guiding these students and more are involved to a lesser extent.

Another graduate student is supported by the Belchertown State School; he is conducting a systems analysis of the laundry under the direction of Professor Richard J. Giglio.

Other nonsupported research activities within the Department include school-bus routing and general delivery problems (MS), optimal location



of facilities (Ph.D.), flexible modular scheduling (MS), University parking problems (MS), the operations of the Westover Air Force Base Commissary (MS), and class scheduling (MS).

The Faculty of the Department of Mechanical and Aerospace Engineering continue to be productive in carrying out research and attracting outside support. Details of this productivity can be found in the Appendix under the MAE research grant listings.

#### 4. Relations with High Schools and Community Colleges

During the past academic year, the School of Engineering continued its program of outreach to and support for other segments of education -- secondary schools and two-year colleges. In fact, it broadened its thrust this year to include state colleges as well. Our faculty considers this kind of activity to be a most significant obligation if the University is to maintain its role as a leader at the top of the pyramid of education within the Commonwealth. Our efforts were met with enthusiasm and appreciation in every area into which we ventured.

##### (i) Interactions with High Schools

For the third year in a row, the School of Engineering received funding to conduct a Junior Science and Humanities Symposium. The topic this year was "Creativity". One hundred thirty students and forty-four high school faculty participated as our guests in this two-day program.

In August of this year (1972), there will be an AEC sponsored Workshop for high school teachers held on this campus on the topic "Nuclear Electric Power Production: Its Environmental Costs-Benefits". This Workshop is being run in cooperation with the New England Consortium on Environmental Protection and will have as participants 30 high school faculty.

Two meetings were held in April and May with high school guidance counselors and science supervisors in order to help define for them directions in which Engineering education is going in the seventies. These were all-day events which involved active participation by our faculty with 50 high school people who were here on an invitation basis.

As part of the orientation to Engineering, every student who was accepted to the School of Engineering at UMA was invited to visit the campus with his parents. There was about a 15% response to this invitation and there is no question that the





student's attitude toward the University as a whole will be favorably affected by this early visit.

(ii) Community College Interaction

Faculty in Technology and Physical Sciences at the community colleges and at several private technical institutes continue to seek support from the University faculty in a broad variety of areas. As part of an on-going program, there were two meetings held on this campus, one in November and the other in April, for these faculty. The programs included a variety of topics, some technical and some academic, which allowed a mutually beneficial exchange between two-year college faculty and University faculty. In fact, an afternoon session devoted to the establishment of Environmental Technology programs was deemed by the participants to have been the most fruitful venture of its kind in which they had participated.

At the beginning of the year, the School of Engineering once more issued its student counseling guide for faculty at two-year colleges and in addition, as a result of the meetings discussed above, we are jointly developing a public relations program on Technology in Society with the help of people on this campus.

There were two experimental telelectures conducted between the Amherst campus and Quinsigamond Community College. The first, in September, was titled "Admission to the University of Massachusetts" and was directed at students who at that point in time were planning to transfer to Amherst. The second, which was held in April, was given in conjunction with a meeting of community college faculty on the Quinsigamond College campus. Professors Leigh Short, James Halitsky, and Joseph Marcus lectured on "Nuclear Power: Benefits-Risks" from our conference room to about 50 participants in Worcester.

For the first time, students interested in transferring to the Engineering program at the University of Massachusetts were invited to visit and tour our facilities. Over 100 community college students participated and had a briefing on what our School of Engineering has to offer.

(iii) State College Interaction

There are no Engineering programs in any of the Massachusetts state colleges and discussions were begun with faculty



at Boston State College and North Adams State College concerning the possibility of development of cooperative programs. The discussions with Boston State College faculty have been most fruitful and, in fact, the response from Boston has exceeded by far what was anticipated. In fact, they are prepared to take to their faculty in September a proposal for a 2-2 cooperative program effective with their freshman class which will enter in September, 1973.

Discussions with North Adams State College have not proceeded as far although there were some contacts to our School in May and the discussions will continue during the summer of 1972.

#### 5. Relations with Alumni

The Engineering Alumni Association has had its ups and downs this year. In spite of this, they have raised sufficient money so that they will be able to provide four student scholarships of \$500 each.

In addition to this, they have had three meetings, two on the campus and one off; a dinner meeting and a homecoming breakfast were both social events. On May 4, however, they sponsored a Symposium on Pollution-free Energy Sources open to the public at the Highpoint Motor Inn in Chicopee.

Dean Marcus is concentrating on a major Alumni and Friends of the School of Engineering Program to be initiated in FY 73. We are fortunate to have Mr. Donald Berth, Director of Development at Hampshire College, as a part-time consultant to the School in this activity.

#### 6. Service to Industry and the Community

##### (i) Commonwealth Technical Resource Service

A greatly curtailed industrial liaison and technology transfer program has been operated by COMTECH using residual prior appropriated State funds (State Technical Services Act) extended to June 30, 1972. A one-man field liaison-referral service has been continued. An experiment has been undertaken in conjunction with the Northeast Regional Office of the Small Business Administration whereby COMTECH is handling SBA technical inquiries in qualification for a possible contract to perform this resource role for the SBA in the future. The publication and distribution of comTECH TRANSFER has been continued and the comTECH DIGEST radio broadcasts have actually been expanded to more completely blanket important regions of the State.



There has been no success in gaining access to the University budget for this important activity. Similarly, the Massachusetts Department of Commerce and Development has found no place in its appropriation to accommodate this valued program. Nor has the Massachusetts Science and Technology Foundation, with its elitist approach to sophisticated technology utilization, been persuaded to support a program necessarily devoted by the State University to technical service to all the components of the State's industrial and community base. Finally, the Congress has failed to act on either the Morse H.R. 6976 or the Roush H.R. 9379, either of which could be a vehicle for Federal funding of the COMTECH technology utilization program.

It is the firm view of COMTECH that Massachusetts, with its back to the wall in terms of economic health, has failed to produce the technical support programs necessary to four ingredients essential to its economic future:

1. Development of service industries
2. Creation of new manufacturing industries
3. Upgrading of its traditional manufacturing industries
4. Efficient attraction of immigrant manufacturing industries

At this point in history, anything less than the best effort on all four fronts will leave the Commonwealth in dire economic trouble. Technology has imperative inputs to make to each of the above ingredients.

COMTECH will continue to serve these purposes to the best of its ability but on a vastly curtailed basis as it strives for future funding support.

Dr. Howard Segool, Director of COMTECH, has engaged in a number of public service interests. He was a prime organizer, along with Dean Marcus, of the Laboratory for the Development of Western Massachusetts which resulted in a proposal now under funding consideration for the establishment of an Office of University Resource Coordination. This office would align University resources with the economic development needs of Western Massachusetts. He is an active member of the Massachusetts Rural Development Committee and is Chairman of the Applications of Science and Technology Committee/New England Council. He also served on a University-wide ad hoc advisory committee to the Lower Pioneer Valley Regional Planning Commission relative to University-resources vis a vis planning for a model statewide water quality and land use management system.



The Chemical Engineering Department continues to offer late afternoon and evening graduate courses for the benefit of part-time students who are employed in industry, and this program constitutes a very significant service to nearby industry, especially the Monsanto Company in Springfield.

Drs. James Kittrell, Robert Laurence, Robert Lenz, and Stanley Middleman have been very active in consulting for industry and the companies for which they consulted this year are indicated in Appendix IV.

Dr. Lenz also gave a short course for industry at the Armstrong Cork Company.

Dr. Leigh Short of the Department of Chemical Engineering is a member of the National Air Pollution Research Grants Advisory Committee, Air Pollution Control Office, Environmental Protection Agency. This Committee has the responsibility to review and make funding recommendations on research proposals in all phases of air pollution, ranging from medicine and plant pathology, to chemistry, physics and engineering. Dr. Short also served as Chairman of the engineering panel of this Committee.

Drs. Robert Laurence, Robert Lenz, and Stanley Middleman gave lectures on "Polymer Science for College Teachers" as an NSF Summer Institute last summer, and Dr. Lenz gave a short course on polymerization at the University of Detroit.

Three short courses have been offered by the Civil Engineering faculty:

1. The fourth annual short course in Environmental Quality Control was given May 15-18, 1972. This one dealt with Monitoring and Analysis Techniques applied to water and air pollution, solid waste disposal and noise pollution. The staff consisted of the EVE faculty and 15 visiting lecturers. Twenty-five persons attended the entire course while several others came for one or more days. Two volumes of Proceedings are available for distribution. The program chairman was Professor Francis A. DiGiano.

2. A course in Matrix Analysis of Structures was offered by Professor Alexander Chajes with assistance from Professor Frederick J. Dzialo in July, 1971.





- (3) Professor Michael Zyczkowski (then Visiting Professor here) gave a course in Optimal Design of Structures in November, 1971.

Much of the non-teaching professional activities of the Industrial Engineering and Operations Research Department faculty fall into one of these service headings. The items listed below are grouped under completed projects and projects in progress.

Completed Projects:

(i) A solid-waste-collection-and-disposal study was completed for the towns of Northfield, Gill, Leyden, and Bernardston, Massachusetts. The study was conducted jointly with Weston and Sampson, Consulting Engineers, and involved a Master's student as well as two faculty.

(ii) Analysis and design of parking facilities at the University of Massachusetts -- a joint effort between the UMASS Parking Office and the Department of IE/OR.

(iii) An interdisciplinary analysis of several proposed structures for the North Nashua River in Massachusetts by the US Army Corps of Engineers -- a cooperative effort between Roy Mann and Associates, the North Nashua River Watershed Association, and the Department of IE/OR.

(iv) Course scheduling for the Stockbridge School by one graduate student (further work is required on this project but no one is presently available to complete it).

(v) Assistance to the Holyoke Model Cities Health Center with its financial planning and in obtaining rate approval by the Massachusetts Rate-Setting Commission.

(vi) Assistance to the Holyoke Model Cities Health Center in preparing an HEW application for a prepayment health-care plan.

Projects in Progress:

(i) Development of a computer method for flexible modular scheduling -- a joint effort between the Department of IE/OR and Deerfield Academy (11/70-9/71) and Greenfield High School.



- (ii) Development of a computer method for scheduling final examinations at the University of Massachusetts -- a joint effort between the UMASS Scheduling Office and the Department of IE/OR.
- (iii) An interdisciplinary analysis of the proposed sanitary landfill for the Montague Plain by the Massachusetts Department of Public Works. The effort includes the Departments of IE/OR, Geology, and Plant and Soil Sciences.
- (iv) An interdisciplinary analysis of the proposed hurricane barrier for the City of Stratford, Connecticut, by the US Army Corps of Engineers -- a joint effort with the Connecticut Environmental Protection Commission, several institutions from Connecticut and the Department of IE/OR.
- (v) An interdisciplinary analysis of the Connecticut River Basin Plan by the US Army Corps of Engineers, with the Amherst College Department of Biology, the UMASS Departments of IE/OR, Botany, and Geology, and the Connecticut College Department of Biology.
- (vi) A systems analysis of the University Health Services outpatient medical care -- a joint effort with the University Health Services and the Departments of Sociology and IE/OR.
- (vii) Development of a computer method for performing soil interpretations from a soil-classification map -- a joint effort between the Sunderland Conservation Committee and the Department of IE/Or.
- (viii) Working as part of the Amherst Campus Job Group on the University Accounting System Project as described in the memo from Vice President Phillips to the President.
- (ix) A maintenance-service project is still in the definition stage.
- (x) Working with COMTECH and the Massachusetts Department of Commerce and Development on a community-and-site selection project.



The Mechanical and Aerospace Engineering Faculty report the following service activities:

(i) Motor Vehicle Emissions Legislation

Dr. Jon McGowan was relieved of teaching duties the Spring term so that he could serve on a special assignment to the Massachusetts Science and Technology Foundation. His work involved the development of a State-supported proposal for an automotive emissions testing program. This is an excellent example of using faculty expertise to benefit the citizens of the Commonwealth.

(ii) Aquacultural Engineering Laboratory, Wareham, Mass.

Dr. John Zahradnik continues to expand his activities in this area since its inception three years ago. He is receiving increased support from the towns of Marion, Mattapoisett, Harwich, Westport, and Wareham. Two towns have given the laboratory their exclusive use of a total of nine acres of bottom land for his experimental operations. The thrust of his activity is in the cultivation and production of shellfish, and as such the results of his work are of great interest to the economic well-being of the residents of the towns mentioned previously.

(iii) Belchertown State School

Dr. John Dixon continues to involve some of the students in the design course in projects involving mentally retarded persons at the Belchertown State School. The projects are oriented toward recreational, instructional, or therapeutic needs.

(iv) Urban Mass Transportation

Dr. William Goss has represented the Town of Amherst and the Five College Community in the Lower Pioneer Valley Regional Planning Commission Study of the overall transportation systems in this region. The work of this commission has led to the receipt of a training grant which involves students, research, and a trial system of bus transportation for Amherst and outlying apartment house projects.



### III Faculty

That the Faculty of the School of Engineering continues to be productive and gaining increasing national recognition in the face of decreasing University support and morale shattering statements on percentages of faculty moving into the tenured ranks is indeed remarkable and gratifying to the writer. The University of Massachusetts has an enviable resource in its Engineering Faculty which can be extremely useful in the solution of the State's economic and environmental problems but the Faculty must be adequately supported.

Assistant Dean Roscoe Ward has accepted a 15-month appointment with the National Science Foundation in Washington through the intergovernmental Personnel Act of 1970. He will serve six months in the Research Applied to National Needs Division and nine months in the Science Education Division. The experience he will obtain in NSF should be extremely valuable to the School in future years. We are delighted that Dr. Duane Cromack has agreed to serve as Acting Assistant Dean during the period Dean Ward will be away.

Special commendation goes again to Dean Lester Van Atta for his excellent work and steadying influence on the entire School (including the writer). His leadership in putting together the proposal for the Productivity Institute is gratefully acknowledged.

Dr. G. Dale Sheckels has requested that he be relieved of administrative duties in the Department of Electrical and Computer Systems Engineering to return to full-time teaching and research. We are grateful for the excellent leadership Dr. Sheckels provided in assembling an outstanding faculty and developing a nationally recognized research program. We thank him for a job well done.

The School welcomes with enthusiasm Dr. J. Edward Sunderland as the new Head of the Department of Mechanical and Aerospace Engineering. Dr. Sunderland is an internationally recognized researcher in Mechanical Engineering and brings to the Department the judgment and wisdom needed to be an effective leader. It will be good to work with a trusted and respected colleague again.

The Department of Electrical and Computer Systems Engineering reports the two additions to its faculty. Professor Olof Rydbeck comes to us as a Visiting Professor from the Chalmers University of Technology in Sweden. Dr. Rydbeck is an internationally recognized authority in Radio Astronomy and Electromagnetic Propagation. The second new faculty member will be Dr. Walter Kohler, coming from Princeton University where he recently completed the doctorate in Computer Systems Engineering.

Chemical Engineering reports that Dr. Hans Duus, Professor Emeritus, is moving to California and will no longer be available for his valuable counsel.





Professor Michael Zyczkowski of the University of Cracow, Poland, spent the calendar year 1971 as Visiting Professor of Civil Engineering as an NSF Senior Visiting Foreign Scientist.

Professor Tsuan H. Feng, Environmental Engineering, was on sabbatical leave during the academic year 1971-72 and was Visiting Professor of Civil Engineering at Taiwan National University.

This year, Professor Ian B. Thomas, Associate Professor of Electrical and Computer Systems Engineering, was honored by receiving one of the three University Distinguished Teacher Awards for 1971. In addition to this, he was further honored by receiving one of the two Western Electric Fund Awards offered by the New England Section of ASEE. Professor Joseph Langford completed twenty-five years of faithful service to the University and will retire on August 31, 1972. Professor Charles Hutchinson spent the year at the Boston University Medical School where he was involved with the application of engineering principles to the solution of medical problems.

Professor Klaus E. Kroner of the Department of Industrial Engineering and Operations Research was on leave during the Fall Semester. He worked with the Industrial Development Division of the Georgia Institute of Technology Experiment Station.

Professor Richard W. Trueswell, Head of the Department of Industrial Engineering and Operations Research, was on sabbatical leave as the Joseph Lucas Visiting Professor of Engineering Production at the University of Birmingham, Birmingham, England for the 1971-72 academic year. We welcome him back.

The excellent manner in which Professor Robert Davis served as Acting Department Head in IE and OR is gratefully acknowledged. The Department was run smoothly and significant progress was made on all fronts.

A source of stimulation for faculty development is to have visiting professors from foreign countries on campus for periods of time from one day to one year. Dr. Erskine Crossley of the Department of Mechanical and Aerospace Engineering has excelled in this respect, and to acknowledge this, a listing is given below of the visitors that he has hosted for the past year:

- (i) Dr. Vladimir Brat, Associate Professor at the Technological University of Prague, Czechoslovakia (IREX Exchange Scholar), June 10 - July 25, 1971, working on computer simulations of dynamics in machines.



(ii) Mr. Ming Loo, Associate Professor, University of Singapore (exchange funded through the University of Wisconsin), February 28 - April 8, 1972

(iii) Professor Kenneth H. Hunt, Dean of Engineering, Monash University, Melbourne, Australia, Visiting Professor here and Research Associate in NSF grant, January - August, 1972

(iv) Professor Louis Torfason, University of New Brunswick, Fredericton, N.B., Canada, who gave an informal seminar, April 6, 1972

(v) Docent Yuri Sarkisyan, University of Yerevan, Armenia, and Research Associate, Academy of Sciences, Moscow, USSR (IREX Exchange Scholar from Stanford University, Stanford, California), who gave an impromptu two and one-half hour seminar to our research group on May 29, 1972

(vi) Mr. Raymond Wall, Deputy Librarian, University of Loughborough, England, who came to consult on a research grant of the British Research Council, May 25-26, 1972

Dr. John E. Ritter, Jr., Associate Professor of Mechanical and Aerospace Engineering, returns to the Campus this fall after spending a year with the Owens-Illinois Development Center under the ASEE Ford Foundation Resident Fellow Program. Such leaves are invaluable in updating faculty expertise with current industry practice.

It is always with regret that resignations from the Faculty of the School are listed.

Dr. John A. Fillo has resigned effective 1 September 1972, to accept a position at the University of Texas at El Paso.

Dr. George A. McLennan has resigned effective 1 September 1972, to accept a position at the Argonne National Laboratory.

Dr. Imsong Lee has resigned effective 1 September 1973. He will be on leave without pay status during the coming academic year to spend a year as Visiting Professor of Electrical Engineering at the University of California, Berkeley.



#### IV Planning

Engineering Schools throughout the Nation are being buffeted by poorly understood forces as we go into the 70's. Comment has already been made about foreign competition and the anti-technology mood of society. In addition, lack of careful government planning at all levels has created a massive unemployment problem for scientists and engineers that has resulted in dramatic decreases in undergraduate enrollments throughout the land. In view of these and other forces, a Long-Range Planning Committee was formed last year. Professor Paul Shuldiner ably serves as Chairman of the Committee. It is expected that the Committee's report will be forthcoming in the fall.

The writer participated in a General Electric Company Conference on strategic planning. The conference had as its goal, informing Engineering Deans of the careful planning process now underway in industry to maintain profits and growth in a dynamic world. It was generally agreed that Universities could learn a great deal in carrying out similar planning exercises. An important element in planning is that plans are initiated from below (called "bottom-up") but direction and final decision-making regarding long range plans came from corporate management (called "top-down"). University participants generally agreed that what is lacking in Universities today is the top-down communication link and perhaps another conference should be held for Presidents and Chancellors.

The Executive Council of the School of Engineering has discussed the importance of planning and the need to understand the dynamics of the situation we face today. Certainly, a key element necessary in gaining such an understanding is the needs of industry and government and the kinds of tasks expected to be undertaken by our graduates. It was also agreed that mutual understanding of each others problems was an important matter. The Council concluded that it would be extremely desirable for each Department in the School to have an Industrial Advisory Committee. The Chairmen of the various Departmental Committees will serve as a School of Engineering Industrial Advisory Committee. The Department of Mechanical and Aerospace Engineering should be commended for establishing such a committee two years ago and giving us some feeling of the value of these committees. The writer has been extremely keen on establishing such committees but hesitated to invite key business and industry leaders to the campus and ask them to pay their own expenses. This situation is indeed distasteful but, nevertheless, we plan to go ahead with the assembling of excellent advisors and ask them to pay their own expenses. A small sum of money could avoid this awkward situation.

Interest in the School of Engineering to attract minority group students and young ladies continues high. The Ritter Proposal to work with minority group high school students has not been funded. However, in June 1972, it



was endorsed by the Projects Board of ASEE and we will now work with that organization to seek funding for the effort.

Planning for the new Engineering laboratory building has continued but at very low levels. The decision not to go ahead with working drawings for two consecutive years continues to demoralize the Faculty since space has become our major problem. The School is now working with the Office of Space Planning and we are most anxious to find alternative solutions to our space problems.

In the undergraduate program, the Chemical Engineering Department plans to initiate this fall its new flexible curriculum options which offer the students, in addition to the more standard chemical engineering curriculum, the opportunity for a B.S. Degree in Chemical Engineering with emphasis in (1) Environmental Engineering, (2) Biochemical Engineering, (3) Food Science and Engineering, or (4) Business Administration. The new independent study projects stressing engineering creativity and innovation will also be initiated this fall in the undergraduate program.

As discussed in an earlier section, it is planned to implement an active program of undergraduate recruitment and PR in general, especially with the high schools and community colleges.

On the graduate level, it is planned to continue the development of the new entrepreneurship program, and to expand further into the bio-oriented interdisciplinary area, while maintaining the regular, broad-based programs in traditional chemical engineering areas and continuing the strong participation in our other interdisciplinary programs, Environmental Engineering and Polymer Science and Engineering. It is also planned, of course, to continue the aggressive recruitment of top quality graduate students and the pursuit of increased financial support from all possible sources.

As for physical facilities, the Chemical Engineering Department is eagerly looking forward to being assigned substantial additional space as a result of the space survey conducted by the Planning Office which confirmed, via the Colorado/California formula, that the Department's needs call for an additional 6,800 assignable square feet of space, or approximately fifty percent more than the Department has now.

The changing pattern of Governmental financial support is being felt in Civil Engineering. In Environmental Engineering, for example, we expect that training grants will be phased out and that we shall have to concentrate even more effort on getting research support for graduate students than in the past.

The areas in which it is felt that the Department of Civil Engineering should concentrate on account of their importance to society are the same as





last year's, namely, Environmental Engineering, Ocean Engineering, Transportation Engineering, and Earthquake Engineering. (These applications, together, cover practically all the other fields of civil engineering -- fluid mechanics, construction, soil mechanics, materials.)

The Department of Industrial Engineering and Operations Research is developing plans for introducing alternative goal-oriented programs of study within our undergraduate curriculum: suggested sequences of courses (and perhaps other activities) to help students structure their use of the relatively large number of elective courses within our curriculum.

They plan to form an advisory board composed of representatives from the various working environments in which our graduates are placed, and are in the process of selecting possible board members. We anticipate that from \$200-500 per year will be required to insure proper representation on our board.

In order to develop a high-quality teaching and research capability in the human-factors aspect of our program the Department of Industrial Engineering and Operations Research require approximately \$60,000 of equipment during the next three years. It is anticipated that outside funds will be obtained to cover at least half of this amount. The equipment required is for:

Industrial and environmental noise measurement and analysis

Investigation of visual information display and visual performance

Mockups of work-place layouts

Study of manual control systems

Demonstration and teaching in the area of the effects of industrial and environmental vibration and noise on human performance and well-being

Expansion of the teaching capability of the laboratory

Basic measurements in working physiology, such as heart rate, oxygen uptake, muscular activity, etc., where the courses and facilities of the Exercise Science program are not appropriate to the needs of engineering students

Establishment of a graduate human-factors laboratory

Enlargement of research facilities for studying visual-display design and interpretation of operational and information-processing capacities



As an outgrowth of the faculty's interest and involvement in community service, the Department of Industrial Engineering and Operations Research is planning to form a Community Extension Service; it is viewed as an organization designed to be an interface between the research and professional capabilities of a university on the one hand and the needs of communities of Western Massachusetts on the other. It will be, in effect, a nonprofit consulting company that will encourage the efficient employment of a scarce and expensive resource -- a university faculty and its students -- to problems of surrounding communities. Many of the activity items we have cited are examples of what can be done through such an organization.

#### V Problems

The space crisis in the School of Engineering remains a key problem. We are less and less optimistic that our needs will be met by a new building in the foreseeable future due primarily to the economic plight of the State and the need to complete the Boston and Worcester campuses. The School has about reached the point where selectivity must be exercised concerning the kind of sponsored research we undertake and how much additional work we can do. It is indeed lamentable that when Federal Agencies are providing substantial support for Engineering Faculties to work on serious national problems that we find ourselves in such a serious space bind that we may be unable to accept the challenge.

State fund allocations in the non-salary accounts continue to deteriorate and the reasons for this deterioration are not clear. The School of Engineering is well aware of the fact that budget limitations are developing throughout the land and we accept the fact that belts have to be tightened. The Shepard Amendment cuts recently imposed on the University and other State Agencies is also understood and accepted as something beyond University control. Some of us may even agree with the reasoning behind the Amendment. What is not understood, however, is the fact that disproportionate cuts have been made in all academic unit budgets while increases have been allocated to central administrative units. It would appear to the writer that in times of limited State support that less money be spent on administration and more money be made available as seed money to attract non-State funding.

The Faculty of the School of Engineering has accomplished significant results in generating outside support for their research and educational programs. A review of grants received from Federal and State Agencies and Industry provides evidence of hard work, competence and drive on the part of the majority of our Faculty. The reduction of State funding is sufficiently demoralizing but perhaps even more foolhardy is the reduction of trust funds or contingency funds allocated to the School for the support of its Faculty. Indirect costs are a very real thing and much of these indirect costs are generated at the Department and School level. These costs have to be met or the operation must go bankrupt. This fact must be recognized by the Admin-



istration and more adequate support be provided for these indirect costs. We are rapidly approaching the point where alternative organization structures will have to be considered or reduce the amount of externally funded work. We prefer neither of these alternatives and wish to work cooperatively with the Administration to solve this problem. But, a "do-nothing" approach to the problem can only result in disaster.

All Departments report a burgeoning amount of unneeded paper work that is swamping their offices. Administrative procedures being imposed on us ultimately stop at the Department Head level and it is there that most of the unnecessary paper-work load is felt. With decreasing support for clerical services, the problem can only get worse.

The acute shortage of space, especially laboratory space, is of course still a most serious problem to the Chemical Engineering Department and will continue to severely hamper and restrict both its undergraduate and graduate programs, and also its modules in the freshman engineering courses. The additional space to be assigned to the Department by the Planning Office is sorely needed by this fall semester for the sake of each of these programs.

The other most serious problem to the Department is that of the current and anticipated budget levels in the 03, 10, 13, and 15 accounts. The projected substantial cuts from levels which were already quite inadequate are really going to have severely damaging effects on the quality of our programs, undergraduate, graduate, and freshman, and consequently then on the morale of our faculty and students alike. Every possible effort must be made by the top administration of the University to alleviate these seriously damaging budget conditions before the consequences become disastrous to the quality and reputation of the University's programs in general, and especially to those in engineering and the sciences where equipment and supplies are so crucial to quality of the curriculum.

Our third serious problem, especially in the face of a very painful cut in our 03 funds, is the continuing need for another state position for a secretary. Our last new secretarial position was added in 1969, and since then we have added two faculty members and substantially expanded both our research and academic program activities. Thus, we still have only three state positions and have had to employ four additional secretaries with research grants, 03 funds, and our Chemical Engineering Trust Fund. Adequate secretarial service is vital to the quality of our programs, and ultimately, therefore, to the morale of faculty and students as well. Our Trust Fund is needed for graduate fellowships and some undergraduate support, and should not be used to make up deficiencies in state funds for secretaries, supplies, etc. as we have had to use substantial amounts of it this past year. Therefore, with decreased 03 funds, we desperately need an additional state position for a full-time secretary in order to maintain our productivity and the and the quality of the education we provide for our students.



Civil Engineering reports that in the fall of 1971 morale within the faculty, especially but not exclusively among the newer untenured faculty, dropped extremely due to some communications from the University and Campus Administration which indicated that the acquisition of tenure would become more difficult and might depend on factors in addition to performance and accomplishment. The morale situation appears to be somewhat easier than it was, but there can and certainly will be a strong reaction among faculty if there is a repetition in the coming academic year.

The Civil Engineering Department is suffering from its limited available space -- laboratory, office, and graduate student study space. We hope very much that the remainder of the former Engineering Library will be assigned us. We feel that steps should be taken immediately to remove WMUA from its quarters in Marston Hall so that the long overdue expansion of the Environmental Engineering Program can take place. We feel that the policy which allows only GTA and GRA students to have assigned study space is unfair to the unsupported graduate student and we urge that it be reconsidered.

There are six secretaries in the Civil Engineering Department (for about 30 faculty and with a total department budget -- salaries, operating expenses, research expenditures, etc. of over \$1,000,000 annually). These secretaries are all kept busy. However, only three of them are in State positions; the others are supported out of research grants, but still spend much of their time on tasks not related to the research program. We believe that additional State secretarial positions with the department are necessary.

The fact that most of the few permitted exceptions to the State salary ceiling have been used for administrators is decidedly unfair to the teaching faculty. In the Civil Engineering Department there is one individual who has been held at the limit for about three years and who happens to be an engineer of international reputation and remarkable accomplishment. There should be a way of recognizing and rewarding such an individual.

The greatest problem of the Electrical and Computer Systems Engineering Department was the shortage of secretarial support. The Department started the year with four secretaries. One externally supported senior secretary left in August and the position was transferred to the Civil Engineering Department. A second senior secretary left in January to accept another campus position paying a salary commensurate with her abilities. She was replaced with a junior stenographer, grade 4. We now have three secretaries and one co-ed helper to handle all of the departmental instructional work for 23 faculty members, plus all the reports, papers and proposals for an increasingly productive research faculty. The problem was anticipated but could not be avoided. One graduate student has been paid on an hourly basis to assist with the technical typing, but even with his assistance there remains a backlog of work.





The second problem has been the inability of the department to keep telephone expenditures within the budget allocation. Increased activity in the graduate student recruitment effort, the activities of the new Department Head Search Committee and keener competition for external research funding have all contributed to the greater expenditures. The imposed surcharge for WATS line rental continues to be a problem especially when the WATS lines are always so busy they cannot be used. Next year the increased equipment and toll charges will compound the problem.

Through considerable hustle on the part of some of the Industrial Engineering and Operations Research faculty, they have been fortunate in obtaining some form of support for a large percentage of our graduate students. However, their timing seems to be bad; they never seem to have the money in hand at the critical point in recruiting. They have lost a significant number of very good candidates because they could not offer financial assistance at the right time. In short, they need to generate additional avenues of support for prospective students -- industrial or service interns and additional grant funds. With the present funding situation, this will be a difficult problem to solve.

The Industrial Engineering and Operations Research departmental appropriations for FY 72 were below the subsistence level in the 10 and 15 accounts and at the subsistence level in the remaining accounts. Unless the amount allocated in the 12 and 13 accounts is increased for FY 73 (and future years), it is quite reasonable to assume that they will have idle equipment. All but the 12 and 03 accounts were subsidized from other funds during FY 72.

The suggestion of a tenure quota system despite subsequent denials by the Provost has had a drastic effect on the morale of the younger untenured faculty members in the Department of Mechanical and Aerospace Engineering. It is believed that they have responded very well to the new situation, and one can only wish for them that the higher administrative levels will indeed judge each tenure case on its own merits. If this is done, there are no doubts that our younger men will come off well. A review of the faculty performance shown elsewhere in this report is evidence of their favorable performance.

The Department of Mechanical and Aerospace Engineering further reports that the budget continues its decline of the past several years. In some cases this is a decline in actual amounts, and in other cases, a decline due to inflationary forces which reduce purchasing value. However, it is apparent that the Commonwealth of Massachusetts faces a critical situation relative to funding all State activities. We will have to do the best we can with the resources finally allotted to us. However, it is apparent to me that Dr. Sunderland, as incoming Head, will have to make some judgements as to the disposition of the funds. Our concern here is that a young, untenured faculty member may be affected adversely by a shortage of funds necessary to pursue his research or academic interests.



## VI Acknowledgements

The greatest personal satisfaction the writer has in carrying out his administrative duties in the School of Engineering is working with a group of fine, dedicated, hardworking people. The degree of openness and frankness which characterizes the manner in which the entire School functions has been applauded by all who visit. The credit for this accolade is due to the fine efforts of our Department Heads and through them to all the Faculty.

A unique resource has been assembled in the School of people with outstanding talents and experience and with an unusual drive to help solve important societal problems. It is indeed a pleasure to work with such people in spite of serious problems imposed on us by external sources.

Special thanks and commendation go again to Mrs. Oretta Taylor and her Staff in the Office of the Dean for providing an environment which is cheerful and happy and a pleasant place to pursue one's career.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'K. G. Picha', written in a cursive style.

K. G. Picha, Dean  
School of Engineering



APPENDIX I  
APPROPRIATION DATA



APPENDIX II  
PERSONNEL & ORGANIZATION CHART

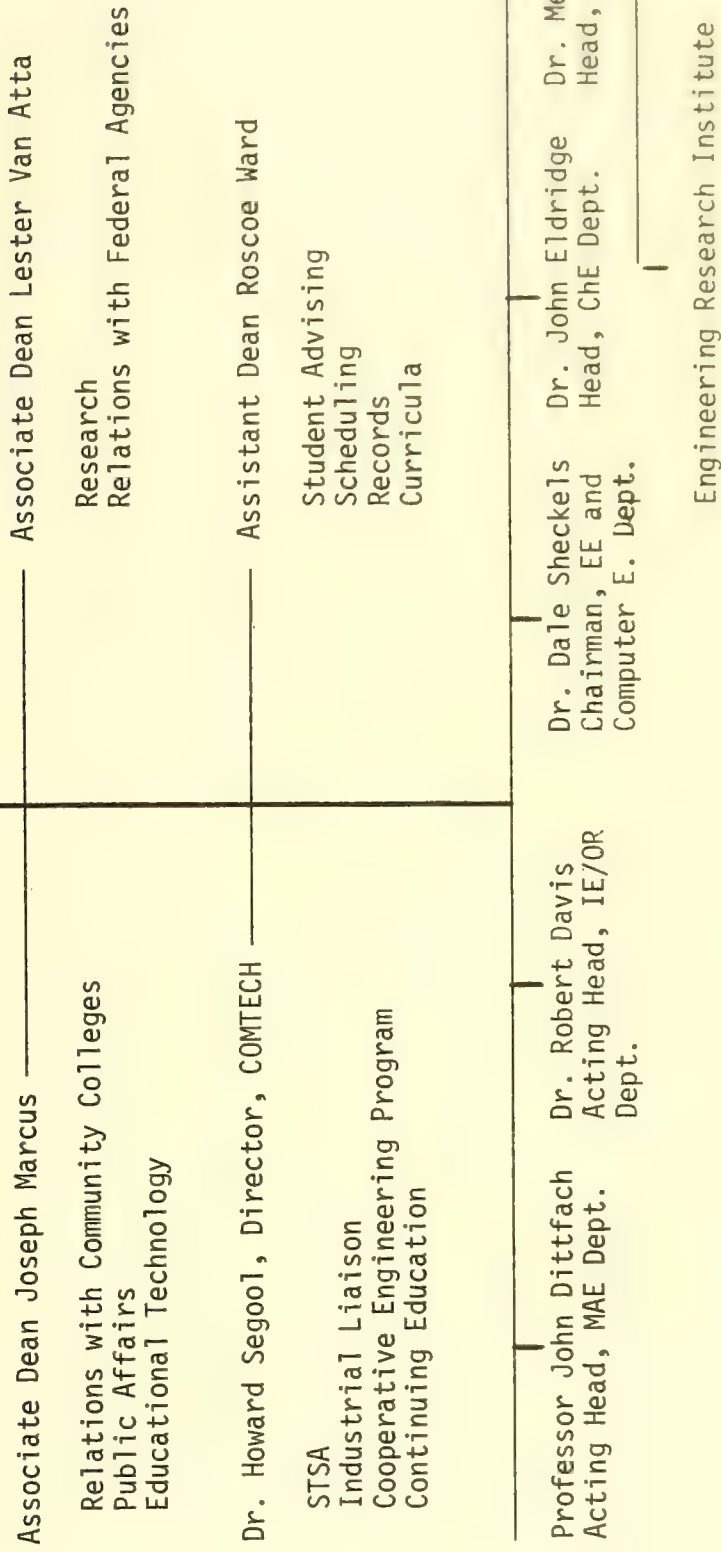




ORGANIZATION CHART  
SCHOOL OF ENGINEERING

September, 1971

DEAN K. G. PICHA





The following represents the breakdown by rank in each of the five Departments, excluding Deans:

	<u>Ch. E.</u>		<u>C. E.</u>		<u>E. E.</u>		<u>I. E.</u>		<u>M. A. E.</u>	
	69	70 71	69	70 71	69	70 71	69	70 71	69	70 71
Professors (including Heads)	7	8 8	10	10 12	7	7 7	3	3 2	8	7 8
Associate Professors	4	4 5	10	10 11	10	11 11	4	6 6	6	14 13
Assistant Professors	1	1 1	3	3 6	5	5 5	2*	1 1	8	4 5
Instructors	0	0 0	0	0 0	0	0 0	0	0 0	1	1 1
Adjunct Associate Professors	1	1 0	0	0 0	1	0 0	0	0 0	1	0 0
Visiting Associate Professors	0	0 0	1	0 0	0	0 0	0	1 0	1	0 0
Visiting Professors	1	0 0	0	0 0	0	0 0	1	0 0	0	0 0

\*One left at the end of the first semester.



The following table lists the total personnel (full-time equivalent) in the School of Engineering as of September, 1971:

	<u>1969</u>	<u>1970</u>	<u>1971</u>
Deans	3.5	3.0	4.0
Department Heads	5	5	5
Professors	35	36	37
Associate Professors	36	45	46
Assistant Professors	17	14	18
Instructors	1	1	1
Lecturers	0	0	0
Visiting Professors	2	0	0
Visiting Associate Professors	1	1	0



APPENDIX III  
STUDENTS SERVED





STUDENT DATA

1 STUDENTS SERVED	<u>Fall '69</u>	<u>Fall '70</u>	<u>Fall '71</u>
1. Engineering School Totals			
(a) (i) Number of Undergraduate Majors	1014	998	985
(ii) Number of Graduate Students	226	290	343
(b) Number of students taught	3850	3273	3230*
2. Chemical Engineering			
(a) (i) Number of Undergraduate Majors	76	70	55
(ii) Number of Graduate Students	54	55	61
(b) Number of students taught	285	376	361
3. Civil Engineering			
(a) (i) Number of Undergraduate Majors	171	167	231
(ii) Number of Graduate Students	66	72	108
(b) Number of students taught	1209	882	1063
4. Electrical Engineering			
(a) (i) Number of Undergraduate Majors	174	156	191
(ii) Number of Graduate Students	35	51	65
(b) Number of students taught	912	790	778
5. Industrial Engineering			
(a) (i) Number of Undergraduate Majors	73	59	60
(ii) Number of Graduate Students	30	45	40
(b) Number of students taught	372	355	280
6. Mechanical & Aerospace Engineering			
(a) (i) Number of Undergraduate Majors	222	174	162
(ii) Number of Graduate Students	39	50	64
(b) Number of students taught	1072	870	718
7. Undesignated Engineering			
Basic and Unassigned			
(a) Number of Undergraduate Majors	328	372	286

\*Based on student credit-hours ÷ 3 as supplied by Office of Institutional Studies - December 7, 1971.



## 11 NUMBER OF DEGREES GRANTED

	Sept. '69 to <u>June '70</u>	Sept. '70 to <u>June '71</u>	Sept. '71 to <u>June '72</u>
--	------------------------------------	------------------------------------	------------------------------------

Bachelor of Science	199	164	166
Master of Science	47	57	64
Doctor of Philosophy	7	16	19
1. Chemical Engineering			
B.S.	22	22	13
M.S.	12	11	6
Ph.D.	3	3	6
2. Civil Engineering			
B.S.	44	31	58
M.S.	8	12	13
Ph.D.	2	3	5
3. Environmental Engineering			
B.S.	0	0	0
M.S.	7	2	4
Ph.D.	0	1	0
4. Ocean Engineering			
B.S.	0	0	0
M.S.	0	0	4
Ph.D.	0	0	0
5. Electrical Engineering			
B.S.	41	45	31
M.S.	4	9	11
Ph.D.	1	2	4
6. Industrial Engineering			
B.S.	21	19	20
M.S.	1	11	11
Ph.D.	1	4	0
7. Mechanical Engineering			
B.S.	51	35	33
M.S.	15	12	15
Ph.D.	0	3	4
8. Aerospace Engineering			
B.S.	20	12	11
M.S.	0	0	0
Ph.D.	0	0	0



APPENDIX IV

PROFESSIONAL ACTIVITIES OF THE FACULTY



## Faculty Publications and Patents

### i) Office of the Dean

J. S. Marcus, co-author, "Direction for the Seventies", a report of the Faculty Senate, Long Range Planning Committee

## I Faculty Papers Presented

### i) Office of the Dean

K. G. Picha, "Technological Development of the Republic of Singapore", Engineering Honor Societies, Western New England College, April 25, 1972

"School of Engineering Planning to Assist Industry in Massachusetts", Holyoke Rotary Club, May 23, 1972

## II Grants

### i) Office of the Dean

Joseph S. Marcus and Roscoe F. Ward

New England Junior Science and Humanities Symposium  
U. S. Army Research Office, \$6,500, Spring, 1972

## IV Consulting and Other Professional Activities

### i) Office of the Dean

K. G. Picha

Consultant, NSF Student Oriented Program

Consultant, National Air Pollution Control Manpower Development Advisory Committee

Vice Chairman, Operations, ECPD, Engineering Education Accreditation Committee -- Chaired Two Visiting Teams

Vice Chairman, Policy, Engineers' Council for Professional Development, 1972





i) Office of the Dean (continued)

K. G. Picha

Past Chairman, Commission on Education for Engineering Profession,  
National Association of State Universities and  
Land Grant Colleges

Consultant, Government of Singapore, Summer, 1971

Director, Massachusetts Science and Technology Foundation

Director, Engineering College Administrative Council, ASEE

Director, Engineering College Research Council, ASEE

Director, Projects Board, ASEE

Director and Secretary, ASEE Graduate Studies Division

Chairman Elect, ASEE Graduate Studies Division

Consultant, International Division, Combustion Engineering, Inc.

Member, Planning Committee, G.E. Company Engineering Education  
Management Conference

Consultant, Graduate Engineering Programs, S.U.N.Y., Buffalo

Howard D. Segool, Director of COMTECH, served on the following  
Committees:

University Broadcast Council

Continuing Education

Chairman of Academic Program Subcommittee

Massachusetts Rural Development Committee

Chairman, New England Council, Application of Science and  
Technology Committee

Laboratory for the Development of Western Massachusetts Committee



i) Office of the Dean (continued)

Joseph S. Marcus

University Discipline Board

Faculty Senate, Continuing Education Committee

Chairman, Laboratory for the Development of Western Massachusetts  
Committee

University Broadcast Council

Member, Accreditation Board, Thames River Valley Technical Institute

Consultant, AEC, Traineeship Selection Committee

Roscoe F. Ward

World Health Organization Scholar



APPENDIX IV  
PROFESSIONAL ACTIVITIES OF THE FACULTY  
CHEMICAL ENGINEERING DEPARTMENT

I. Faculty Publications and Patents

(a) Books

J. M. Douglas

"Process Dynamics and Control", Analysis of Dynamic Systems, 1, Prentice-Hall, Inc., Englewood Cliffs, New Jersey, p. 367, (1972).

S. Middleman

"Transport Phenomena in the Cardiovascular System", Wiley-Interscience, Division of John Wiley & Sons, Inc., New York, N. Y., p. 299, (1972).

(b) Journal Articles

J. M. Douglas

(with T. G. Dorawala) "Complex Reactions in Oscillating Reactors", AIChE Journal, 17, pp. 974-981, July, 1971.

(with P. V. Heberling, and N. Y. Gaitonde) "Multiple Limit Cycles in a Continuous-Stirred-Tank Reactor", AIChE Journal, 17, pp. 1506-1508, November, 1971.

J. R. Kittrell

(with B. S. Stangeland) "Jet Fuel Selectivity in Hydrocracking", Ind. Eng. Chem. Process Design and Development, 11, p. 15, (1972).

R. S. Kirk

(with Tom Fidelle) "A Study of Unidirectional vs. Tridirectional Heat Flux Models and the Effect of Particle Size on Heat Conduction in Composite Solids", AIChE Journal, 17, p. 1427, November, 1971.

R. L. Laurence

(with P. C. Sukanek) "The Uniqueness of Solutions for Poiseuille Flow with Viscous Heating", Annales Soc. Scient. Bruxelles, 86, pp. 209-217, (1972).



## Appendix IV

R. W. Lenz

"Monomer Activation in Free-Radical Polymerization", Polymer Preprints, 12, No. 2, p. 16, (1971); presented at ACS National Meeting, Washington, D. C., September, 1971.

(with C. C. Wu) "Preparation and Polymerization of 3-Methylenecyclobutene and of 1-Methyl-3-Methylenecyclobutene", Polymer Preprints, 12, No. 2, pp. 209-216, (1971); presented by C. C. Wu at ACS National Meeting, Washington, D. C., September, 1971.

(with L. A. Mango) "Organometallic Reactions Which Control Molecular Weight in the Anionic Polymerization of 1,3-Cyclohexadiene", Polymer Preprints, 12, No. 2, pp. 402-409, (1971); presented by L. A. Mango at ACS National Meeting, Washington, D. C., September, 1971.

T. J. McAvoy

"Hybrid rekenen in de chemische technologie", Chemisch Weekblad, 1 October, 1971, pp. C10-C16.

"Time-Optimal and Ziegler-Nichols Control", Ind. Eng. Chem. Process Design and Development, 11, No. 1, pp. 71-77, January, 1972.

(with Elmer Hsu and Stuart Lowenthal), "Dynamics of pH in Controlled Stirred Tank Reactor", Ind. Eng. Chem. Process Design and Development, 11, No. 1, pp. 68-70, (1972).

"Solution of Hyperbolic Partial Differential Equations Via a Hybrid Implementation of the Method of Characteristics", Simulation, pp. 91-98, March, 1972.

"Hybrid Simulation of a pH Stirred Tank Control System", Simulation, pp. 114-120, March, 1972.

"Comments on Hybrid Computing Time of ADI Method", AIChE Journal, p. 1245, September, 1971.

(with F. Smola) "The Finite Difference Delay Technique, A New Approach for Solving Certain First-Order Partial Differential Equations", Proceedings of International Congress on Hybrid Computation, sponsored by AICA-IFIP, Munich, Germany, pp. 817-826, August 31 - September 4, 1970. (Not reported in last year's annual report).





## Appendix IV

(with J. Paraskos) "Feed Toward Computer Control of a Class of Distributed Parameter Processes", AIChE Journal, 16, No. 5, pp. 754-761, September, 1970. (Not reported in last year's annual report).

S. Middleman

(with R. C. Penwell and R. S. Porter) "Determination of the Pressure Coefficient and Pressure Effects in Capillary Flow", J. Poly. Sci., A-2, 9, pp. 731-746, (1971).

### (c) Patents

J. R. Kittrell

"Hydrocarbon Conversion Catalyst Comprising an Ultra-Stable Crystalline Zeolitic Molecular Sieve Component, and Methods for Making and Using Said Catalyst", U. S. Patent 3,535,227, October 20, 1970, (issued too late for FY '71 Annual Report).

"Hydrocracking Catalyst Comprising a Crystalline Zeolitic Molecular Sieve Component, a Group VIII Component and Gold, and Process Using Said Catalyst", U. S. Patent 3,576,736, April 27, 1971, (issued too late for FY '71 Annual Report).

"Catalytic Hydrocracking Process", U.S. Patent 3,617,498, November 2, 1971.

"Hydrocracking Catalyst Comprising an Amorphous Aluminosilicate Component, A Group VIII Component and Rhenium, and Process Using Said Catalyst, U. S. Patent 3,617,485, November 2, 1971.

"Method of Increasing Hydrocracking Activity and/or Reducing Hydrocracking Activity Decline Rate of Catalyst Comprising Layered Crystalline Clay-Type Aluminosilicate", U. S. Patent 3,625,865, December 7, 1971, (with G. E. Langlois, and J. W. Scott).

(with R. C. Robinson) "Catalytic Hydrogenation with Metal Phosphate-Containing Catalysts", U. S. Patent 3,627,672, December 14, 1971.

(with S. M. Csicsery) "Hydrocracking Catalyst Comprising a Layered Clay-Type Aluminosilicate Component, A Group VIII Component, and Iron, and Process Using Said Catalyst", U. S. Patent 3,632,500, January 4, 1972.



## Appendix IV

"Hydrocracking Catalyst Comprising a Layered Clay-Type Crystalline Aluminosilicate Component, A Group VIII Component and Zinc, and Process Using Said Catalyst", U. S. Patent 3,632,501, January 4, 1972.

"Hydrocracking Catalyst Comprising a Layered Clay-Type Crystalline Aluminosilicate Component, A Group VIII Component and a Rare Earth Component, and Process Using Said Catalyst", U. S. Patent 3,632,502, January 4, 1972.

(with Joseph Jaffe) "Catalyst Comprising a Fluorine-Containing Layered Crystalline Aluminosilicate, and Preparation and Use Thereof", U. S. Patent 3,639,268, February 1, 1972.

"Method for Making Multi-Component Catalysts", U. S. Patent 3,639,271, February 1, 1972.

(with Joseph Jaffe) "Thermactivation of Catalysts Comprising Rhenium and Crystalline Zeolitic Molecular Sieve Particles Dispersed in a Gel Matrix, and Catalysts So Thermactivated", U. S. Patent 3,641,096 February 8, 1972.

R. W. Lenz

(with L. Barish and V. Lyons) "Process for Chemically Texturing Polyester Yarns", U. S. Patent 3,274,165, (1971).

W. L. Short

(with W. M. Bollen) "Ammonia Stripper Overhead Control Method", U. S. Patent 3,600,283, August 17, 1971.

## II. Faculty Papers Presented, Invited Seminars, and Short Courses

### (a) Papers Presented

J. M. Douglas

"Industrial Feedback on Reaction Engineering Techniques", panel discussion at 64th Annual AIChE meeting, San Francisco, November, 1971.

R. L. Laurence

"Residence Time Distribution in a Static Mixer", at Engineering Foundation Conference, Andover, N. H., August, 1971.



## Appendix IV

"Bubble Dissolution in Polymer Solutions", at 71st National Meeting of AIChE, Dallas, Texas, February, 1972.

R. W. Lenz

See under "Publications", Section I.

T. J. McAvoy

(with W. L. Short and R. W. Cleary) "Unsteady State, Three Dimensional Model of Thermal Pollution in Rivers", at 70th National Meeting of AIChE, Atlantic City, August, 1971.

"The Finite Difference Delay Technique -- A New Approach To the Solution of Certain First-Order Partial Differential Equations", 6th International Congress on Hybrid Computation, Munich, August 31, 1970. (Not reported in last year's annual report).

(with R. W. Cleary, S. Middleman, and W. L. Short) "Mathematical Modeling of Thermal Pollution in Rivers", Fifty-Second Annual Meeting of the American Geophysical Union, Washington, D. C., April, 1971. (Not reported in last year's annual report).

"Multivariable Process Control", 14th Symposium on Process Automation, Los Angeles, California, April 24-26, 1972.

W. L. Short

Same as first and third under T. J. McAvoy.

### (b) Invited Seminars

J. M. Douglas

"Nonuniqueness of Constitutive Equations", W. P. I., December, 1971.

J. W. Eldridge

Several seminars on "Ethylene Polymerization and Reactor Design" presented during sabbatical leave visits last May and June at University of New South Wales, University of Queensland, and Monash University. (Not reported in last year's annual report).



## Appendix IV

### R. L. Laurence

"Stability of Flows with Viscous Heating", at Northwestern University, February, 1972.

"Methodology of Polymerization Reaction Engineering", at Eastman Kodak Co., Rochester, N. Y., March, 1972.

### R. W. Lenz

"Crystallization-Induced Reactions of Copolymers" at Esso Research and Engineering Co., Houston, Texas, February, 1971; at Celanese Corporation, Summit, New Jersey, May, 1971; and at Gordon Research Conference, New London, N. H., June, 1972.

"Linear Polybenzyl" at Esso Research and Engineering Co., Long Range Research Meeting, Washington, D. C., October, 1971.

"Preparation and Mechanical Properties of Block Copolymers from Pivalolactone and Related Monomers" at Cornell University, May, 1972; and at ACS New Jersey Section, So. Orange, N. J., May, 1972; and at ACS New Haven Section, April, 1971.

"Solid-State Polymerization of Crystalline Benzyl Tosylate" at Rensselaer Polytechnic Institute, January, 1972; at Clemson University, December, 1971.

### T. J. McAvoy

"Experimental Process Control Studies", Symposium Speaker, Dept. of Applied Physics, Technical University of Delft, Delft, Netherlands, February, 1971. (Not reported in last year's annual report).

"Solution of Hyperbolic Partial Differential Equations via A Hybrid Implementation of the Method of Characteristics", Seminar for Dept. of Measurement and Control of Applied Physics, Delft University, Delft, Netherlands, June, 1971. (Not reported in last year's annual report).

"Hybrid Computer Solution of Hyperbolic Partial Differential Equations", Royal Dutch Shell Laboratory, Amsterdam, March, 1971. (Not reported in last year's annual report).

### S. Middleman

"Bioengineering", Tufts University, March, 1972.





## Appendix IV

"Bioengineering", UConn, April, 1972.

"Design of an Artificial Kidney", Student Chapter of AIChE, UMass, March, 1972.

"Rheology", Olin Research Labs, New Haven, June, 1972.

W. L. Short

"SO<sub>2</sub> Removal from Stack Gases", RPI, November, 1971.

"SO<sub>2</sub> Removal from Stack Gases", Clean Air Symposium, St. Josephs College, West Hartford, Conn., (Sponsored by ALS, AIAA).

M. Vanpee

"Chemiluminescence in Low Pressure Flames", at University of Louvain, Belgium, July, 1971.

### (c) Short Courses

R. L. Laurence

R. W. Lenz

S. Middleman

NSF Summer Institute, "Polymer Science for College Teachers", July, 1971.

R. W. Lenz

University of Detroit, May, 1972.

Armstrong Cork Co., Lancaster, Pa., May, 1972.

## III. Grants

J. M. Douglas

NSF Grant GK 4556, "Periodic Performance of Chemical Processes", September 15, 1968 - December 15, 1971, \$57,600.



## Appendix IV

NSF Grant GK 32526X, "Periodic Operation of Chemical Processes", February 15, 1972 - July 31, 1973, \$26,100.

J. W. Eldridge

ONR Contract, N00014-68-A-0146-4, "New Composite Materials via Direct Polymerization on or in Catalyst-Carrying Substrates", September 1, 1970 - August 31, 1971, \$11,090, September 1, 1971 - August 31, 1972, \$6,400.

J. R. Kittrell

EPA (OAP) Grant 1 R01 AP01443-01, "Catalyst Deactivation Studies of NO Reduction", June 1, 1971 - May 31, 1972, \$39,334. (also approved for 2 more years at approximately same funding, subject to availability of funds).

(with R. L. Laurence and H. O. Hultin) NSF GK 29197, "Catalytic Reactor Studies Using Immobilized Multi-Enzyme Systems", June 1, 1971 - May 31, 1972, \$44,000.

R. L. Laurence

(with J. R. Kittrell and H. O. Hultin) NSF GK 29197, "Catalytic Reactor Studies Using Immobilized Multi-Enzyme Systems", June 1, 1971 - May 31, 1972, \$44,000.

(with J. R. Kittrell and H. O. Hultin) NSF GI 34976, "Studies of a Catalytic Reactor Using an Immobilized Multi-Enzyme System", July 1, 1972 - December 31, 1973, \$99,100.

R. W. Lenz

ONR Contract, N00014-68-A-0146-4, "Preparation and Evaluation of New Polymers", September 1, 1970 - August 31, 1971, \$11,765; September 1, 1971 - August 31, 1972, \$6,400.

Esso Research and Engineering Co. Research Contract, "Linear Polybenzyl", June 1, 1969 - May 31, 1972, \$4,500 per year (\$13,500 total).

Esso Research and Engineering Co. Research Contract, "Complex Monomer Polymerization", June 1, 1972 - August 31, 1972, \$2,000 maximum.



## Appendix IV

NSF Grant GK 16622, "Reaction-Induced Crystallization of Polymers", January 15, 1970 - January 15, 1972, \$41,000, plus Amendment M1, May 18, 1972 - December 31, 1972, \$4,800.

### T. J. McAvoy

NSF Grant GK 2982, "On-Line Process Control Using an Analog Computer", June 1, 1968 - June 30, 1972, \$48,900.

### S. Middleman

NIH Biomedical Sciences Support Grant, "Development of an Artificial Kidney Utilizing Microencapsulated Enzymes", \$5,245 for FY '72.

(with C. Rha) NSF GI 34897, "Development of Protein Fiber as an Engineering Material", June 15, 1972 - November, 1973, \$30,300.

### W. L. Short

PHS Grant 1 R01 AP00791-03, "SO<sub>2</sub> and NO<sub>x</sub> Removal from Stack Gases by CO", February 1, 1971 - August 31, 1972, \$44,246.

EPA Fellowship for student, September 1971 - August 1972, 1-F1-WP-26,561-01, \$5,100.

(with T. H. Feng) PHS Training Grant, T 01-AP00069-02, Air Pollution Training, September 1, 1971 - August 31, 1972, \$52,580.

### M. Vanpee

NSF Grant GK 23087, "Flames of High Energy Fuels and Oxidizers", May 1, 1971 - April 31, 1973, \$43,200.

Bureau of Mines Grant G0 111343, "Kinetic Studies on Gas Hydrates", March 1, 1971 - June 30, 1972, \$24,924; June 30, 1972 - June 29, 1973, \$26,656.

Air Force Systems Command Contract No. F 19628-71-C-0130, Chemiluminescence from Metals and Metal Oxides", May 1, 1971-July 31, 1972, \$6,000.



## Appendix IV

### IV. Consulting and Other Professional Activities

#### (a) Consulting

R. S. Kirk

National Science Foundation - Committee on Computer  
Aids in Chem. Eng. Education

J. R. Kittrell

Monsanto Company

General Foods Corporation

R. L. Laurence

Kenics Corporation

Tennessee Eastman Division of Eastman Kodak Co.

R. W. Lenz

Esso Research and Engineering Company

Diamond-Shamrock Company

Berkley and Company

S. Middleman

Eastman Kodak Company

Kenics Corporation

Monsanto Company

W. L. Short

EPA

#### (b) Professional Meetings and Conferences

K. D. Cashin

New England Regional Meeting of AIChE Student Chapters  
at Lowell Technological Institute, May, 1972.

Chemical Exposition, New York City, December, 1971.





## Appendix IV

Speaker, September, 1971 meeting of the Western Massachusetts Section of AIChE.

J. M. Douglas

64th Annual AIChE meeting, San Francisco, November, 1971.

J. W. Eldridge

64th Annual AIChE meeting, San Francisco, November, 1971.

R. S. Kirk

New England Regional Computing Program, Worcester, Massachusetts, May 16, 1971.

R. L. Laurence

Engineering Foundation Conference, Proctor Academy, Andover, N. H., August, 1971.

71st National AIChE meeting, Dallas, Texas, February, 1972.

R. W. Lenz

IUPAC Meeting, Boston, July, 1971.

Gordon Research Conference, New London, N. H., August, 1971.

ACS Annual Meeting, Washington, D. C., September, 1971.

ACS National Meeting, Boston, April, 1972.

Gordon Research Conference, New London, N. H., June, 1972.

T. J. McAvoy

14th Annual Symposium on Process Automation, Los Angeles, California, April 24 - 26, 1972.

R. J. Novak

1971 S. C. S. C., Boston, July, 1971.



## Appendix IV

W. L. Short

64th Annual AIChE meeting, San Francisco, November,  
1971.

### (c) Other Professional Activities

K. D. Cashin

Smith, Martinelli and Burres, Attorneys.

Advisor, Citizens Committee, Ludlow Board of Selectmen.

Counselor, Student Chapter of AIChE.

Member, Undergraduate Curriculum Committee.

Secretary, Departmental Faculty.

J. M. Douglas

National AIChE Program Committee.

Co-founder of new company dealing in technical  
innovations.

R. S. Kirk

Director of one session of APEX - Air Pollution Exercise.

Director, Western Massachusetts Sect., AIChE.

J. R. Kittrell

ACS Chemical Engineering Symposium Committee.

School of Engineering, Personnel Committee.

School of Engineering, Community College Committee.

R. L. Laurence

AIChE Research Committee, Polymers Subcommittee.

School of Agriculture, Food Engineering Undergraduate  
Committee.

School of Engineering, Grievance Committee.

Chem. Eng. Dept. Graduate Committee.



## Appendix IV

Chem. Eng. Dept. Undergraduate Curriculum Committee.

Advisor, Freshman Engineers.

Faculty Advisor, UMass Rugby Club.

R. W. Lenz

Chairman, Publications Committee, ACS Polymer Division.

Chairman, Screening Committee for IUPAC Meeting, Boston, 1971.

Advisory Board, J. Polymer Science.

Editorial Advisory Board, Macromolecules.

Advisory Board, Polymer News.

Judge, Western Mass. Science Fair.

Alternate Councillor, ACS Conn. Valley Section.

Chairman, Organization Committee and Session Chairman, Borden Award Symposium, April, 1972.

Assoc. Chairman, "International Colloquium on Synthetic Polymer Chemistry", Univ. of Mass., July, 1971

Organized and Chaired Session at Gordon Conference on Polymers, August, 1971.

### On Campus Activities:

Member, Ad Hoc Committee on Patent Policy, Graduate School.

Associate Head, Polymer Science and Engineering Program.

Member, Goessmann Laboratory Safety Committee.

Sponsor, BDIC Undergraduate Student.

Member, Chem. Eng. Dept. Comm. on Undergraduate Chemistry Courses.

Member, Personnel Comm., PSE Program.



## Appendix IV

E. E. Lindsey

AAPSE Committee on Short Courses and Operator Training.

AAPSE Education Committee.

R. J. Novak

AIChE Measurements Committee, Chairman of Mass. sub-committee.

L. H. S. Roblee

Director, Western Mass. Section, AIChE.

School of Engineering, Long-Range Planning Committee.

W. L. Short

EPA National Air Pollution Research Grants Advisory Committee; Chairman Engineering Panel.

Chairman, AIChE Program sub-committee for inorganic chemicals.

Site Visits for EPA.

Chairman, Faculty Senate, Academic Matters Committee.

Member, Supervising Committee, BDIC.

M. Vanpee

Smith, Martinelli and Burres, Attorneys.

Citizens Committee - Ludlow Board of Selectmen.

J. W. Eldridge

Chairman, New Engineering Building Committee.

Chancellor's Review Group on Future of the University.

Polymer Science and Engineering Committee.

Chairman, Nominating Committee, AIChE Dept. Heads Forum.





APPENDIX V.

Industrial Grants Received During FY '72

American Cyanamid	\$ 3,000.00
Diamond Shamrock	5,000.00
E. I. du Pont	2,500.00
Esso Foundation	5,000.00
Esso Research and Engineering	200.00
Gulf Oil	2,500.00
Humble Oil and Refining	4,500.00
Kenics	1,556.50
Monsanto	1,000.00
Olin	1,250.00
Polaroid	<u>5,000.00</u>
	\$ 31,506.50

cdm

6/28/72



## I. Faculty Publications and Patents

### (iii) Civil Engineering Department

R. R. Archer and M. L. Das

"Nonlinear Dynamic Analyses of Moderately Thick Shells," Proc. IASS Pacific Symposium, Part 1 (Hydromechanically Loaded Shells), Oct. 10-15, 1971.

R. R. Archer with 4 co-authors

2nd Edition of "An Introduction to the Mechanics of Solids," published by McGraw-Hill in February 1972. 1st Edit. sold around 50,000 copies and was translated into Spanish, Japanese, and Korean.

S. M. Bembem, M. Kupferman, and E. Kalajian, "The Vertical Holding Capacity of Marine Anchors in Sand and Clay Subjected to Static and Cyclic Loading," U.S. Naval Civil Engineering Laboratory, Port Hueneme, California, 250 pages (in press).

Bernard B. Berger

Seventh Annual Report - Program Activities Fiscal Year 1971, Water Resources Research Center, University of Massachusetts, Amherst., August, 1971. 66 pages.

Bernard B. Berger

Proceedings of the New England Conference on River Diversions, May 24-25, 1971; Durham, New Hampshire. Sponsored by the New England Council of Water Center Directors and the New England Governors Conference, August, 1971, pp. 18-33.

Bernard B. Berger

"Social and Ecologic Implications of Proposals for Out-of-Basin River Diversions," Journal of Professional Activities, Proceedings of the American Society of Civil Engineers, Vol. 97, No. PPI, October, 1971. pp. 95-110.

Bernard B. Berger

"Issues in Joint Waste Treatment," Proceedings Third Annual Short Course on Water Quality Control, Department of Civil Engineering and Water Resources Research Center, University of Massachusetts, Amherst.

J. M. Colonell

"A Wind Wave Research Facility," ONR Contract Report No. UM-72-2, March 1972, 54 pp.

C. A. Clines and J. M. Colonell

"Laboratory Modeling of Structural Response to Ocean Wave Excitation," ONR Contract Report No. UM-72-3, April 1972, 98 pp.

J. M. Colonell and V. Goldsmith

"Computational Methods for Analysis of Beach and Wave Dynamics," Proc. Second Annual Geomorphology Symposium, Binghamton, N. Y., October 1971.



- V. Goldsmith and J. M. Colonell  
"Characteristics and Effects of Wave Refraction: Monomoy Island, Cape Cod, Massachusetts," Abstract Volume of Second National Coastal and Shallow Water Research Conference, Newark, Del., October 1971.
- F. A. DiGiano and W. J. Weber, Jr.,  
"Sorption Kinetics in Infinite-Bath CMB Reactors," Jour. Water Pollution Control Federation. Accepted for Publication.
- F. A. DiGiano and W. J. Weber, Jr.,  
"Sorption Kinetics in Finite-Bath Systems," Submitted for review April 6, 1972, to American Society of Civil Engineers, Jour. of the Sanitary Engineering Division.
- F. A. DiGiano, T. H. Feng, and A. Morgenroth, "Joint Treatment of Textile Dyeing, Paper Coating and Municipal Wastewaters," Proceedings of the 5th Mid-Atlantic Industrial Wastes Conference-Drexel University-November 1971. In print.
- G. W. Foess and T. H. Feng  
"Bottom Deposits," 1970 Literature Review on Wastewater and Water Pollution Control, Jour. Water Poll. Control Fed., 43, 1257 (1971).
- G. W. Foess  
"Aquatic Sediments," 1971 Literature Review on Wastewater and Water Pollution Control. To be published in Jour. Water Poll. Control Fed., 44 (1972).
- J. Halitsky and D. M. Leahey  
"Low Wind Speed Turbulence Statistics and Related Diffusion Estimates from a Site Located in the Hudson River Valley," Submitted to Atmospheric Environment.
- William E. Heronemus  
"The U.S. Energy Crisis: Some Proposed Gentle Solutions," Congressional Record, Vol. 118, No. 17 - Part II, February 9, 1972.
- G. R. Higgins  
"Positive Points on Electric Power - Engineering Issues," Jour. of Professional Activities, ASCE, Vol. 98, No. PP1, Proc. Paper 8666, January 1972, pp. 65-76.
- G. R. Higgins and J. M. Colonell  
"Hydrologic Factors in the Determination of Watershed Yields," Publication No. 20 of the Water Resources Research Center, July 1971, 125 pages.
- L. N. Kuzminski, T. H. Feng and S. C. Liu  
"Effects of Calcium Bicarbonate on Disinfection by Halogens," Jour. San. Engrg. Division, A.S.C.E., Vol. 98, No. SA1, Proc. Paper 8722, February 1972, p. 229-246.



- L. N. Kuzminski, T. H. Feng and S. C. Liu  
 "Comparison of Bacterial Resistance to Disinfection by Halogens,"  
Bacteriological Proceedings, 1971, A10.
- L. N. Kuzminski, T. H. Feng, and S. C. Liu  
 "The Nature of Bacterial Destruction on Disinfection by Halogens,"  
Proceedings, Czechoslovak Society for Microbiology, International  
 Meeting, 1971, p. 164-165.
- P. E. Bryan, L. N. Kuzminski, F. M. Sawyer, and T. H. Feng  
 "Taste Thresholds of Halogens in Water," Journal American Water  
 Works Association, accepted for publication.
- T. P. Jackivicz, Jr., and L. N. Kuzminski  
 "Causative Factors of the Interaction of Outboard Motor Exhausts  
 with the Aquatic Environment," Journal Water Pollution Control  
 Federation, submitted for publication.
- T. P. Jackivicz and L. N. Kuzminski  
 "The Effects of the Interaction of Outboard Motor Exhausts with  
 the Aquatic Environment," Journal Water Pollution Control  
 Federation, submitted for publication.
- P. A. Mangarella, A. J. Chambers, R. L. Street, and E. Y. Hsu  
 "Transport Phenomena in a Laboratory Wind Wave Channel - Evaporation  
 and Energy Transfer," 4th Australasian Conf. on Hydraulics and  
 Fluid Mech., Nov. 29-Dec. 3, 1971.
- M. M. Miller  
 Contributor to Freshman Engineering Text Edited by Hill and  
 Glorioso, Prentice Hall, to be published in 1973.
- W. A. Nash  
 "Vibrations of Beams and Plates Subject to Random Driving Forces,"  
 Published in Proceedings of the Fifth International Conference on  
 Nonlinear Vibrations, Inco Publ. Co., Kiev, USSR, 1971, pp. 525-537.
- H. Kanematsu and W. A. Nash  
 "Digital Simulation of Stationary Gaussian Loads," AFOSR Scientific  
 Report TR-71-1859, July 1971, 35 pages.
- H. Kanematsu and W. A. Nash  
 "Random Vibration of Thin Elastic Plates and Shallow Shells," AFOSR  
 Scientific Report TR-71-1860, July 1971, 80 pages.
- W. A. Nash  
 "Theory and Outline of Strength of Materials," Second Edition,  
 McGraw-Hill Book Co., 395 pages, published May, 1972.





- K. H. Storp, II and R. O. Woods  
 "In-Situ Shear Wave Velocity by Cross-Hole Method," Journal of Soil Mechanics and Foundation Division, Proceedings of the American Soc. Civil Engrs., Vol. 98, No. 5, May 1972, pp. 443-460.
- M. Zyczkowski and D. Bucks  
 "A Method of Stability Analysis of Cylindrical Shells under Biaxial Compression," Journal of American Institute of Aeronautics and Astronautics, Vol. 9, No. 10, 1971, pp. 2259-2263.

## II. Faculty Papers Presented

### (iii) Civil Engineering Department

- D. D. Adrian  
 "Sludge Dewatering and Drying Bed Design by Simulation" Graduate Seminar, Civil Engineering Department, University of Rhode Island, April 13, 1972.
- D. D. Adrian  
 "Dewatering Sludges from Chemical-Physical Processes," Seminar sponsored by the International Association on Water Pollution Research and the American Institute of Chemical Engineers, Vanderbilt University, September 19-22, 1972.
- S. A. Jubboori, G. L. Stewart and D. D. Adrian  
 "Injection of Sediment Containing Waters into Permeable Unconfined Aquifers," presented at the 63rd annual American Geophysical Union Meeting, Washington, D. C., April 17-21, 1972.
- R. G. Cleary and D. D. Adrian  
 "Dispersion of Pollutants in Bounded Streams," presented at the 63rd annual American Geophysical Union Meeting, Washington, D. C., April 17-21, 1972.
- R. R. Archer and M. L. Das  
 "Nonlinear Dynamic Analysis of Moderately Thick Shells," OAS Pacific Symposium, Honolulu, October 10-15, 1971.
- B. S. Berger  
 "Needed Research for the Protection of Lake Resources," Symposium on Lake Cochituate and its Watershed sponsored by the Boston College Environmental Center, Boston College, Boston, Mass., Oct. 13, 1971.
- B. S. Berger  
 "National Policy in Environmental Quality Protection," New England Air Pollution Administration, Cranston, Rhode Island, Oct. 27, 1971.
- B. S. Berger  
 "Citizen Participation in Comprehensive River Basin Planning," Environmental Forum, The Conservation Foundation, Washington, D. C., March 9, 1972.



B. B. Berger

"Summation of League of Women Voters' Conference on Inter-Basin Transfer," University of Massachusetts, Amherst, April 19, 1972.

F. A. DiGiano and W. J. Weber, Jr.

"Sorption Kinetics in Infinite-Bath CMB Reactions," Annual National Water Pollution Control Federation Meeting, San Francisco, October 1971.

F. A. DiGiano, T. H. Feng, and A. Morgenroth

"Joint Treatment of Textile Dyeing, Paper Coating and Municipal Wastewaters," 5th Mid Atlantic Industrial Wastes Conference, Drexel University, November 1971.

G. Foess

"Workshop on Total Carbon Analyzer," 4th Annual Short Course in Environmental Quality Control, University of Mass., May 1972.

J. Halitsky

participated in Connecticut River Workshop on Environmental Law, May 13, 1972, sponsored by IMHE, *and*

participated in Tele-lecture on Nuclear Power to Region One Conference on Instructional Improvement, April 28, 1972, *and*

participated in EVE short course on Environmental Monitoring May 15-18, 1972.

W. E. Heronemus

"Is there a Future for Windpower?" Seminar at the University of Sherbrook, March 27, 1972.

W. E. Heronemus

"The U.S. Energy Crisis: Some Proposed Gentle Solutions," Joint meeting of local sections of the ASME and IEEE, West Springfield, Mass., Jan. 12, 1972.

L. N. Kuzminski

"Acute Toxicity of Outboard Motor Subsurface Exhausts to Freshwater Fish and Benthic Invertebrates," Northeast Meeting, National Association of Biology Teachers, South Hadley, Mass. April 1972.

L. N. Kuzminski

"The Environmental Engineering Program at UMass," Seminar presented at Departments of Chemistry, Engineering and Biology at University of Southern Illinois, Edwardsville, Illinois, Feb. 1972.

W. A. Nash

"Response of Short Cylindrical Panels to Random Loads," presented at First International Conference on Structural Mechanics in Reactor Technology, Sept. 20-24, 1971, Berlin, Germany and scheduled for publication in the Proceedings of the Conference.



W. A. Nash and P. K. Hsueh

"Buckling of Thin Shallow Anisotropic Spherical Shells with Consideration of Transverse Shear," presented at the International Association for Shell Structures Pacific Symposium, Honolulu, Oct. 10-15, 1971, and scheduled for publication in the Proceedings of the Conference.

### III Grants

#### (iii) Civil Engineering Department

D. D. Adrian

Massachusetts Water Resources Research Center, WR-A041-MASS, "A Probabilistic Approach to Stream Sampling", April 1971-June 1973. Fiscal 1972 budget, \$5,000.

D. D. Adrian, Principal Investigator

Office of Water Resources Research, Department of the Interior, WR-B011-MASS, "A Methodology for Planning Optimal Regional Waste Management Systems" (Co-investigators: R. Giglio, F. Kaminsky and R. Ridders of Industrial Engineering Department). July 1968-Sept. 1972. Fiscal 1972 budget in Civil Engineering, \$5,000.

D. D. Adrian (during sabbatical leave absence of T. Feng)

Environmental Protection Agency, 5P2-WP-267-02, "Environmental Quality Engineering and Management" (Training Program). July 1971-June 1972. Fiscal 1972 budget, \$57,400.

D. D. Adrian (during sabbatical leave absence of T. Feng)

Public Health Service, Department of Health, Education and Welfare, 5A10-AH-00655, "Environmental Health Engineering Training (Training Program). July 1971-June 1972. Fiscal 1972 budget, \$22,100.

D. D. Adrian

Environmental Protection Agency, EPA-U-910012, "Sludge Thickening," September 1972-September 1974. Fiscal 1972 budget, \$6,100.

R. R. Archer

National Science Foundation, GK-31490, "Some Continuum Mechanical Models for the Study of Plant Growth Phenomena," November 1971-April 1974. Fiscal 1972 budget, \$13,400.

S. M. Bembien

Ondrick Construction Co., 13-052650, "A Study to Develop New Road Surface Courses from Natural and Waste Products Available in the Connecticut River Valley." September 1971-September 1972. Fiscal 1972 budget, \$7,400.

S. M. Bembien

Water Resources Research Center, WR-37, "The Origin, Effects and Control of Turbidity in an Urban Recreational Lake," September 1971-September 1972. Fiscal 1972 budget, \$6,000.



S. M. Bemben

Office of Naval Research, N00014-68-A-0146-10, "An Investigation for the Establishment of Design Criteria for Underwater Anchorages," Fiscal 1972 budget, \$7,600.

S. M. Bemben

Naval Civil Engineering Laboratory, N62399-72-C-0018, "Model Study of Long-Term Anchor Holding Capacity," June 16, 1972 - July 16, 1973 (\$17,000).

Bernard B. Berger

Office of Water Resources Research, Department of the Interior, WR-32, "Optimizing Strategy for State Water Pollution Control in the Post 'Plan of Implementation' Period," July 1970-June 1972. Fiscal 1972 budget, \$12,000.

Bernard B. Berger

Office of Water Resources Research, Department of the Interior, C-2169, "Formation of Public Policy on Issue of Out-of-Basin Diversion of Connecticut River Flood Waters to Boston Metropolitan Area," October 1970-March 1972. Fiscal 1972 budget, \$10,100.

Charles E. Carver

Office of Naval Research, ONR-N00014-68-A-0146-P004-9, "Utilization of Mobile Breakwater Devices to Reduce Surface Motion of Submersible Vehicles for Deep Ocean Engineering Purposes," September 1971-September 1972. Fiscal 1972 budget, \$8,800.

J. M. Colonell

Office of Naval Research, ONR-N00014-68-A-0146-P004-17, "Simulation Techniques for Dynamic Modelling of Ocean Engineering Structures." Fiscal 1972 budget \$15,350.

J. M. Colonell and G. R. Higgins

Office of Water Resources Research, Department of the Interior, WRB-021, "Environmental Factors Affecting the Management of Reservoir Quality," July 1971-June 1973. Fiscal 1972 budget \$12,500.

F. A. DiGiano with T. H. Feng

Mass. Division of Water Pollution Control, 15-51450, "Demonstration Plant Studies in Nutrient Removal from Wastewater by Primary Treatment." (continuing) Fiscal 1972 budget, \$28,500.

F. A. DiGiano with T. H. Feng

Mass. Division of Water Pollution Control, 15-51452, "Suppression of Bottom Deposits - Water Recycling of Nutrients in Lakes" (continuing). Fiscal 1972 budget, \$44,700.

J. Halitsky

Environmental Protection Administration, AP00069-02, "Air Pollution Training Grant." Fiscal 1972 budget, \$71,100.





J. Halitsky

Lowell Institute of Technology (supported by an EPA Grant) sub-contract LTIRF-109, "Development of Non-Technical Courses Related to Air Pollution." Fiscal 1972 budget, \$16,500.

Wm. E. Heronemus and others

National Science Foundation, "Ocean Sited Power Plants," approved 23 June 1972 with budget of \$145,000 for 18 months. No funds expended in Fiscal 1972.

Wm. E. Heronemus, C. R. Adams, D. Cromack, R. H. Kirchhoff, R. Monopoli, and F. D. Stockton

Office of Naval Research, N00014-68-A-0146-P004-6, "Deep Submergence Vehicle System Design," Fiscal 1972 budget \$32,100.

L. N. Kuzminski

Massachusetts Division of Water Pollution Control, 15-51451, "Effects of Outboard Motor Exhausts on Lake Waters," June 1970-1975 with possible extension. Fiscal 1972 budget, \$19,200.

W. A. Nash

Air Force Office of Scientific Research, AFOSR 68-1527, "Response of Structures to Random Noise," 1961-1972 with probable extension. Fiscal 1972 budget, \$17,100.

W. A. Nash

National Science Foundation, GZ1759, "Development of New Courses in Ocean Engineering," Budget for period June 1971-December 1972, \$16,840.

W. A. Nash

Office of Naval Research, N00014-68-A-0146-P004-16, "Structural Mechanics of Composite Materials. Fiscal year 1972 budget, \$13,364.

W. A. Nash

National Science Foundation grant under Senior Visiting Foreign Scientist Program to support Professor Michael Zyczkowski of the University of Cracow. Fiscal 1972 budget, \$11,300.

K. H. Stokoe

University of Massachusetts Faculty Research Grant, FR M13-72(1). Fiscal 1972 budget, \$600.

P. W. Shuldiner (with other faculty)

Urban Mass Transportation Administration, "Bus Transit Demonstration." Total grant is approximately \$700,000 for 19 months. No funds expended during fiscal 1972.

#### Professional Activities

#### iii) Civil Engineering

D. D. Adrian

Consultant with Tennessee Highway Department and with various private firms on problems of environmental impact. Presented workshop on sludge dewatering at 4th Annual Short Course on Environmental Quality Control in May 1972.

Member of State Committee to advise on Reorganization of Water Resources Activities of State agencies.



R. R. Archer

Reviewer for Journal of Appl. Mechanics, AIAA Journal,  
Project reviewer for NSF proposal.

S. M. Bemben

Member of Advisory Group for Sea Floor Engineering Research, U.S. Navy.  
Consultant to planning boards, citizen groups, building commissioner,  
etc., of local towns, as well as to various engineering firms.  
Member of ASCE Qualifications Board for Massachusetts.  
ASCE student chapter speaker on dam failures.  
UMass participant in New England Regional Research Project on Lakes  
(sponsored by N.E. Council of Water Center Directors).

B. B. Berger

Chairman, Committee on Environmental Quality Management, ASCE.  
Member, Committee on Engineering Education, American Academy of  
Environmental Engineers.  
Chairman, U.S. National Committee for the International Association on  
Water Pollution Research.  
Vice-President of the International Association on Water Pollution  
Research.  
Member of Research and Program Committees, Water Pollution Control  
Federation.  
Chairman, Advisory Committee on Institute for Man and his Environment.  
Member, Massachusetts Public Health Council.  
Member, Advisory Committee on Environmental Health, Massachusetts  
Department of Public Health.  
Chairman, Special Committee on Reorganization of Environmental Quality  
Programs of the (Mass.) State Agencies.  
Consultant, Massachusetts Water Resources Commission.  
Member, Task Force on Reorganization of Water Resources Programs of  
the (Mass.) State Agencies.  
Consultant, Bureau of Water Hygiene, Department of HEW.  
Consultant, Office of Science and Technology, Executive Office of the  
President.  
Consultant, Smithsonian Institution on Chesapeak Bay Study.

W. W. Boyer

Member, Board of Appeals, Amherst, Massachusetts.

C. E. Carver

Ad hoc ECPD visitor for Civil Engineering curricula.  
Chairman, Task Committee on Non-Newtonian Flows, Engineering Mechanics  
Division, ASCE.  
Member, Fluid Dynamics Committee, ASCE.  
Member, Technical Council on Ocean Engineering Education, ASCE.

A. Chajes

Member, Column Research Council  
Member, Committee on Compression Members, Structures Division, ASCE.  
Presented short course in Matrix Analysis of Structures, summer 1971



F. A. DiGiano

Member, Manual of Practice Committee, Journal of Water Pollution Control Federation; Section Chairman for preparation of section on Removal of Carbonaceous Residues.

Member, Research Committee of American Association of Professors in Sanitary Engineering.

Member, Technical Advisory Board on Puerta Gorda Isles (Florida) Environmental Assessment.

Program Chairman, UMass, Short Course "Environmental Quality Control - Monitoring and Analysis Techniques," May 15-18, 1972.

F. Dzialo

Member, Sewer Commission, Town of Hatfield, Massachusetts.

Treasurer, Western Massachusetts Section, ASCE.

G. Foess

Member, Amherst Technical Advisory Committee for proposed \$6 million waste treatment plant.

Lectured to Amherst Kiwanis Club, Sunderland Firemen's Association, Amherst League of Women Voters.

J. Halitsky

UMass representative, New England Consortium on Environmental Protection. Member, Board of Directors of above.

Chairman, Air Sampling and Monitoring Committee of above.

Member, Curriculum and Development Committee of above.

Member, Executive Committee of above.

Chairman-elect of Board of Directors for fiscal 1973 of above.

Consultant on effect of automotive emissions along proposed Route I-291 on the ambient air quality in Hartford for environmental impact statement.

Consultant on planning and reviewing field diffusion tests at Three-Mile Island Nuclear Plant.

W. Heronemus

Secretary, Ocean Technology Division, ASME

Member, Executive Council, New England Section, SNAME

Member, Yankee Conference Research Vessel Scheduling Committee.

Member, Solar Energy Panel, Energy Research and Development Goals Committee, Federal Office of Science and Technology.

Presentations to High School Guidance Counselors, Junior College Guidance Personnel, UMass Engineering Alumni.

Panel Member, "Design Projects as a Teaching Device," Regional Meeting of ASEE, Bridgeport, October 1971.

Consultant with Lewis Research Center, NASA, on formulation of a NASA managed national program in pollution-free energy.

L. Kuzminski

Lectured at Waterworks Operators School sponsored by New England Waterworks Association.

Conducted workshop on "Bioassays in Pollution Analysis and Control" in 4th Short Course on Environmental Analysis and Monitoring Techniques.

Lectured to Wakefield Jaycees on Effects of Outboard Motor Exhausts on Inland Lakes.



Consultant to various firms on environmental problems.  
Chairman, Committee on Prevention of Industrial, Commercial and Agricultural Chemical Pollution of Water Resources, American Waterworks Association.  
Member, UMass representation on Committee on New England Regional Research Project on Lakes (sponsored by New England Council of Water Center Directors).

W. A. Nash

Editor-in-Chief, International Journal of Non-Linear Mechanics (six issues per year, published by Pergamon Press).  
Associate Editor, Applied Mechanics Reviews.  
Seminar speaker at University of Connecticut (December 1971), Iowa State University (February 1972), University of Iowa (February 1972), and University of Delaware (March 1972).  
Consultant to U.S. Air Force, General Electric Company.  
National Academy of Sciences Exchange Scientist, Roumania, July 1971.  
Inspector of graduate program in Civil Engineering, University of Utah.  
Referee for NSF and other government agencies reviewing research proposals.

P. W. Shuldiner

Editor-in-Chief, TRANSPORTATION (quarterly, started in 1972, published by Elsevier, Amsterdam).  
UMass Liaison Member of Highway Research Board.  
Member of Traffic Forecasting Committee, Highway Research Board.  
Urban Transportation Research Council, American Society of Civil Engineers.  
Member of Research Committee, Highway Division, American Society of Civil Engineers.  
Member of Steering Committee, New Towns Symposium at UMass, February 1972.  
Advisor to: Lower Pioneer Valley Regional Planning Commission (urban mass transportation study); Federal Aviation Advisory Committee (high-speed ground transportation as an alternative to airway development in crowded areas); Organization for Economic Cooperation and Development (Paris) (urban and regional transportation planning); Federal Highway Administration (preparation of 1972 Highway Needs Report for Congress).  
Member of UMass Transportation and Parking Council.  
Chairman of UMass Ad hoc Transportation Committee.

M. P. White

Exchange Scientist in Yugoslavia July 1971 under National Academy of Sciences program.  
Member, Committee on Membership Structure, American Society of Civil Engineers.  
Member, Committee on Fellowships, Scholarships, Grants and Bequests, American Society of Civil Engineers.  
Consultant to Advisory Committee on Reactor Safeguards, AEC.

M. Zyczkowski (NSF Senior Visiting Foreign Scientist)

Presented short course, "Optimal Design of Structures," November 1971.  
Presented seminars: Brown University (December 1971), Waterloo University (January 1972), University of Illinois (January 1972).





## I. Faculty Publications and Patents

### (iv) Electrical Engineering Department

- R. W. Ehrich  
"Cellular Cascades with Function Inputs," Proceedings of 6th Annual Princeton Conference on Information Sciences and Systems, March 1972.
- L. E. Franks and S. Narayanan  
"The Spectra of Digitally Encoded Video Signals," IEEE Transactions on Communication Technology, Vol. COM-19, No. 4, pp. 459-466, August 1971.
- L. E. Franks and W. A. Gardner  
"Estimation for Cyclostationary Random Processes," Proceedings Ninth Annual Allerton Conference on Circuit and System Theory, pp. 222-231, October 1971.
- R. M. Glorioso, et al.  
"Equipment for the Digital Laboratory," IEEE Transactions on Education, Vol. E-14, No. 3, August 1971.
- R. M. Glorioso  
"Learning in Stochastic Automata," Proceedings of the Fifth Asilomar Conference on Circuits and Systems, November 1971.
- R. M. Glorioso, et al.  
"Minicomputers in the Digital Laboratory Program," Report of Task Force X of the COSINE Committee, Commission on Education, National Academy of Engineering, Washington, D. C., May 1972.
- R. M. Glorioso and H. C. Brooks  
"Electronic Frequency-Tuning Mechanism," U.S. Patent No. 3,638,113, January 25, 1972.
- F. S. Hill, Jr.  
"The Computation of Error Probability for Digital Transmission," Bell Syst. Tech. Journal 50, July-August 1971, pp. 2055-2077.
- F. S. Hill and P. M. Schultheiss  
"Some Problems of Active Sonar Signal Design," Jour. Acoust. Soc. of Amer., to be published June 1972.
- C. E. Hutchinson and R. A. Nash  
"Comparison of Error Propagation in Local-Level and Space-Stable Inertial Systems," IEEE Transactions on Aerospace and Electronic Systems, Vol. AES-7, No. 6, November 1971.
- C. E. Hutchinson and J. A. D'Appolito  
"A Minimax Approach to the Design of Low Sensitivity State Estimators," Proceedings of Fifth IFAC World Congress, Paris, France, June 1972.



I. Lee

"The Complementary Roles of Minicomputers and Time-Sharing Systems in Computer-Oriented Electrical Engineering Curricula," IEEE Transactions on Education, Vol. E-14, No. 4, pp. 170-171, November 1971.

R. E. McIntosh and S. F. Marlier

"Experimental Apparatus to Investigate Transient Nonlinear Effects in a Plasma," The Review of Scientific Instruments, Vol. 42, No. 7, pp. 1038-1042, July 1971.

R. E. McIntosh and R. L. St. Germaine

"The Effects of Temperature Inhomogeneity on the Resonant Behavior of a Plasma Column in the Presence of an Axial Magnetic Field," Journal of Applied Physics, Vol. 43, No. 1, pp. 52-57, January 1972.

R. E. McIntosh and S. E. El-Khany

"Investigation of Transient Microwave Breakdown Using Fiber Optic Techniques," 1971 IEEE International Antenna and Propagation Symposium Digest, Vol. 71C39-AP, pp. 315-318, September 1971.

R. E. McIntosh

"An Optical Switch for Transient Plasma Diagnostics," The Review of Scientific Instruments, Vol. 43, No. 2, pp. 268-270, February 1972.

R. E. McIntosh and L. W. Pickering

"Envelope Estimation of AM Signals Transmitted through a Randomly Dispersive Medium," IEEE Transactions on Aerospace and Electronic Systems, Vol. AES-8, No. 3, May 1972.

R. E. McIntosh, J. M. Wilk and L. W. Pickering

"Transmission of Pulsed Carrier Signals over a Randomly Dispersive Stripline," 1971 USNC-URSI Spring Meeting, Conference Program and Abstracts, p. 111, April 1972. Also as Engineering Research Institute Report, No. P9, 40 pages, January 1972.

R. V. Monopoli, J. W. Gilbert and E. Lizewski

"An Improved Design Technique for Parameter Adaptive Control Systems," Proceedings of the Ninth Allerton Conference on Circuits and Systems Theory, Univ. of Illinois, October 1971.

R. V. Monopoli and C. C. Hsing

"Model Reference Control of Deep Submergence Vehicles," Proceedings of the 1971 IEEE Conference on Engineering in the Ocean Environment, San Diego, California, September 1971, pp. 302-305.



- R. V. Monopoli and B. K. Wylie  
 "A Stability Analysis of Error Sampled Nonlinear Periodically Time Varying Control Systems," Proceedings of the Fourth Southeastern Symposium on System Theory, University of Kentucky, April 1972.
- D. H. Navon  
 "Solid-State and Semiconductors," Section of Handbook of Tables for Applied Engineering Science, 2nd Edition edited by R. E. Bolz and G. L. Tuve, published by the Chemical Rubber Company, May 1972.
- D. H. Navon  
 "Power Transistor Stability and Reliability Study," Final Technical Report DAAB-07-71-C-0260, University of Massachusetts, June 1972.
- T. W. Tang and A. Sivasubramanian  
 "Effects of Local Inhomogeneity on Wave Propagation in Warm Magnetoplasmas," Summary of 1971 Fall URSI Meeting, p. 72, September 1971.
- T. W. Tang  
 "Radiation of Second Harmonic Waves from an Inhomogeneous Isotropic Plasma by an Oblique E-Wave," Proceedings of International Symposium on Electromagnetic Theory, Tbilisi, U.S.S.R., pp. 320-323, September 1971.
- I. B. Thomas and J. P. Barry  
 "A Clinical Study to Evaluate Rock Music, Symphonic Music and Environmental Noise as Sources of Acoustic Trauma," J. Audio Engin. Soc., Vol. 20, No. 4, 5 pages, May 1972.
- I. B. Thomas and J. P. Barry  
 "A Clinical Study to Evaluate Rock and Roll Music and Environmental Noise as Sources of Acoustic Trauma," J. Acoust. Soc. Am. 51, 151, January 1972.
- I. B. Thomas, C. J. Kelly and W. J. Ohley  
 "Comparative Loudness of Highpass Filtered Speech," J. Acoust. Soc. Am. 51, 141, January 1972.
- I. B. Thomas and R. J. Niederjohn  
 "Phoneme Recognition of the Continuants in Connected English Speech," Proc. of International Conference on Speech Communication and Processing, pp. 348-351, April 1972. (To appear subsequently in IEEE - GAE Transactions.)
- I. B. Thomas and W. J. Ohley  
 "Intelligibility Enhancement through Spectral Weighting," Proc. of the International Conference on Speech Communication and Processing, pp. 360-363, April 1972. (To appear subsequently in IEEE - GAE Transactions.)



- I. B. Thomas and A. Ravindran  
"A Model for Residue Pitch," Proc. of ASA 83rd Meeting, Buffalo,  
p. 35, April 1972.
- I. B. Thomas and W. J. Ohley  
"Intelligibility Enhancement through Spectral Selection,"  
Engineering Research Institute Report, No. 8, 40 pages,  
May 1972.





## II. Faculty Papers Presented

### (iv) Electrical Engineering Department

- L. S. Bobrow  
"On the Majority Decoding of Error-Correcting Codes," Sixth Annual Princeton Conference on Information Sciences and Systems, Princeton, New Jersey, March 24, 1971.
- L. E. Franks  
"Representation and Estimation Techniques for Cyclostationary Random Processes," Electrical Engineering Seminar: University of Waterloo, March 27, 1972. Queen's University, March 29, 1972.
- F. S. Hill, Jr.  
"Underwater Sound," presented at IEEE Student-Faculty evening, University of Massachusetts, February 15, 1972.
- C. E. Hutchinson and John H. Fagan  
"Kalman Filter Design Considerations for Space-Stable Navigation Systems," ION Annual Meeting, West Point, New York, June 1972.
- C. E. Hutchinson and J. A. D'Appolito  
"A Minimax Approach to the Design of Low Sensitivity State Estimators," Fifth IFAC World Congress, Paris, France, June 1972.
- I. Lee  
"Application of Computer Graphics Terminal," Mini-Marathon on Computers, University of Massachusetts, Boston, October 25, 1971.
- I. Lee  
"A New Architecture for Minicomputer Display Processor," Special Seminar, Department of Electrical Engineering and Computer Science, University of California, Berkeley, California, November 12, 1971.
- I. Lee  
"Man-Machine Communications," New England Junior Science and Humanities Symposium, April 7, 1972.
- R. E. McIntosh, S. E. El-Khany, and G. M. Vachula  
"Temporal and Spatial Behavior of a Microwave Generated Air Plasma Sheath," 1971 Annual Meeting of the Division of Plasma Physics, Washington, D.C., November 17, 1971.
- R. E. McIntosh  
"Microwave Breakdown Studies at the University of Massachusetts," Air Force Cambridge Research Laboratories, Bedford, Massachusetts, December 21, 1971.
- R. E. McIntosh  
"Communication with High Speed Trains," After dinner talk at the Region I Student Paper Contest, April 22, 1972 at Western New England College, Springfield, Massachusetts.



- R. V. Monopoli  
"A Survey of Model Reference Adaptive Control Systems," Tri-State Control Conference, University of Rhode Island, May 5, 1972.
- D. H. Navon  
"Transistors for High Power Switching," Workshop on Electric and Electromechanical Power Conversion and Control for Automotive Application, Transportation Systems Center, Cambridge, Massachusetts, May 30, 1972.
- D. E. Scott  
"Mathematical Modeling of Biological Systems," Exercise Science Seminar, University of Massachusetts, March 16, 1972.
- D. E. Scott  
"Quantification of Sway in Standing Humans," Symposium of the International Society of Posturography, Madrid, Spain, October 6, 1971 (currently in-press).
- T. W. Tang and A. Sivasubramanian  
"Resonance and Propagation of Electrostatic Modes in an Inhomogeneous Magnetoplasma," Thirteenth Annual Meeting of the Division of Plasma Physics, American Physical Society, Madison, Wisconsin, November 1971.
- T. W. Tang  
"Introduction to Plasmadynamics - I. Basic Concepts and Parameters II. Wave Propagation in Plasmas III. Kinetic Theory of Plasmas," Lecture series delivered at the National Cheng Kong University, Tainan, Taiwan, January 1972.
- T. W. Tang and A. Sivasubramanian  
"Numerical Calculation of Mode Conversion between Extraordinary Modes and Bernstein's Modes," the 1972 Spring Meeting of the New England Section, American Physical Society, Boston, Massachusetts, April 1972.
- I. B. Thomas  
"A Clinical Study to Evaluate Rock Music, Symphonic Music and Environmental Noise as Sources of Acoustic Trauma," Acoustical Society of America 82<sup>nd</sup> Meeting, Denver, Colorado, October 22, 1971.
- I. B. Thomas  
"Comparative Loudness of Highpass Filtered Speech," Acoustical Society of America 82<sup>nd</sup> Meeting, Denver, Colorado, October 22, 1971.
- I. B. Thomas  
"Some Acoustical Aspects of Speech Perception," Speech Department Seminar, University of Massachusetts, December 14, 1971.



- I. B. Thomas  
"Spectral Weighting for Intelligibility Enhancement," Research Lab. of Electronics, Speech Department Seminar, M.I.T., December 15, 1972.
- I. B. Thomas  
"Speech Processing," Junior Sciences and Humanities Symposium, University of Massachusetts, April 17, 1972.
- I. B. Thomas  
"Phoneme Recognition of the Continuants in Connected English Speech," International Conference on Speech Communication and Processing, Newton, Massachusetts, April 26, 1972.
- I. B. Thomas  
"Intelligibility Enhancement through Spectral Weighting," International Conference on Speech Communication and Processing, Newton, Massachusetts, April 26, 1972.
- I. B. Thomas  
"A Model for Residue Pitch," Acoustical Society of America 83rd Meeting, Buffalo, New York, April 18, 1972.
- I. B. Thomas  
"Temporal Order in Speech Perception," Psychology Department Seminar, University of Massachusetts, December 9, 1972.
- K. S. Yngvesson  
"New Developments in Millimeter Wave Masers," Invited Seminar at Chalmers University of Technology, Göteborg, Sweden, August 1971.
- K. S. Yngvesson  
"State of the Art of Centimeter and Millimeter Wave Masers," Invited Seminar at the MacKenzie University, Sao Paulo, Brazil, January 1972.



### III. Grants

#### (iv) Electrical Engineering Department

R. W. Ehrich

"Contextual Handwriting Recognition Using Binary Diagrams," NSF Grant GJ-31275, \$29,600.00 from October 1, 1971 to September 31, 1973. Support for two graduate students.

L. E. Franks

"Optimum Filtering of Cyclostationary Processes Resulting from Scanning or Sampling of Communication and Control Signals," AFOSR-71-2111, \$26,350.00 from June 1, 1971 to September 15, 1972. Support for two graduate students.

R. M. Glorioso

"Computer Systems Engineering," Instructional Scientific Equipment Grant, NSF GY 7788, \$25,000.00 Matching Funds from July 1, 1970 to July 31, 1972.

F. S. Hill, Jr.

"Analysis of Digital Communication Systems," NSF GK 34756, \$29,900.00 from June 15, 1972 to November 30, 1973. Support for three graduate students.

R. E. McIntosh

"Optimum Pulse Transmission through Dispersive Media," NSF Grant GK-4897, \$15,000.00, terminated September 1971. Support for one graduate student.

R. E. McIntosh

"Proposed Studies of the Propagation of Transient Signals through Nonlinear, Ionized Media," Air Force Office of Scientific Research Grant AFOSR-69-1722A, \$20,400.00 from February 1, 1971 to January 30, 1972. Support for two graduate students.

R. E. McIntosh

"Proposed Studies of the Propagation of Transient Signals through Nonlinear, Ionized Media," Air Force Office of Scientific Research Grant AFOSR 69-1722B, \$54,020.00 from February 1, 1972 to January 31, 1974. Support for four graduate students.

R. E. McIntosh

"Optimum Pulse Transmission through Dispersive Media-Modified Objectives," ARO-D Grant ARO-D-31-124-70-G37, \$25,544.00 from December 1, 1969 to November 30, 1971. Support for one Post-Doctoral Research Associate.

R. E. McIntosh

"Study of Optimum Pulse Transmission through a Dispersive Medium," ARO-D Grant ARO-D-31-124-72-G62, \$10,000.00 from December 1, 1971 to June 1, 1972. Support for one Post-Doctoral student and one graduate student.





- R. E. McIntosh  
"Propagation of Transient Electromagnetic Signals through Turbulent Media," ARO-D Grant ARO-D-31-124-72-G , \$1,800.00 from June 1, 1972 to May 30, 1973 for publication support.
- R. E. McIntosh  
"Communication with High Speed Trains," NSF Grant GK-33091, \$35,500.00 from June 1, 1972 to May 30, 1974. Support for one research associate and one graduate student.
- R. E. McIntosh and G. D. Sheckels  
"Laboratory Equipment for Graduate Research in Electrical Engineering," NSF Grant GK-29196, \$38,800.00 from May 15, 1971 to May 31, 1972.
- R. V. Monopoli  
Renewal of NASA NGR-22-010-018 for \$17,766 from February 1, 1972 to February 1, 1973. Support for two graduate students.
- R. V. Monopoli  
ONR Contract No. ONR-00014-68A-0146-6 (Renewal) September 1, 1971 to September 1, 1972 for \$32,123.00 with Heronemus, Stockton, Adams, Cromack, and Kirchhoff. Support for one graduate student.
- D. H. Navon  
"Power Transistor Stability and Reliability," U.S. Army Electronic Command, Fort Monmouth, New Jersey, Renewal Contract No. DAAB-07-71-C-0260, \$36,020.00 from June 1, 1972 to May 31, 1973. Support for two graduate students plus equipment.
- T. W. Tang  
"Study of Nonlinear Electromagnetic Wave Interactions in an Inhomogeneous Magnetoplasma," National Science Foundation Grant GK-18514, \$44,500.00 from October 1, 1970 to September 30, 1972. Support for two graduate students.
- T. W. Tang  
Supplemental fund to the NSF Grant GK-18514, \$5,000.00 from June 1, 1972 to March 31, 1973. Summer support for visiting faculty member.
- I. B. Thomas  
"Speech Analyzing Aids for the Deaf," National Institute for Neurological Diseases and Stroke, approximately \$48,000.00 per year for five years, May 1, 1969 to April 30, 1974. Support for four graduate students.
- K. S. Yngvesson  
"Maser Receivers for Two to Three Millimeter Wavelength," National Science Foundation Grant GP-26108A1, (Renewal), \$56,500.00 from March 1, 1972 to February 28, 1973. Support for two graduate and one undergraduate students. Cooperative project with the University of California at Berkeley.



#### IV. Consulting and Other Professional Activities

##### (iv) Electrical Engineering Department

L. S. Bobrow

Book review for Houghton Mifflin Company.

R. W. Ehrich

Chairman, Student Activities, Springfield Section, IEEE.

L. E. Franks

Prentice-Hall, Inc., Englewood Cliffs, New Jersey, manuscript and proposal reviews; Chairman of technical sessions at Ninth Annual Allerton Conference on Circuit and System Theory, October 1971 and Sixth Annual Princeton Conference on Information Sciences and Systems, March 1972; Technical papers reviewer for IEEE Professional Groups on Circuit Theory, Information Theory, and Communication Technology; Review of NSF grant proposal; IEEE Student Branch Counselor; Textbook review: "Principles of Communication Systems" Taub and Schilling (McGraw-Hill), published in IEEE Transactions on Communications, June 1972.

R. M. Glorioso

National Academy of Engineering, COSINE Task Force X on Minicomputers; Addison Wesley Publishing Co., book reviewing; Prentice-Hall Publishing Co., book reviewing; Indiana State University, Psychology Department, development of special purpose computer; Reviewer for IEEE Transactions on Education and IEEE Transactions on Computers; ACE Radio Control, Inc., application of LSI to RC.

F. S. Hill, Jr.

Digital Equipment Corporation (with R. M. Glorioso and R. W. Ehrich) "Timesharing System via the Power Line"; Technical papers review for IEEE Professional Groups on Communication Technology and Information Theory; Senior member-at-large for Springfield Section of IEEE; Technical Program Committee for IEEE "Oceans - '72" Conference.

C. E. Hutchinson

The Analytic Sciences Corporation, Reading, Massachusetts, Navigation and guidance; Boston University Medical School, Boston, Massachusetts, biomedical engineering; V. A. Hospital, Boston, Massachusetts, biomedical engineering; Eta Kappa Nu, Chairman, National Publicity Committee.

R. E. McIntosh

Reviewer for IEEE publications on Antennas and Propagation and Education; Vice-Chairman and Chairman of the Springfield Section of the IEEE; Reviewer of NSF proposals.



R. V. Monopoli

Pratt and Whitney Aircraft Corporation, East Hartford, Connecticut, control systems for gas turbine engines; Reviewer for IEEE Transactions on Control; Reviewer for Automatica.

D. H. Navon

The Chemical Rubber Company, Cleveland, Ohio, Member Advisory Board, Handbook of Tables for Applied Engineering Science; Luxtron, Inc., Haverhill, Massachusetts; U.S. Department of Transportation, Cambridge, Massachusetts; Subpanel on Electrical and Electromechanical Power Conversion and Control for Automotive Application.

D. E. Scott

Investigation of certain techniques in product design for private corporation (with F. Umholtz and J. Douglas).

I. B. Thomas

Clark School for the Deaf; Holyoke Water Power Co.; Springfield Gas & Electric Co.; Willie Ross School for the Deaf; Electronic Music Studios of Amherst; Music Department, Hampshire College; Editorial Board of the Audio Engineering Society.



## APPENDIX IV

### PROFESSIONAL ACTIVITIES OF THE FACULTY

#### I. PUBLICATIONS

R. D. Davis

"An Application of Computer Mapping: Collecting, Displaying and Using Student Location Data", Socio-Economic Planning Sciences, Vol. 6, pp. 31-38, 1972.

W. J. Duffy

The Time Course of Rod Dark Adaptation Following Two Kinds of Rhodopsin Bleaches, Ph.D. Dissertation, University of Michigan, 1971.

R. J. Giglio

"A Note on the Deterministic Capacity Problem," accepted for Publication in Management Science.

R. J. Giglio, F. C. Kaminsky, R. F. Ridders, and D. D. Adrian

"A Planning Methodology for the Design of Regional Wastewater Treatment Systems". Final Report, Office of Water Resources Research, Department of Interior, B-011-Mass., June 1972.

R. J. Giglio, F. C. Kaminsky and E. J. Rising

"Some Analyses Related to the Design of Outpatient Clinics", Final Report, Albany Medical College Grant, November 1971.

R. J. Giglio, and R. B. Wrightington

"Methods of Apportioning Costs Among Participants in Regional Systems". accepted for publication in the Journal of Water Resources Research.

F. C. Kaminsky (with Roy Mann Associates, Landscape Architects Environmental Planners)

"Alternatives for the North Nashua River", Report to the Nashua River Watershed Association, November 1971.

F. C. Kaminsky and R. F. Ridders (with Weston & Sampson Engineers)

Report to Bernardston-Gill-Leyden-Northfield-Northfield Schools, Massachusetts on Regional Solid Waste Disposal, December 1971.





K. E. Kroner

"Get Ready for the Metric System", Business Management, Vol. 40, No. 3 (August 1971), pp. 16-17.

"The Meter is Coming!", COMTECH TRANSFER, Vol. V, no. 3, May 1972.

"Metrication - Our Responsibility?", to appear in Engineering Education.

S. Lippert

"Nurses' Travel", Journal of Nursing Administration, 2(2), 36-41, 1972.

H. J. Miser

Guidelines for the Practice of Operations Research (with others), Operations Research, Vol. 19, (September 1971), pp. 1123-1258.

Science and National Needs, Report of the Evaluation Panel for the Technical Analysis Division, In Annual Report of the Panels for the Evaluation of the Research, Development, and Service Activities of the National Bureau of Standards, 1970-1971, NAS-NAE-NRC, 1971, pp 355-375.

The Systems Approach for Civil-Sector Government Problems, National Bureau of Standards, Washington, D.C. (about 300 pp.), 1972.

R. F. Ridders and H. S. Bhalla

"Multi-Time Period Location, Distribution Problems: A Heuristic Algorithm" submitted to Management Science, in review.

R. F. Ridders and H. Matsuo

"A Penalty Function Algorithm for Convex Programs" A Differential Equation Approach", submitted to Management Science, in review.

E. J. Rising, B. Averill and R. Baron

"Systems Analysis of a University Health Service Out-Patient Clinic", submitted to Operations Research, in review.

"The Outpatient Care Delivery System-A New Approach, Part II - The Effects of Operations Research", to appear in The Journal of American College Health Association.

E. J. Rising, B. Averill, R. Baron and T. J. Los

"Computerized Appointment System", to appear in The Journal of American College Health Association, June 1972.



E. J. Rising, B. Averill, N. D. Gage, M. D., T. McBride, G. Piedmont

"The Outpatient Care Delivery System-A New Approach, Part I" to appear in The Journal of American College Health Association, June 1972.

E. J. Rising and R. Baron

Year End Report for U/Mass Student Health Service, August 1971.

R. P. Sadowski

"A Methodology to Aid in the Design of Unloading Facilities", Report No. 41, Purdue Laboratory for Applied Industrial Control, October 1971.

R. P. Sadowski and C. L. Moodie

"A Quantitative Methodology for Designing Handling Facilities for Continuous Production Processes with No In-Process Inventory", to appear in The International Journal of Production Research.

## II. PAPERS PRESENTED

R. D. Davis

Panel Member, "Industrial Engineering and the University", Raytheon Industrial Engineering Council Seminar, Lexington, Massachusetts, March 21, 1972.

W. J. Duffy

"The Time Course of Rod Dark Adaptation Following Steady State Rhodopsin Bleaches" Invited paper, Association for Research in Vision and Ophthalmology, Sarasota, Florida, April 26, 1972.

R. J. Giglio

"Modeling Health Care Delivery Systems" presented at the Union University Regional Health Symposium, April 27, 1972.

R. J. Giglio, F. C. Kaminsky and E. J. Rising

"Design and Evaluation Methodology for Outpatient Systems", presented at the Fifth Health Systems Research Symposium, September 1971, Toronto, Canada.



R. J. Giglio and R. B. Wrightington

"Techniques of Allocating Costs Among Participants in Regional Systems", presented at the Joint Meeting of the Operations Research Society of America and IEEE, Anaheim, California, October 28, 1971.

H. J. Miser

Panel Member, "Scientific Standards in Public Policy Debate", Meeting of the American Political Science Association, Chicago, Illinois, September 7, 1971.

Seminar, "Guidelines for the Practice of Operations Research", Yale University, New Haven, Connecticut, February 10, 1972.

Panel Member, "New Directions in OR Education: Social Problems and the Response of OR Education", Meeting of the Operations Research Society of America, New Orleans, La, April 27, 1972.

E. J. Rising

Discussant for four papers in the Health Application Session at the Fifth National Conference on Applications of Simulation of the ACM, New York, New York, December 8-10, 1971.

"Industrial Engineering Health Care Research, 1971", Health Services Division of AIIE Meeting, San Francisco, California, February 14, 1972.

Panel Member, "Industrial Engineering Education in Health Systems Design", Annual Meeting of AIIE, Anaheim, California, June 1, 1972.

### III. GRANTS

E. J. Rising, R. J. Giglio and F. C. Kaminsky

Albany Medical College, "Applications of Operations Research for Outpatient Systems", September 1970-September 1971, \$15,000.

Department of Health, Education and Welfare Public Health Service, "Design and Evaluation Methodology for Outpatient Systems"  
July 1, 1971 - September 30, 1973, \$160,000.

### IV. CONSULTING AND OTHER PROFESSIONAL ACTIVITIES

R. D. Davis

Referee for Operations Research.

Chairman, Sunderland Finance Committee.



R. D. Davis (cont'd)

Attended the Joint National Conference on Major Systems (40th National Meeting of ORSA and the 1971 National Conference of the IEEE), Anaheim, California, October 1971.

Working with the Sunderland Conservation Committee to develop a computerized routine to perform soil interpretations from soil classification maps.

W. J. Duffy

Consultant to the Society of Automotive Engineers' Driver Vision Subcommittee of the Human Factors Engineering Committee.

Consultant on an ONR project: developed psychological scales for the measurement of changes in food preferences; designed the required questionnaires, collected and analyzed the data.

Attended the National Meeting of the Association for Research in Vision and Ophthalmology.

R. J. Giglio

Assisted the staff of the Holyoke Model Cities Health Center prepare an HEW application for a prepayment health care plan.

Developed proposal placing two undergraduate students at the Belchertown State School under the auspices of the University Year for Action Program.

Recruited and advised graduate students to develop proposal for economic analysis of services at Belchertown State School. This is currently supported as a Summer Intern.

Consultant to U.S. Army Natick Laboratory on analysis of feeding systems.

Member of Pelham Finance Committee.

Referee of AIIE Transactions, Management Science and Operations Research.

Attended the Joint National Conference on Major Systems (40th National Meeting of ORSA and the 1971 National Conference of the IEEE), Anaheim, California, October 1971.

F. C. Kaminsky

Assisted the staff of the Holyoke Model Cities Health Center prepare an HEW application for a prepayment health care plan.

Member - Board of Directors - Deerfield River Valley Conservation Association. Provide professional services in the analysis of the Connecticut River Basin Study by the U.S. Army Corps of Engineers.





F. C. Kaminsky (cont'd)

Member - Franklin County Planning Board.

Supervised a graduate student (with R. F. Ridders) in the design of a refuse transportation system for the towns of Gill, Bernardston, Northfield and Leyden.

Supervised a graduate student in the design of a computer based methodology for scheduling classes at Deerfield Academy using "flexible modular scheduling".

Provided professional services in statistical analysis to the North Nashua River Watershed Association through a Cambridge consulting firm.

A talk was presented to Hudson (NY) High School Staff and Administration on the use of a computerized system for flexible modular scheduling (with R. F. Ridders).

Attended the Joint National Conference on Major Systems (40th National Meeting of ORSA and the 1971 National Conference of the IEEE), Anaheim, California, October 1971.

K. E. Kroner

On leave of absence, 7/1/71 - 1/21/72: Worked with the Industrial Development Division of the Georgia Institute of Technology Engineering Experiment Station: Worked on plant layout projects; conducted training sessions; wrote "Counseling Notes" on Leave or Buy Decisions, Make or Buy Decision, Ways of Organizing Businesses; translations of Technical material.

Forming a group of U.Mass. faculty interested in metrication affairs.

Advertising Manager of Engineering Design Graphics (EDG) Journal.

Appointed Interim Director of EDG Division for one year.

Member of EDG Division Self-Study Committee.

Member of EDG Journal Self-Study Committee.

Attended ASEE Annual Conference, Lubbock, Texas, June 1972.

Member of Leverett Planning Board.

Member of Franklin Co. Voc. School Planning Committee.

S. Lippert

Chairman, Research Committee of the Safety Council Western Massachusetts (National Safety Council).

Consultant to Faculty of Industrial and Management Engineering, Technion-Israel Institute of Technology, June-July 8, 1971.

Chaired a program session at the annual meeting of the Human Factors Society, New York, October 1971.



S. Lippert (Cont'd)

Attended the Occupational Safety and Health Administration/Human Factors Society Symposium, February 1972.

Attended International Symposium on National and Cultural Variables in Human Factors Engineering, Oosterbeek, The Netherlands, June 1972.

Attended International Ergonomic Association Council, Schipal, The Netherlands, June 1972.

H. J. Miser

External Examiner for a Doctoral Dissertation in Industrial Engineering on resource allocation to health-care facilities, University of Toronto, May 26, 1972.

Editor of Operations Research, The Journal of the Operations Research Society of America.

Member of the National Research Council as the representative of the Operations Research Society of America.

Chairman, National Academy of Sciences Evaluation Panel for the Technical Analysis Division of the Institute of Applied Technology, National Bureau of Standards.

Member, National Academy of Sciences Evaluation Panel for the Institute of Applied Technology, National Bureau of Standards.

Member of the blue-ribbon panel of the Operations Research Society of America to investigate alleged professional malpractice during the 1969 Congressional hearings on defense policy.

Consultant for

NSF, reviewed several information-system proposals and one in the program on Research Applied to National Needs (RANN).

Technology Management Incorporated, Cambridge, Mass, assisted in the development of a line of financial management services.

National Bureau of Standards, Chairman of the External Working Group that conducted an "issue study" of the use of scientific methods and the systems approach in attacking operating and policy problems of civil-sector government units, federal, state, and local.

Attended the Joint National Conference on Major Systems (40th National Meeting of ORSA and the 1971 National Conference of the IEEE), Anaheim, California, October 1971.

Attended the 41st National Meeting of ORSA, April 1972.



R. F. Ridders

Supervised a graduate student (with F. C. Kaminsky) in the design of a refuse transportation system for the towns of Gill, Bernardston, Northfield, and Leyden.

A talk was presented in Hudson (NY) High School Staff and Administration on the use of a computerized system for flexible modular scheduling (with F. C. Kaminsky).

Referee for AIIE Transactions and Health Services Research.

Attended the Joint National Conference on Major Systems (40th National Meeting of ORSA and the 1971 National Conference of the IEEE), Anaheim, California, October 1971.

E. J. Rising

Special Review Committee for Federal-State-Local Cooperative Health Statistics System.

Faculty Advisor, Implementation of Service Central Concept in a Community Hospital (with M. Murthy) Graduate Student Project.

Senate Committee for examination of a Pre-Paid Health Service for Faculty & Staff.

Review application for funds for hospital construction under Hill-Burton (Ch 1080) Construction grant for the Massachusetts Department of Health (Dr. Meyer Herman M.D., Director, Bureau of Resource Development).

Attended the 5th Annual Symposium on Health Systems Research, Toronto, Canada, September 1971.

Attended the Health Services Division of AIIE Meeting, San Francisco, California, February 1972.

Attended the 5th National Conference on Applications of Simulation of the ACM, New York, New York, December 1971.

Attended the Annual Meeting of AIIE, Anaheim, California, June 1972.

R. P. Sadowski

Worked with members of the Wood Technology Department on wood technology production problems and the development of a two year Wood Engineering Technology program in Gardner, Massachusetts.

R. W. Trueswell

Sabbatical Leave; Joseph Lucas Visiting Professor of Engineering Production at the University of Birmingham, Birmingham, England, 1971.



R. W. Trueswell (Cont'd)

National Director for pre-college student relationship of A.I.I.E.

Liaison representative for American Society for Information Science to A.I.I.E.

Member, Guidance Committee for E.C.P.D.

Working with Northwestern University program on "Longitudinal Study of Information Searching Behavior of Medical Students".

National President of Alpha Pi Mu (National Industrial Engineering Honors Society).





## APPENDIX IV

### PROFESSIONAL ACTIVITIES OF THE FACULTY

#### I. Faculty Publications and Patents

##### G. Boothroyd

"Damping in a Preloaded Metallic Interface", technical paper MP72-229, presented at SME International Conference, Chicago, April, 1972 (with C. Poli and L. Migliozi).

"Orienting Systems for Vibratory Bowl Feeders", technical paper published at SME International Conference, Chicago, 1972 (with L. E. Murch).

"Performance of a Slot Orienting Device for Vibratory Bowl Feeders", Automation, January, 1972, Vol. 19, No. 1, pp. 43-45 (with P. F. Rogers).

##### D. E. Cromack

"Transportation in a Tube - High Speed Ground Transportation of the Future", HSGT, Vol. 5, No. 3, Fall 1971, pp. 427-441 (with W. P. Goss).

##### F. R. E. Crossley

"Information from U.S. Patents Describing Linkages", Proceedings of the Third World Congress on Theory of Machines and Mechanisms, 9 volumes, Kupari, Yugoslavia, Vol. A, pp. 53-60 (1971) (with S. R. Brown and T. H. Davies).

"Use of the Intersection of Surfaces as a Method for the Design of Spatial Mechanisms", Proceedings, Third World Congress on T.M.M., Kupari, Yugoslavia, Vol. B, pp. 247-258 (1971) (with L. E. Torfason).

"Analysis of the Displacements of Plane Assur Groups by Computer, Proceedings, Third World Congress on T.M.M., Kupari, Yugoslavia, Vol. C, pp. 71-82 (1971) (with N. Seshachar).

"The Usefulness of the Analog Computer in the Study of Mechanisms", Course Notes, from the N.S.F. Advanced Training Workshop in Mechanisms, pp. 1-35, Oklahoma State University, Stillwater, Oklahoma, July, 1971.

##### J. A. Fillo

"On the Calculation of Three-Dimensional Laminar Boundary Layers", AIAA, March, 1972.

"Effect of Longitudinal Surface Curvature on Free Convection Boundary Layers", Proceedings of the 8th Southeastern Seminar on Thermal Sciences.

##### W. P. Goss

"Transportation in a Tube - High Speed Ground Transportation of the Future", High Speed Ground Transportation Journal, Vol. 5, No. 3, Fall 1971, pp. 427-441 (with D. E. Cromack).

"Interfacial Shear Stress in Annular Mist Condensing Flow", Journal of Heat Transfer, May, 1972 (with M. R. Berry).



R. H. Kirchhoff

"Experimental Study of the Shock Structure in a Partially Ionized Gas", AIAA Journal, Vol. 9, No. 6, June, 1971.

"Experimental Study of the Cylindrical Languin Probe in the Transition Regime", AIAA Journal, Vol. 9, No. 9, September, 1971.

"Response of Finite Thickness Gordon Heat Flux Sensors", ASME J. of Heat Transfer, Vol. 94, No. 2, May, 1972.

J. G. McGowan

"The Bionic Relationship Between Transpiration in Vascular Plants and the Heat Pipe", Mathematical Biosciences, 13, June, 1972 (with J. F. Osterle).

"An Ecological-Engineering Study of an Agricultural or Silvicultural System Utilizing Heated Water from Powerplant", Proceedings of 1971, Intersociety Energy Conversion Engineering Conference, pp. 711-718 (with S. L. Ludlam).

L. E. Murch

"Design of Orienting Systems for Vibratory Bowl Feeders", published at SME International Conference, Chicago, 1972 (with G. Boothroyd).

C. Poli

"Planar Motion of a Large Flexible Satellite", AIAA Journal, Vol. 9, No. 10, October, 1971 (with R. Budynas).

"On the Stability of Motion of Two Mechanical Systems", Bulletin of Mechanical Engineering Education, Vol. 10, No. 4, 1971 (with R. Budynas).

"Three Dimensional Motion of a Large Flexible Satellite", Automatica, Vol. 8, No. 3, May, 1972 (with R. Budynas).

J. E. Ritter, Jr.

"Dynamic and Static Fatigue of Silicate Glasses", J. Amer. Ceram. Soc., 54, 601-05 (1971).

"Introductory Materials Laboratory Manual", prepared for American Society for Engineering Education Workshop for the First Course in Engineering Materials, June 23-25, 1971, U.S. Naval Academy, Annapolis, 46 pages.

"Development of a Two Term Sequence of Materials Courses for Mechanical Engineering Students", Final Report, National Science Grant GY-4709, 27 pages (1972).

P. E. Tartaglia

"Professional Education - How Can It Be Accomplished", Proceedings of 1972 Conference on Frontiers in Education, IEEE Cat. No. 72 CHO 636-1-E.

F. G. Umholtz

Patents received: Utility Knife, May 9, 1972; Pneumatic Dehider Tool, December 7, 1971.



J. W. Zahradnik

"Theoretical Evaluation of Combined Irradiation and Thermal Processes in Cylindrical Containers with Gamma Sources", Journal of Food Science, Vol. 36, pp. 750-751 (1971) (with Purohit and Manson).

"Computer Evaluation of Irradiation Processes in Cylindrical Containers with Gamma Sources", Journal of Food Science, Vol. 36, pp. 747-749 (1971) (with Purohit and Manson).

"In-Stack Hydrocooling for Apples", Transactions of the ASAE, Vol. 15, No. 1, pp. 141-145 (1972) (with L. Reinhart).

"Annual Report Shellfish Aquaculture and Environmental Factors, Town of Mattapoisett, Mass.", Pub. No. 002-12-71, UMASS Aquaculture Engineering Laboratory at Wareham, 51 pages, 6 tables, 56 figures (1971) (with H. A. Walker).

"Annual Report Shellfish Aquaculture and Environmental Factors, Town of Marion, Mass.", Pub. No. 001-12-71, UMASS Aquaculture Engineering Laboratory at Wareham, 56 pages, 8 tables, 47 figures (1971) (with H. A. Walker).

"Study for the Improvement and Maintenance of the Westport River (East Branch)", Report No. 003-12-71, UMASS Aquaculture Engineering Laboratory at Wareham, 95 pages, 9 tables, 98 figures (1971) (with H. A. Walker and M. H. Koch).



## II. Faculty Papers Presented

L. L. Ambs

"Alternative Automotive Fuels", talk to Engineering Alumni, May, 1972.

G. Boothroyd

"Damping in a Pre-loaded Metallic Interface", presented at Society of Manufacturing Engineers International Conference, Chicago, Ill., April, 1972 (with C. Poli and Mr. Migliozi).

D. E. Cromack

"Engineering at University of Massachusetts", talk to Guidance Counselors Association of Franklin/Hampshire Counties,

F. R. E. Crossley

Guest lecturer at ASME Section Meeting, Hartford, Conn., March, 1972. Joint presentation with Dean Hunt.

Delivered Vice-Presidential Address, Third World Congress IFToMM, Dubrovnik, Yugoslavia, September, 1971.

Invited lecturer, NSF Summer Workshop on Mechanisms, Oklahoma State University, July, 1971.

W. P. Goss

"Technology Assessment", talk to Engineering Alumni, May, 1972.

J. M. O'Byrne

"Cryogenic Fuel Tank Protection for Advanced Space Vehicles", presented at Western Mass. Section, ASME, May, 1972.

C. Poli

"Damping in a Pre-loaded Metallic Interface", presented at SME International Tool Exposition and Engineering Conference, Chicago, April, 1972 (with G. Boothroyd and Mr. Migliozi).

J. E. Ritter, Jr.

"Introductory Materials Laboratory", presented at 79th Annual Meeting of American Society for Engineering Education, U.S. Naval Academy, June, 1971.

"Regenerator Seal Materials", seminar at Owens-Illinois Research Seminar Series, April, 1972.

"Recent Developments in Glass and Ceramics", invited seminar speaker at Calvin College, Grand Rapids, Michigan, November, 1971.

P. E. Tartaglia

"Professional Education - How Can It Be Accomplished", presented at 1972 Frontiers in Education Conference, Tucson, April, 1972.

"Design of an Urban Vehicle, Theory versus Practice", presented at Western Mass. Section, ASME, May, 1972.





### III. Grants

- L. L. Ambs with J. G. McGowan and G. A. Russell  
Environmental Protection Agency, "Study of Two-Stage Automotive External Combustor", AP-01301-02, \$39,000, May 1972 - May 1973, renewal.
- G. Boothroyd with C. Poli  
NSF Research Grant, "Interface Damping in Machine Tool Structures", NSF-GK-21360, \$49,600, February 1972 - February 1974.
- D. E. Cromack with R. H. Kirchhoff  
ONR Themis, "Vehicle System Design", ONR-N00014-68-A-0146-6C, \$13,380, September 1971 - August 1972, renewal.
- F. R. E. Crossley  
NSF Research Grant, "Dynamics of Mechanisms with Two Regimes and Shock", NSF-GK-32372, \$63,900, February 1972 - February 1974.
- F. R. E. Crossley, with School of Business Administration Personnel  
NSF Grant, "Workshop on National Productivity in Durable Goods Manufacturing", NSF-GK-34180, \$23,500, July 1972 - September 1972.
- W. P. Goss, Project Director with P. W. Shuldiner, C.E., Project Coordinator  
Urban Mass Transportation Administration Grant, Research and Demonstration Grant for University of Massachusetts/Amherst Bus Transportation System, Mass-DMG-6, \$703,000, May 1972 - May 1974.
- G. Horvay with G. E. Zinsmeister  
NSF Research Grant, "Transient Heat Conduction in Laminated Composites", NSF-PIK-1527-000, \$29,200, August 1972 - August 1973.
- K. Jakus  
AROD Research Grant, "Study of Gas Phase Ignition Mechanisms with Skimming Transient Mass Spectrometry, DA-ARO-D-31-124-72-G142, \$32,285, April 1972 - April 1974.
- R. H. Kirchhoff  
NSF Research Grant, "Direct Measurement of the Hot Wire Technique Velocity Gradient in a Fluid Flow", NSF-GK-30481, \$17,500, September 1971 - September 1973.
- R. H. Kirchhoff with D. E. Cromack  
ONR Themis, "Vehicle System Design", ONR-N00014-68-A-0146-6C, \$13,380, September 1971 - August 1972, renewal.
- J. G. McGowan with L. L. Ambs and G. A. Russell  
Environmental Protection Agency, "Study of Two-Stage Automotive External Combustor", AP-01301-02, \$39,000, May 1972 - May 1973, renewal.
- C. Poli with G. Boothroyd  
NSF Research Grant, "Interface Damping in Machine Tool Structures", NSF-GK-21360, \$49,600, February 1972 - February 1974.



- J. E. Ritter, Jr.  
ONR Themis, "Fatigue of Silicate Glasses", ONR-N00014-68-0146-3,  
\$7,270, September 1971 - August 1972, renewal.
- J. E. Ritter, Jr.  
ASEE, "Enhancement of the Materials Programs at the Black Colleges  
through a Consultation Visit", \$4,760, September 1971 - June 1972.
- G. A. Russell with J. G. McGowan and L. L. Ambs  
Environmental Protection Agency, "Study of Two-Stage Automotive Ex-  
ternal Combustor", AP-01301-02, \$39,000, May 1972 - May 1973, renewal.
- P. E. Tartaglia  
Urban Vehicle Design Competition, "Design and Construction of an  
Urban Vehicle", \$3,000, September 1971 - August 1972.
- P. E. Tartaglia  
Norton Company, M.S. Student Projects, "Design of a System to Specify  
Grinding Wheel Design Parameters", and "Design New Compositions and  
Structures of Recrystallized Silicon Carbide for Turbine Environments",  
\$4,750 each, September 1972 - May 1973.
- P. E. Tartaglia  
Kollmorgen Company, M.S. Student Project, title to be decided,  
\$3,600, September 1972 - May 1973.
- W. R. D. Wilson  
Smith, Kline, and French, "Bearings for Prosthetic Human Joints",  
\$10,000, January 1972 - December 1972.
- J. W. Zahradnik  
Towns of Harwich, Marion, and Mattapoisett, Support of Aquaculture  
Laboratory in Wareham, \$17,375, June 1971 - June 1972.
- J. W. Zahradnik  
Conwed Corporation, "Plastics in Marine Aquaculture and Coastal  
Fisheries", \$14,250, November 1971 - November 1972.
- J. W. Zahradnik  
University of Massachusetts Research Council, "Lobster and Blue Crab  
Project", \$900, November 1971 - November 1972.
- J. W. Zahradnik  
University of Massachusetts Graduate School, Cobalt 60 Facility,  
\$700, November 1971 - June 1972.
- G. E. Zinsmeister with G. Horvay  
NSF Research Grant, "Transient Heat Conduction in Laminated Composites",  
NSF-PIK-1527-000, \$29,200, August 1972 - August 1973.



#### IV. Consulting and Other Professional Activities

##### L. L. Ambs

Member, Society of Automotive Engineers, Engineering Education Activity Committee. Arranged and produced session on Law and the Engineer for the SAE mid-year meeting, May, 1972.

Attended Annual Meeting, SAE, January, 1972.

Chairman, Department Undergraduate Committee.

##### G. Boothroyd

Consultant with Monsanto Company on advanced automation equipment.

Chairman, Search Committee for New Department Head.

Chairman, Committee to develop new manufacturing program.

##### D. E. Cromack

Consultant with Freo-Dyne Systems, Inc.

Faculty Advisor to Student Branch American Institute of Aeronautics and Astronautics (AIAA). Received citation from National Office of AIAA as "outstanding faculty advisor 1972".

Sessions Chairman for National AIAA Student Conference, Washington, D.C.

Member, National Student Activities Committee for AIAA, 1971-72.

Acting Assistant Dean, School of Engineering, March, 1972 to date.

Chairman, Freshman Engineering Committee, March, 1972 to date.

##### F. R. E. Crossley

Re-appointed Chairman, U.S. Council for Theory of Machines and Mechanisms, ASME, May, 1972.

Re-elected to 4-year term as Vice-President, IFToMM during Dubrovnik Third World Congress, September, 1971.

Vice-Chairman of session for ASME Design Engineering Conference, Chicago, May, 1972.

Editor, Mechanism and Machine Theory, adopted as official journal of the IFToMM. Name changed from Journal of Mechanisms.

Member, panel of judges, NSF Research Initiation proposal review, Washington, D.C., January, 1972.

Organizer and Chairman, Steering Committee Meeting to develop National Productivity in the Durable Goods Manufacturing Industry Meeting, February, 1972. Resulted in grant received and noted elsewhere in report.

Included manipulator kinematics in Design course as result of visit to Children Amputees Clinic, Springfield, Mass.

##### R. W. Day

Chairman, MAE Department Personnel Committee

Chairman, MAE Department Space & Facilities Committee



W. P. Goss

Consulted with Mitre Corporation on technology assessment.

Consulted with Franklin County officials on transportation for elderly and disadvantages individuals to and from medical clinics.

Representative for Amherst and Five Colleges to the Lower Pioneer Regional Planning Commission Mass Transportation Technical Study.

Attended Annual Meeting, SAE, January, 1972.

G. Horvay

Participated in ASME Heat Transfer Subcommittee meeting on fundamental research at Annual ASME meeting, Washington, D.C., November, 1971.

Informally advised Worthington Corporation on several of their problems.

J. G. McGowan

Consultant with Combustion Engineering, 50 days.

Member, Western Massachusetts Executive Committee, ASME.

Member, National Working Group, No. 7, ASME.

Attended Annual Meeting, ASME, November, 1971.

Attended Annual Meeting, SAE, January, 1972.

Member, Air Pollution Control Association.

Attended Annual and Regional meetings of APCA.

L. E. Murch

Consulted with Omark Industries.

C. W. Nelson

Has originated some actual consulting work involving students in the materials area. Excellent teaching device and also brings outside funds into the Department.

J. M. O'Byrne

Worked Summer, 1971, at Marshall Space Flight Center on Mars manned nuclear stage design of insulation system.

R. K. Patterson

Consulted with Smith College on frame design.

C. Poli

Consulted with Computerized Biomechanical Analysis, Inc., on dynamics problems.

G. A. Russell

Attended National Meeting, SAE, January, 1972.

Consulted with Springfield Wire Co. on noise reduction.





P. E. Tartaglia

Consulted with Kollmorgen Corporation, Electro-Optical Division.

Consulted with Physical Plant, UMASS.

Advisor to WMPIRG - student organized public interest group.

Served as volunteer for International Technical Assistance (VITA).

Chairman, Department Committee for Development of professional M.S. program.

F. G. Umholtz

Consulted with Russell Harrington Corporation.

Consulted with Hyder Manufacturing Corporation.

Consulted with X-Acto, Inc.

Attended Design Engineering Show and concurrent ASME Design Conference, Chicago, April, 1972.

W. R. D. Wilson

Consulted for Battelle Memorial Institute and AEC, Argonne Laboratories.

J. W. Zahradnik

Consultant with Conwed Corporation.

Consultant to Towns of Marion, Mattapoisett, Harwich, Westport, and Wareham.

Chairman, Advisory Board of the New England Marine Information Program at University of Rhode Island.

Member, Aquaculture Steering Committee - New England Regional Commission.

Principal Scientist, UMASS Aquaculture Engineering Laboratory, Wareham, Massachusetts.

Project Coordinator, Ocean Engineering Program, University of Massachusetts.





1875

1876



UNIVERSITY OF MASSACHUSETTS AT AMHERST

# GRADUATE SCHOOL

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## First Preliminary, EXPENDITURES AND APPROPRIATION

	<u>1969-1970</u>	<u>1970-1971</u>	<u>1971-1972</u>
State Funds - Salaries	<u>677,773</u>	<u>917,539</u>	<u>1,120,778</u>
State Funds - Other	<u>101,447</u>	<u>172,675</u>	<u>304,103</u>
Other Operating Funds - Salaries	<u>909,409</u>	<u>905,671</u>	<u>907,10</u>
Total	<u>1,688,629</u>	<u>1,995,885</u>	<u>2,331,982</u>

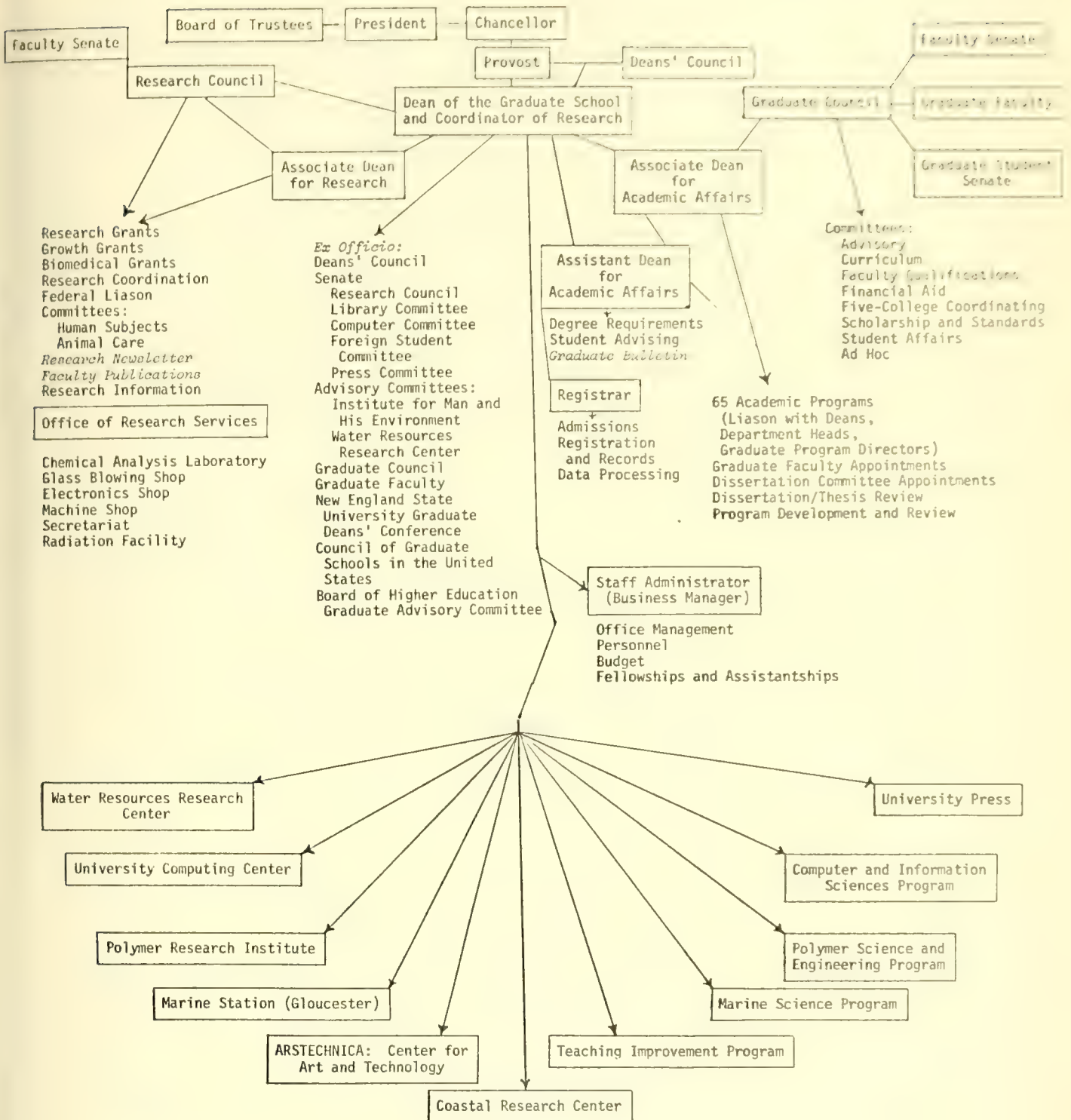
## Second Preliminary, PERSONNEL

Faculty - Full Time			
Professors	<u>4</u>	<u>7</u>	<u>10</u>
Associate Professors	<u>3</u>	<u>1</u>	<u>1</u>
Assistant Professors	<u>3</u>	<u>2</u>	<u>6</u>
Instructors & Lecturers	<u>--</u>	<u>--</u>	<u>--</u>
Part Time Faculty - Number	<u>--</u>	<u>--</u>	<u>--</u>
Full Time Equivalent	<u>--</u>	<u>--</u>	<u>--</u>
Faculty Subtotal	<u>10</u>	<u>10</u>	<u>17</u>
Non-Faculty Professionals			
Deans or Directors	<u>3</u>	<u>3</u>	<u>3</u>
Staff	<u>30</u>	<u>40</u>	<u>34</u>
Other (and Part Time, FTE)	<u>0.5</u>	<u>1.25</u>	<u>1.4</u>
Faculty and Professional Subtotal	<u>43.5</u>	<u>54.25</u>	<u>55.4</u>
Classified Personnel			
Clerical Positions	<u>          </u>	<u>          </u>	<u>          </u>
Technical Positions	<u>          </u>	<u>          </u>	<u>          </u>
Other	<u>          </u>	<u>          </u>	<u>          </u>
Classified Subtotal	<u>          </u>	<u>63</u>	<u>55</u>



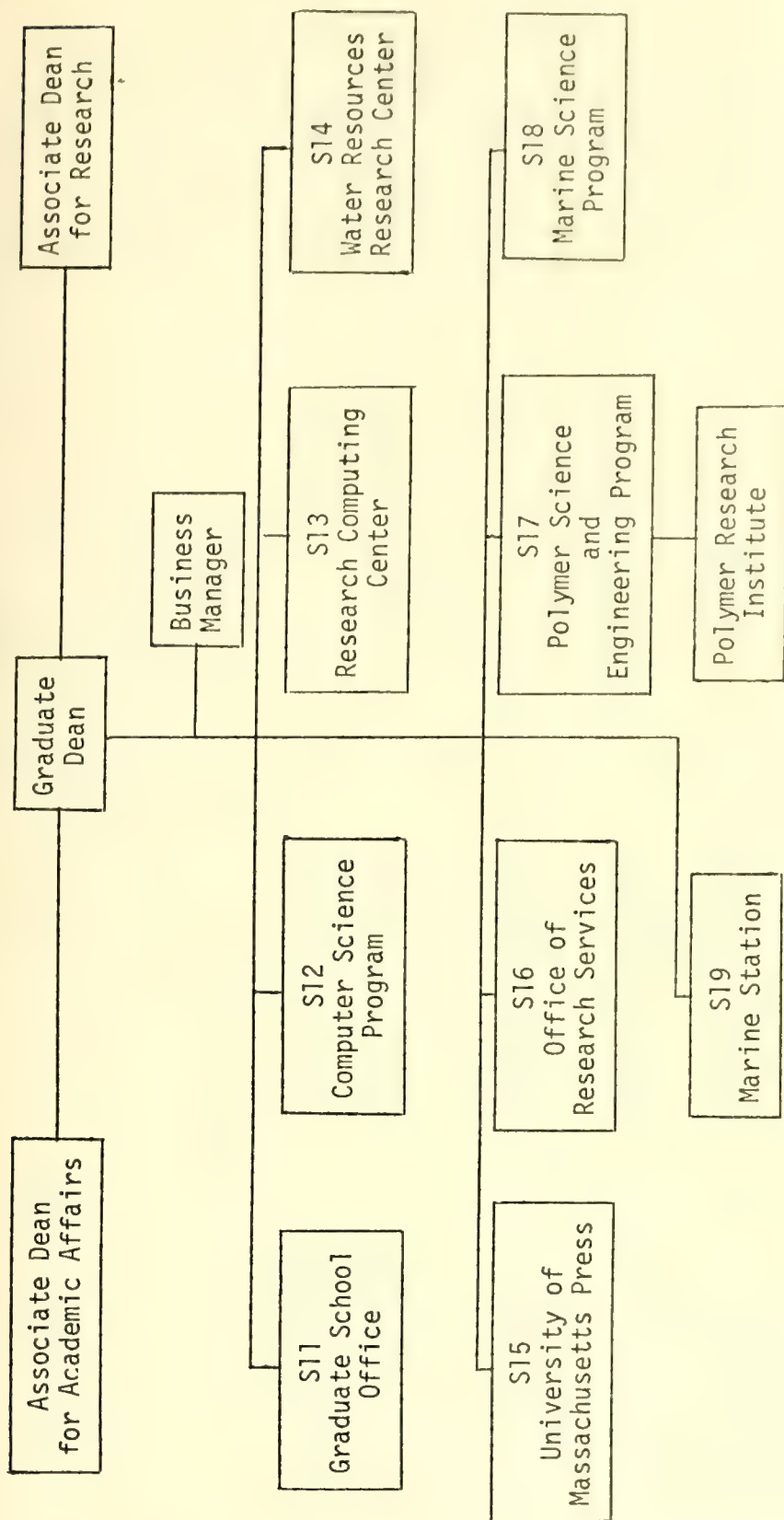


3. Organization charts for the departments of the Graduate School, 1970-71.



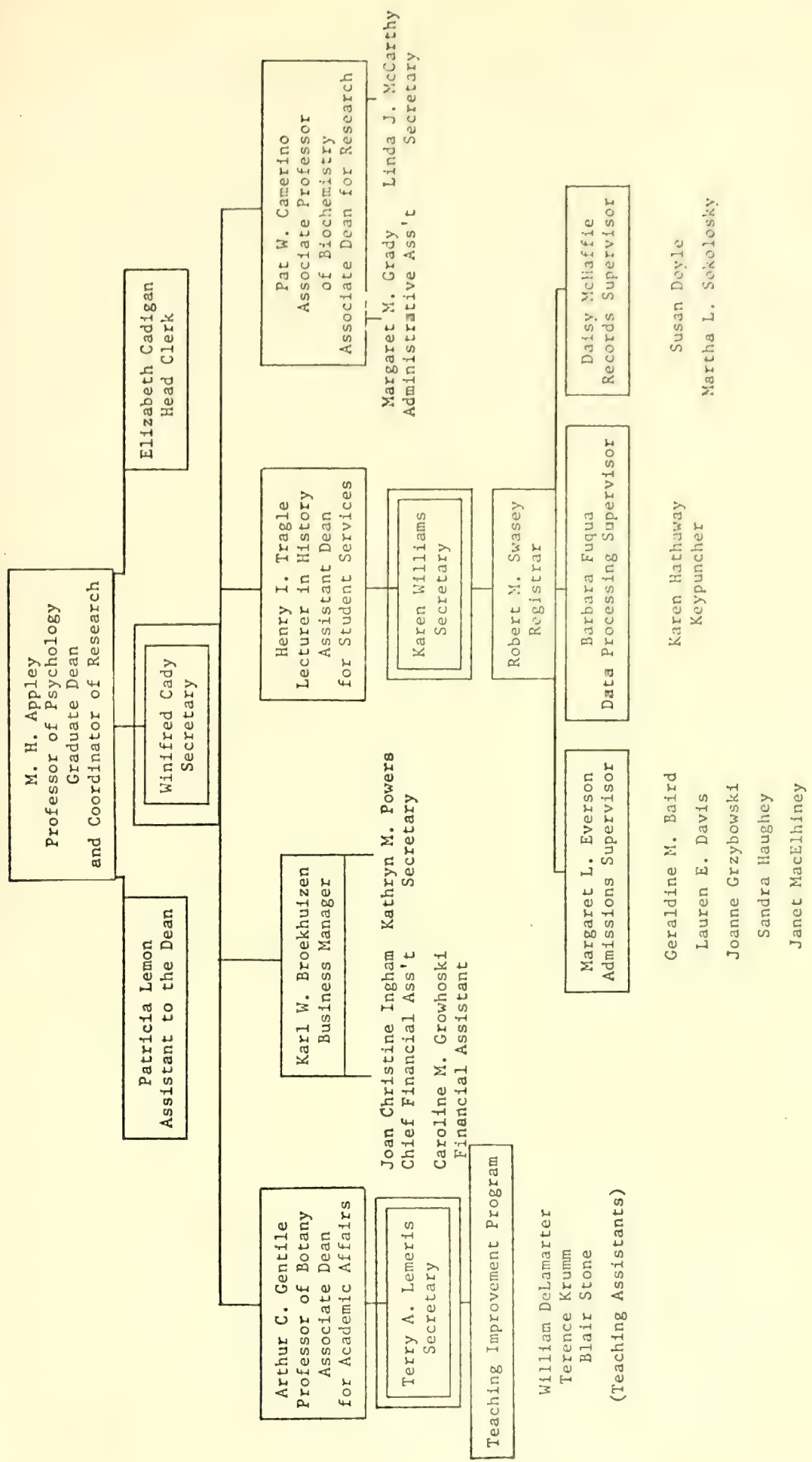


3. Organization charts for the departments of the Graduate School.



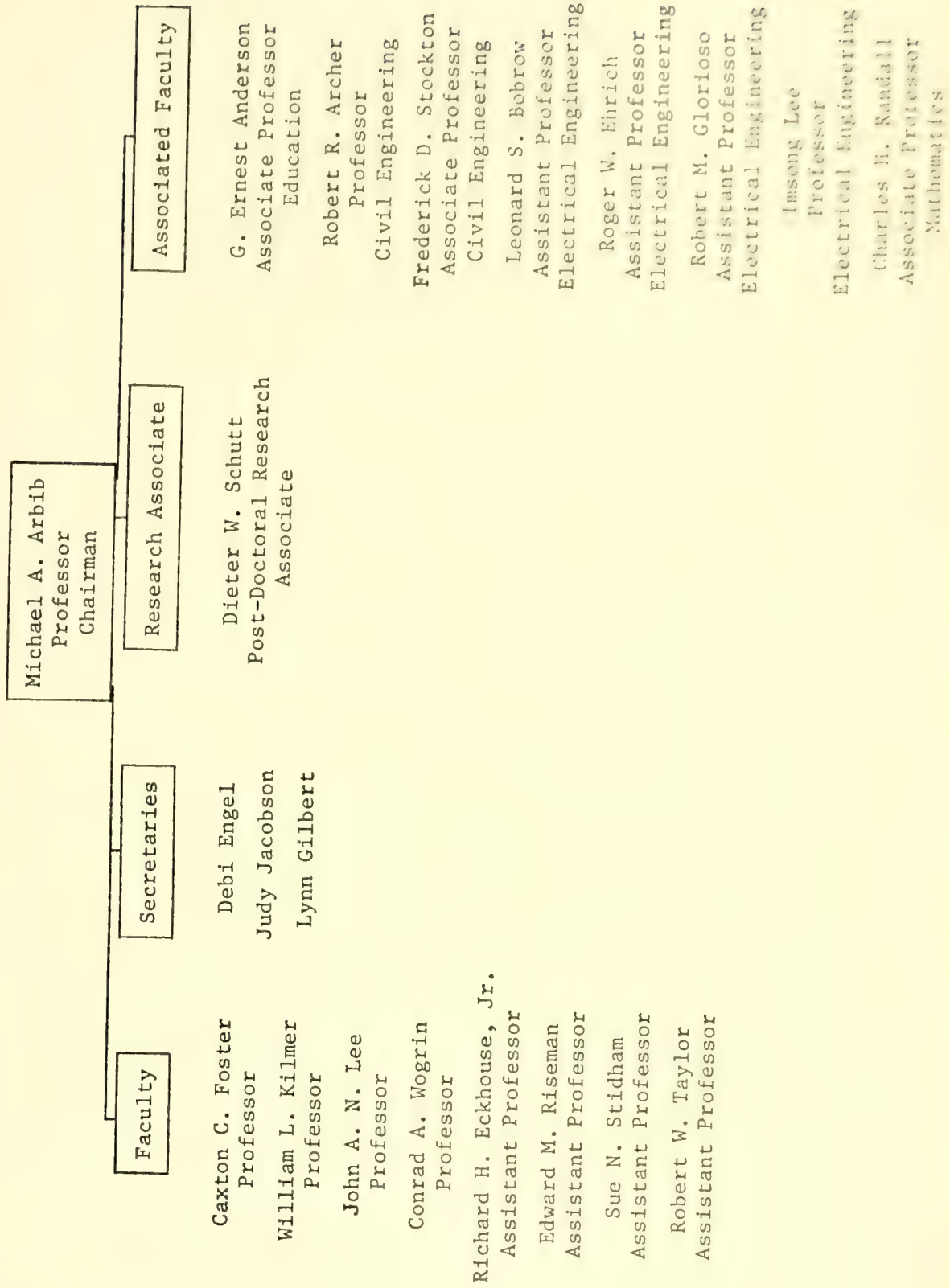


GRADUATE SCHOOL





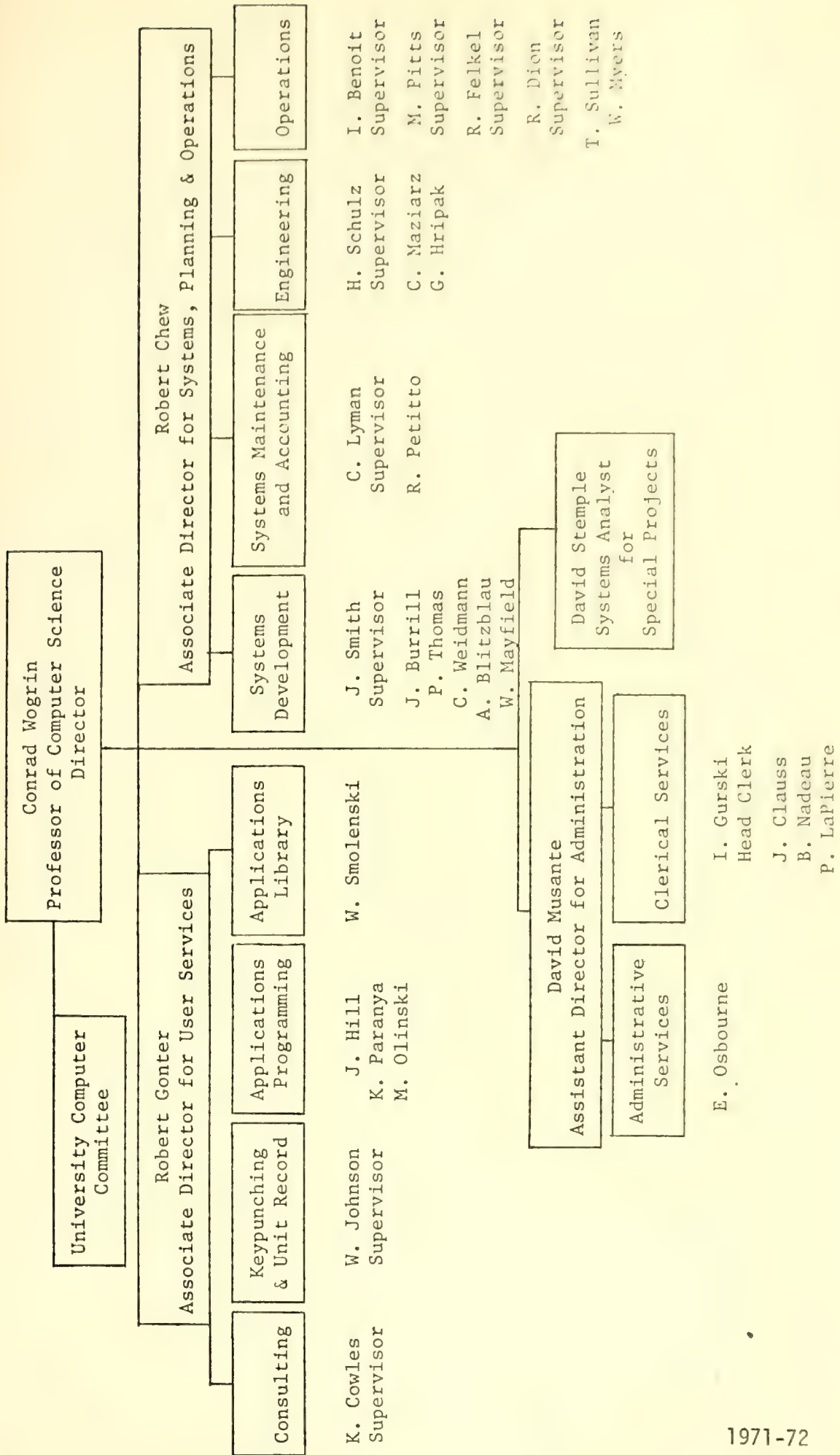
COMPUTER AND INFORMATION SCIENCE





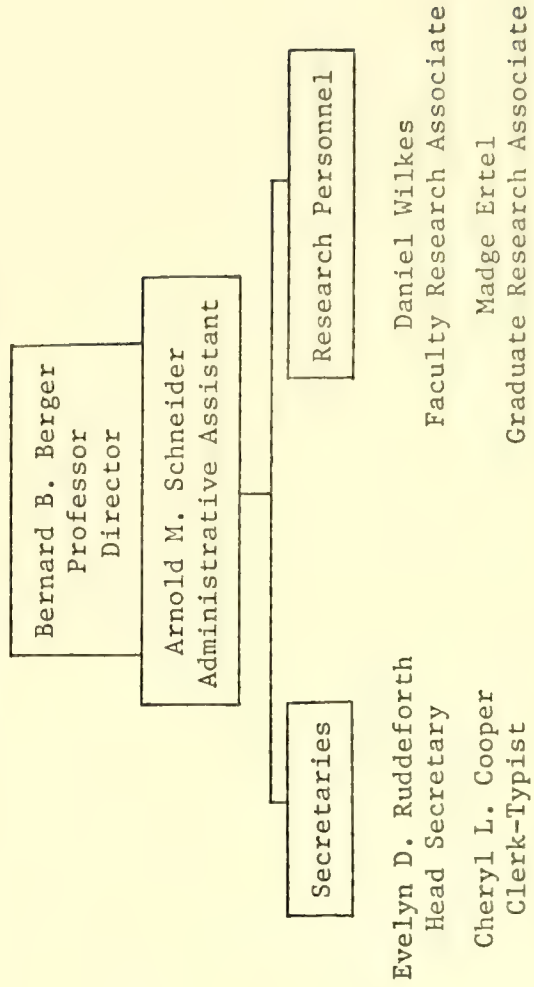


UNIVERSITY COMPUTER CENTER



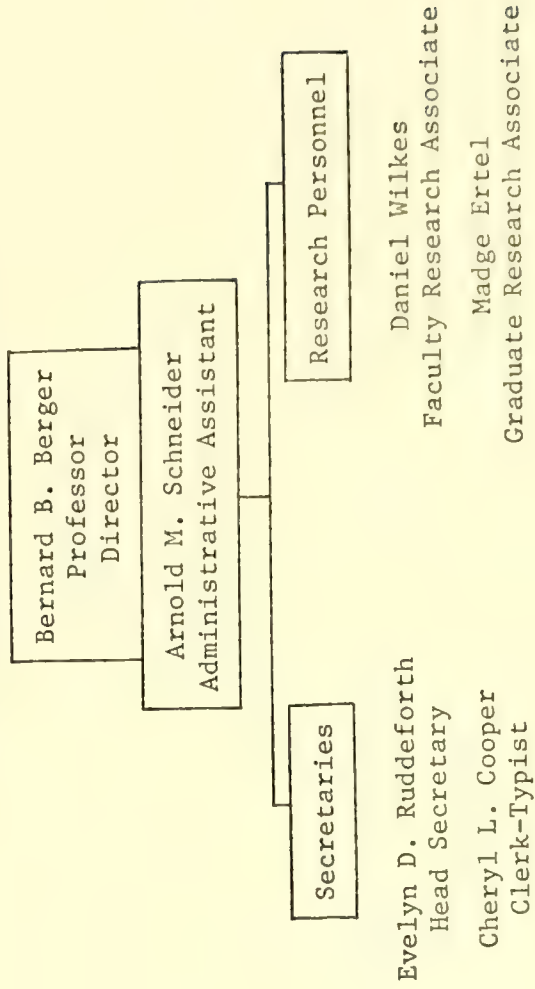


WATER RESOURCES RESEARCH CENTER



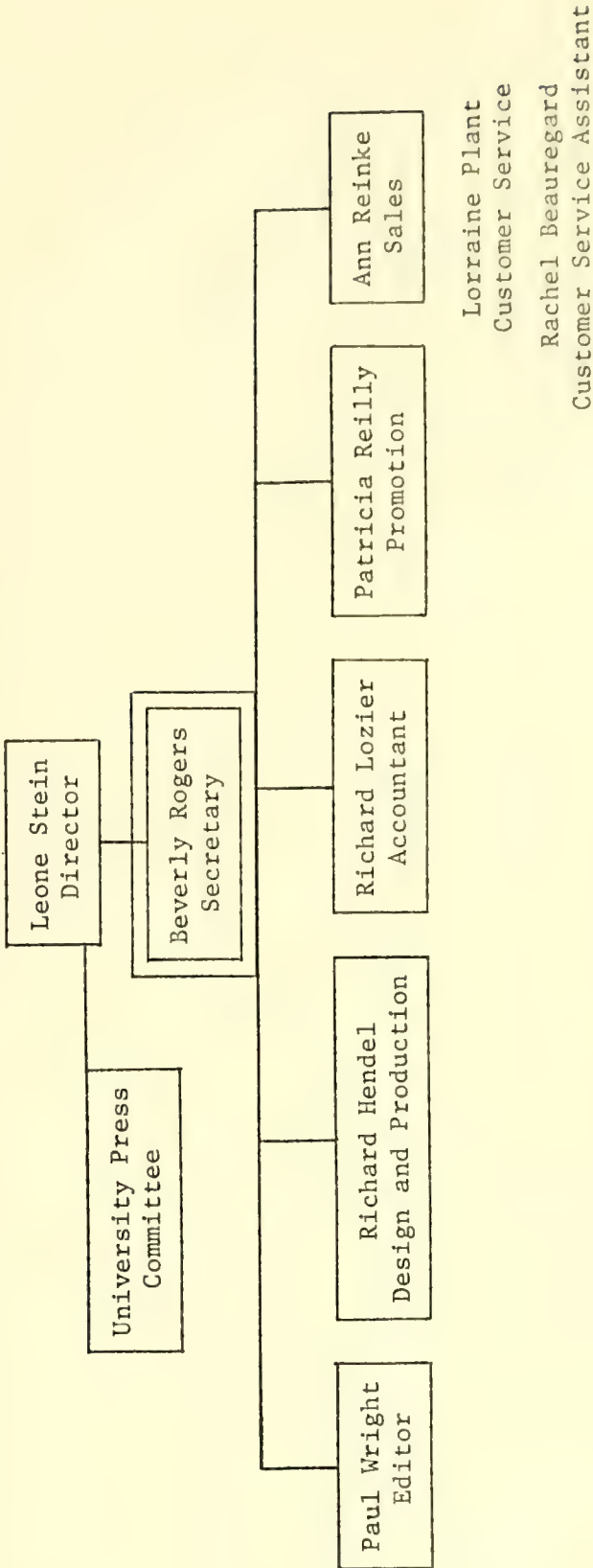


WATER RESOURCES RESEARCH CENTER





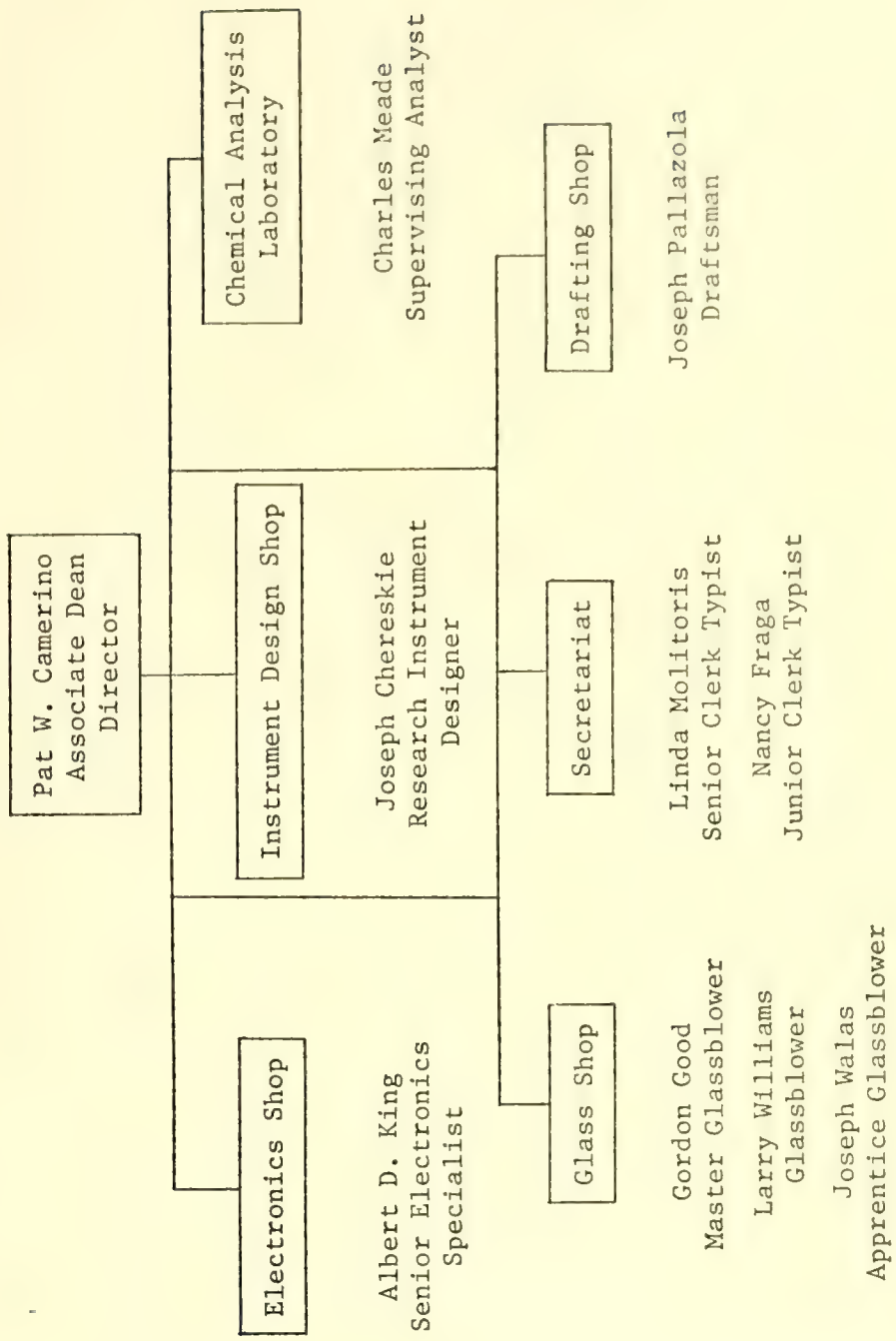
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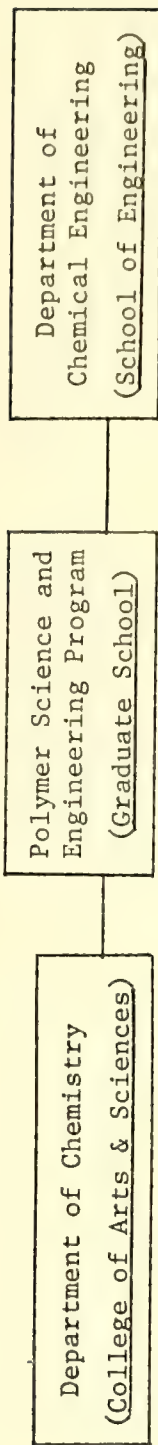


OFFICE OF RESEARCH SERVICES





POLYMER SCIENCE AND ENGINEERING  
and the  
POLYMER RESEARCH INSTITUTE



Richard S. Stein  
Commonwealth Professor  
Director, Polymer Research  
Institute

William J. MacKnight  
Associate Professor

James C. W. Chien  
Professor

Roger S. Porter  
Professor  
Department Head

Secretaries  
Sophia Kenney  
Nancy MacClay  
Sandra Golinger

Robert W. Lenz  
Professor  
Associate Head, PSE Program

Robert L. Laurence  
Associate Professor

Stanley Middleman  
Professor

Frank E. Karasz  
Professor

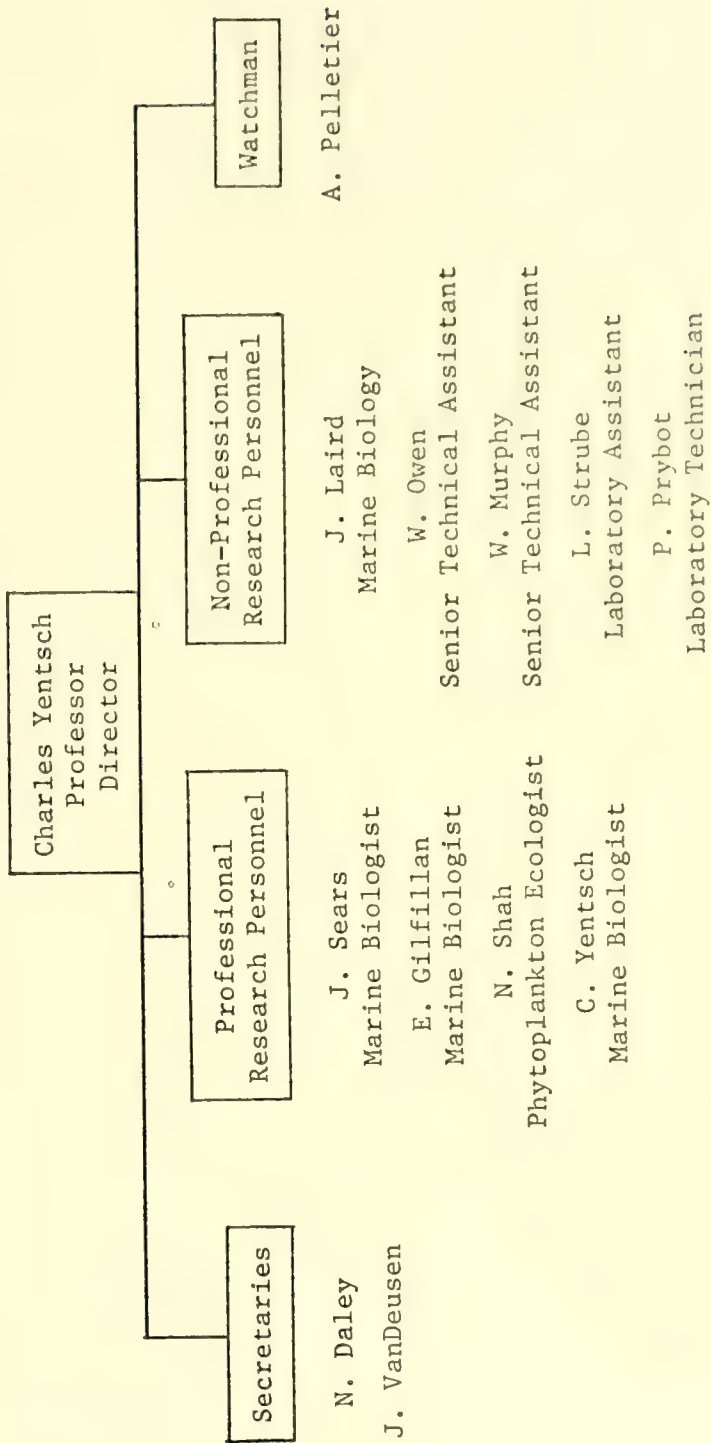
Seymour Newman  
Adjunct Associate Professor

Fraser P. Price  
Professor

Otto Vogl  
Professor



MARINE STATION  
Gloucester, Massachusetts





## Third Preliminary - ORGANIZATIONAL CHART

<u>Departments</u>	<u>Degree<sup>o</sup> Programs</u>	<u>Institu- tion</u>	<u>Re- search</u>	<u>Service</u>	<u>Other</u>
Academic Programs					
Computer and Information Science	M	X	X		
Marine Sciences Program	M	X	X		
Polymer Science & Engineering	MD	X	X		
Research and Support Programs - Research Computer Center			X	X	
Water Resources Research Center			X	X	
University of Massachu- setts Press					X
Office Research Services			X	X	X
Marine Station			X		
Polymer Science Research			X	X	

\* A - Associate; B - Bachelor; M - Master, less than 40 credits required;  
S - Master, 40 or more credits required; D - Doctoral Degree.





4. Clients served.

'69-'70      '70-'71      '71-'72  
% Increase      % Decrease      % Increase

S-11 Admissions

Inquiries	39,547	23%	39,547	20%	40,000	11%
Applications Processed	9,571	24%	11,000	27%	11,000	16%
Students Registered	3,801	22%	4,555	17%	5,000	32%
Degrees Granted						
Master's	703	6%	77	9%	700	12%
Doctoral	154	23%	204	7%	170	10%
Total	857	8%	1,037	20%	1141	10%

Research Coordinator

Non-University Grant Applications Processed	365	17%	316	-13%	622	97%
Average Grant (Excluding Institutional Grants and Educational Project Grants)	\$25,018	- 2%	\$30,542	22%	\$27,000	-13%
Faculty Growth Grants Awarded (\$1000 each)	23	- 8%	22	- 4%	22	0%
Faculty Research Grants Awarded	170	32%	156	9%	127	-13%
Average Amount Awarded	\$385	-29%	\$586	51%	\$575	- 2%
Average Amount Awarded						

S-12 Computer Science

Number of Majors Enrolled	33	32%	41	24%	54	32%
Others Taking CS Courses	1,026	18%	864	11%	1024	19%

S-13 Research Computing Center

Total Number of Accounts	1,033	17%	975	- 6%	1,382	42%
Departments Served	60	28%	63	5%	97	54%
Student Users/Semester	3,700	18%	3,925	6%	4,660	16%
Faculty Users	610	3%	607	0%	725	19%
Total Jobs Run	915,316	138%	1,375,950	50%	2,349,900	41%

S-14 Water Resources Research Center

Faculty Working on WRRC Projects	21	-19%	16	-24%	32	100%
Publications	19	90%	10	-47%	26	160%

S-15 University of Massachusetts Press

Titles Published	10	0%	11	10%	15	36%
Books Distributed	14,500	12%	18,000	24%	25,000	39%

S-16 Polymer Science and Engineering

Students Majoring in PSE	49	36%	50	2%	57	14%
Others Taking PSE Courses	10	25%	15	50%	14	- 7%

Polymer Research Institute

Seminars Given	53	23%	49	- 8%	48	- 2%
Teachers Attending Summer Institutes			22		24	9%
Student Projects Advised and Supported	47	21%	88	87%	76	- 9%
Faculty Research Projects	31	35%	27	-13%	29	7%

S-18 Marine Sciences

Students Majoring in MS			13		11	-15%
Others Taking Courses					125	
Degrees Granted					2	

S-19 Marine Station (Facility opened Fall 1970)

Students			1		150	
----------	--	--	---	--	-----	--



Fourth Preliminary, CLIENTELE

STUDENT MAJORS (Fall Semester):

	<u>1969-1970</u>	<u>1970-1971</u>	<u>1971-1972</u>
Stockbridge School	---	---	---
Undergraduate			
Freshmen	---	---	---
Sophomores	---	---	---
Juniors	---	---	---
Seniors	---	---	---
Undergraduate Subtotal	---	---	---
Graduate			
Degree Students	<u>63</u>	<u>84</u>	<u>98</u>
Other	<u>19</u>	<u>20</u>	<u>18</u>
Graduate Subtotal	<u>82</u>	<u>104</u>	<u>116</u>
Total Majors	<u>82</u>	<u>104</u>	<u>116</u>

STUDENT CREDIT HOURS TAUGHT (Fall Semester):

In courses of this unit

Undergraduate including Stockbridge	<u>583</u>	<u>1,002</u>	<u>1,311</u>
Graduate	<u>623</u>	<u>824</u>	<u>889</u>

In courses of other units

Undergraduate	_____	_____	_____
Graduate	_____	_____	_____

OTHER CLIENTELE:

_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____



## Appendix 2.

Graduate School  
STUDENT MAJORS by DEPARTMENT

Fall of		Undergraduate				Graduate		
		'69	'70	'71		'69	'70	'71
Computer Science	L	---	---	---	D	27	31	42
	U	---	---	---	S	6	10	11
	T	---	---	---	T	33	41	53
Marine Science	L	---	---	---	D	---	12	11
	U	---	---	---	S	---	1	1
	T	---	---	---	T	---	13	12
Polymer Science and Engineering	L	---	---	---	D	36	41	6
	U	---	---	---	S	13	9	6
	T	---	---	---	T	49	50	51
Unclassified	L	---	---	---	D	---	---	---
	U	---	---	---	S	7	17	21
	T	---	---	---	T	7	17	21
School Sub-total	L	---	---	---	D	63	84	98
	U	---	---	---	S	26	37	39
	T	---	---	---	T	89	121	137

L: Freshmen & Sophomores, U: Juniors & Seniors,  
T: Total, D: Degree Students, S: Other



Appendix 3.

Graduate School

STUDENT CREDIT HOURS BY DEPARTMENT

Fall Semester of		1969	1970	1971
Computer Science	U	529	726	1,020
	G	231	312	477
Marine Science	U	60	252	291
	G	6	30	45
Polymer Science and Engineering	U	15	6	---
	G	365	400	367
Graduate School Subtotal	U	604	984	1,311
	G	602	742	889

U: Undergraduate including Stockbridge      G: Graduate





5. Faculty publications, research grants, research projects and other professional activities.

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M. H. Appley, Graduate Dean

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Publication:

*Adaptation-Level Theory: A Symposium.* New York: Academic Press, 1971, 393 pp. (Editor)

*Psicología de la motivación: Teoría e investigación.* México, D. F.: Editorial Trillas, 1971. (Translation by F. Patán López; written with C. N. Cofer; originally published in English by Wiley, New York, 1964)

Social stress strategies. A review of J. McGrath (ed.), *Social and Psychological Factors in Stress. Contemporary Psychology*, 1971, 16, 732.

Grants:

OE #437-00221	National Defense Education Act Graduate Fellowship Program	\$324,000
NSF #GU-3448	Institutional Grant for Science	\$53,949
NSF #GZ-2027	Graduate Traineeship Program	\$108,464

Other Professional Activities:

Honors:

Elected Honorary Fellow, Canadian Psychological Association

*Who's Who in America.* 37th edition.

Committees:

National Institutes of Mental Health: Alcoholism and Alcohol Problems Review Committee

National Institutes of Mental Health: *Chairman*, Alcohol Training Review Committee

American Psychological Association: *Chairman*, Committee on Program Innovations, Convention Board

American Psychological Association: Task Force on Manpower

New England Psychological Association: Steering Committee



Massachusetts Committee on Law Enforcement and  
Criminal Justice: Advisory Committee  
New England Association of Graduate Deans  
Council of Graduate Schools in the United States  
Trustee, Friends of the Library, University of  
Massachusetts

Other Activities:

Visiting Scientist, National Science  
Foundation - American Psychological  
Association, Eisenhower College, Seneca  
Falls, New York

Invited participant, American Psychological  
Association Symposium on Evaluation of  
Graduate Education, "Concerns of  
Constituencies", Washington, D. C.,  
September 1971.

Chairman, American Psychological Association  
Symposium: Ph.D. Glut? Implications for  
the Behavioral Sciences, Washington, D.C.,  
September 1971.

Staff, National Science Foundation Summer  
Institute for College Teachers (Experimental  
Psychology), Williams College, July 1971.

Staff, National Association of Mutual  
Savings Banks Management Training Institute,  
University of Massachusetts, July 1971.

Staff, Council of Graduate Schools Summer  
Institute for Graduate Deans, Dartmouth  
College, August, 1971.

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Pat W. Camerino, Associate Graduate Dean for Research

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Grant:

#5 S05 RR 07048-06 Biomedical Sciences Support Grant  
\$61,417

Professional Memberships:

National Council of University Research Administrators  
Society of Research Administrators



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Henry I. Tragle, Assistant Graduate Dean

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Publication:

Review of G. W. Mullin, *Flight or Rebellion: Slave Resistance in Eighteenth-Century Virginia*. New York: Oxford University Press, 1972. In *The Virginia Magazine of History and Biography*, 1972, 80(3), 374-376.

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Margaret M. Grady, Coordinator of Sponsored Activity Data

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Research Projects:

"SYMAP" Project - A software package to develop maps by computer, Consultant for the Department of Marketing, University of Massachusetts.

Marketing Survey for the Department of Marketing, University of Massachusetts.

Other Professional Activities:

Co-Chairman of the *Five-College Computer Conference*, held April 11-12, 1972, at the Campus Center, University of Massachusetts at Amherst. Program included 34 lectures given by 5-College faculty and attended by up to 600 persons from the area, and computer displays by nine different companies (8 from Massachusetts, 1 from New Jersey).

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Patricia Dickerson Lemon, Assistant to the Graduate Dean

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Publication:

*Faculty Publications: 1970-1971*. Amherst: University of Massachusetts Graduate School, 1972. (Editor)



## 6. Major accomplishments of the Graduate School, 1971-1972.

a. Degrees granted. The total number of degrees granted (1141) continues to rise, but not as sharply as last year. This year's increase is due to a larger number of master's degree recipients (905), compared with last year. Doctorates granted during the academic year (236) were 11% fewer\* than in 1970-71 (see Table 1).

As can be seen in Table 1, Ed.D. production has been increasing disproportionately, when compared with the changes in numbers of doctorates granted in other University graduate programs.

b. New graduate degree programs. During this period, the Board of Trustees approved a new doctorate in Computer and Information Science and a change in name for the corresponding M.S. (from Computer Science) to agree with the Ph.D. title and the modified title (and scope) of the Program.

The Graduate Council and Faculty Senate granted permission to admit students in the areas of Communications Disorders and Mass Communications within the Ph.D. program in Speech, as previously authorized by the Board of Trustees. Also approved was an expansion of the existing Ph.D. in Human Movement to permit admission of students to interdisciplinary doctoral work in Sports Studies. Admissions in both Speech and Human Movement programs had been restricted to more limited sub-areas pending further development of staff and support.

A proposal to allow more flexible individual (interdisciplinary) doctoral study was approved by the Graduate Council and Faculty Senate. This degree program permits a student admitted to an authorized Ph.D. program to work within an interdepartmental framework, where his interests make such arrangements more appropriate and where faculty sponsorship in more than one existing doctoral program is obtained. Such interdepartmental work is to be restricted to a small number of students whose programs are approved by the Graduate Dean, and the whole concept is to be reviewed by the Graduate Council after two years.

Also approved by the Graduate Council were an M.A. in Geography, an M.S. in Hotel, Restaurant and Travel Administration (amended), and a Master of Special Studies for Continuing Education students. However, Board approval for these degree programs will not be sought until completion of a review of all current graduate programs is completed.

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\*This drop is more apparent than real, however. There appears to be an increasing use of the summer period for completing doctoral dissertations - Inclusion of the August degree granting period shows that the number of doctoral awards for 1972 has actually increased over the number for 1971.





c. Graduate Applications and Enrollment. The number of inquiries from prospective graduate students has finally leveled off (at approximately 35,000), but the number of applications continues to climb; 14,600 were processed this year. This indicates that a higher proportion of inquiries are being followed by applications (Figure 1). Whether this means that students are not applying to as many institutions or that the University of Massachusetts is the first choice among a larger percentage of those students making inquiries, cannot be determined.

Total graduate enrollment continued its precipitate upward climb from 4,464 in 1970-71 to 5,547 in 1971-72 (Figure 2). The ten departments with the greatest increases are listed in Table 2, with pertinent data concerning their admissions policies. There were no significant decreases. Of all the Schools, Natural Sciences and Mathematics had by far the smallest percentage of increase (5%).

It has been traditional, since the inception of graduate study at the University in 1898, to permit each authorized graduate program to determine the number of new students it could accept each year as a function of its capacity and interest. Until the Fall of 1971, this open system worked quite well, and total graduate enrollments, while continuing to increase as the University expanded, remained approximately within budgeted estimates. Fall, 1971, enrollments exceeded expectations by a number large enough (629 FTE) to require corrective action. (As far as could be determined, the "over-enrollment" was due to cumulative errors of prediction: Fewer previously enrolled students completed their degree requirements in time than had been anticipated by their departments, thus creating fewer "vacancies" to be filled, and the proportion of those new students accepted who actually enrolled was significantly greater than prior ratios would have predicted. Both factors are presumed to be related, in part at least, to employment market conditions. The latter, we have reason to believe, is also a function of the improved reputation of the University's faculty and graduate programs, partly as a result of the fine ratings by the American Council on Education in 1970.

As a consequence of the 1971 overenrollment, an administrative decision was made to govern program enrollments by limiting the number of acceptances each department would be allowed. Chancellor Tippe announced this decision in October 1971, to a meeting of Department Chairmen and Graduate Program Directors, and the Graduate Dean's office subsequently "negotiated" appropriate quotas for each program with the respective Graduate Program Directors. Working back from existing enrollments and estimates of capacity, limits were established for Spring 1972, and subsequently for Fall 1972, with separate quotas allowed for degree, special, and non-degree enrollees in each program. A small residual "pool" of places was kept in the Graduate School for allocation to such groups as returning military personnel, minority applicants, cooperating student teacher supervisors, community college faculty, and others to whom categorical institutional commitments had been made.



Fall 1972, limits were set to arrive at a total enrollment within the budgeted maximum for graduate students. There is every reason to believe that the system can effectively limit enrollments to the overall number desired. Enrollment and admissions figures for Fall 1971 and Spring 1972, are given in Table 3 for all departments.

d. Graduate Program Review. Dean Appley, Dean Gentile, and two assistants (Ronald Collins and William Lawler) have been working with the Graduate Program Review Committee to collect data and make evaluations of the various graduate programs. The Committee is in the process of making its series of reports, and interviews are now being scheduled with deans and department heads, and graduate program directors to discuss the Committee's preliminary findings and invite further submissions, information correction, etc. As soon as reports can be corrected and factual data agreed to, the Dean's office intends to make a series of recommendations for continuation of many programs without change, but also for certain graduate program mergers, upgradings, and discontinuances. Should there be serious disagreements among those concerned, however, the recommendations may be delayed in the hope of making changes only with the advice and consent of the deans and departments involved.

e. Degree Requirement Review. The Graduate School has undertaken to review in detail the records of each degree candidate prior to recommending the award of degrees. Such review, necessitated by the large number and variety of degrees now being granted, has been facilitated by the appointment of a new Graduate Assistant Dean, Dr. Henry I. Tragle, to direct a newly established Office of Degree Requirements. New certification procedures have been set up (see the attached form), and some regulations have been amended to provide a greater degree of accountability (see regulations attached). As a further part of a process of modernizing the 75-year-long records of the Graduate School, Principal Clerk Elizabeth Cadigan has embarked upon a records audit reaching back to the earliest files. When this is finished, it will be possible to begin microfilming all inactive records in order to save space and provide security in the case of fire.

f. Information retrieval system for research projects and training projects. Ms. Margaret Grady has joined the Graduate School staff to work with Associate Dean Camerino in setting up a computerized information retrieval system for research and training grant applications and awards. By the end of the next academic year, it is expected that we will have operational a comprehensive computer storage and retrieval system for research grants management for the University. Once functioning, this system should permit detailed analysis of sponsored research activities on all three University campuses, including types and areas of research and training, sources of support, etc. Once established, the system will be cumulative and allow continuing trend analysis. Tie-ins with assistantship, faculty research productivity, and other information systems are anticipated once the basic system is established.



The *Research Information Newsletter*, which is published periodically by the Office of Research Services, continues to assist faculty members who want to know where and how to apply for grants, and provides analysis of trends in federal and other funding.

g. Graduate School Offices and Programs move. With the opening of the new low-rise section of the Graduate Research Center, occupancy of new quarters was taken by the Graduate School offices (from Munson Hall), the Water Resources Research Center (from Holdsworth Hall), and the Computer and Information Science Program (from Engineering East), as well as the Computing Center (see below). The University Press, originally scheduled to move from Munson Hall to quarters reserved for its operation in the Graduate Research Center, was moved instead to a small house recently acquired by the University on East Pleasant Street.

The new Graduate School facilities, while not spacious, are far superior to the crowded, partially basement quarters of Munson Hall, and have thus far allowed for more efficient use of staff and higher staff morale. The increased distance from Whitmore Administration Building and the concomittant communication problems associated with it represent the only drawback in the move. Increased proximity to three of the operating units of the Graduate School (Computing Center, Water Resources Research Center, and Computer and Information Science Program) has greatly improved ease of communication, while the physical isolation of the Press staff in its own "off-campus" quarters has been a disadvantage to all concerned.

h. University of Massachusetts Press review. The University of Massachusetts Press has now completed five years of operation and, by mutual consent, will have its activities reviewed by an external panel. A distinguished group of four directors of University presses (Chester Kerr, Yale University Press; Howard Webber, M.I.T. Press; Jack Schulman, Cambridge University Press's New York office; and Willard Lockwood, Wesleyan University Press) have agreed to serve as a Press Review Committee and will visit the campus in August. Information is being prepared by the Graduate School office and by the Press to permit a thorough review of managerial, fiscal and editorial operations of the Univessity Press.

i. New quarters for the Research Computing Center. In January of 1972, the computers were moved from the completely inadequate quarters they had previously occupied to the Graduate Research Center. The move was planned to coincide with the intra-term recess. There was an eight-day hiatus in service and an additional two weeks of partial service. The staff are to be congratulated on the dispatch and efficiency with which this operation was carried out. Problems of air and humidity control in the new quarters reamin - especially as rapid temperature changes occur in Spring and Fall - though in other respects the new quarters are much to be preferred. With the completion of the Graduate Research Center complex, additional units will correct the air conditioning problems. Meanwhile, occasional machine failures can be expected to occur.



j. Increased access to the computers. During the fiscal year, the time-sharing system was expanded from sixty-four to eighty dial-in ports, and five circuits were established to the Boston campus.

k. Change in title for the Computer Science Program. On recommendation of the Graduate School, the Board of Trustees have approved renaming of the Computer Science Program as the Program in Computer and Information Science (COINS), to better reflect its broader orientation. With the appointment of Dr. Michael Arbib, the program has taken steps to add to its excellent computer architecture area new foci in artificial intelligence, theory of computation, and cybernetics. The new name more properly describes this wider scope of offerings and interests.





TABLE Ia

## Graduate Degrees Granted From October 1969 to May 1972

	Total '69-'70		Total '70-'71		Total '71-'72		Total '71-'72
	Oct. '69	May '70	Oct. '70	May '71	Sep. '71	May '72	
M. Land. Arch.	2	8	1	5	4	6	10
M. A.	42	70	51	58	57	102	201
M. Fine Arts	3	13	3	13	1	24	26
M. A. T.	19	23	12	22	24	37	70
M. Ed.	78	64	64	107	72	127	248
M. S.	59	64	67	83	59	83	195
M. B. A.	15	23	25	40	22	37	82
M. S. Acc'ting	3	1	1	1	1	4	5
M. S. Mgt. Sci.		1		1		1	1
M. S. Ch. E.	1	5	2	3	1	5	6
M. S. Civil E.	1	6	5	5	5	7	13
M. S. Env. E.	3	1	4	2	2	2	14
M. S. Elect. E.	1	2	3	2	2	6	10
M. S. I. E.	1	1	3	6	3	5	15
M. S. M. E.	6	5	2	5	4	8	2
M. S. Ocean E.		4		2		1	1
M. Music	5	4	3	2		4	6
Total Master's	239	290	242	351	254	458	905
Ph.D.	48	45	90	64	57	62	147
5-College Ph.D.	4	2	1	4	1	3	5
D. Ed.	10	14	21	35	36	34	84
Total Doctorate	62	61	112	103	94	99	230
Total Graduate Degrees	301	351	354	454	348	557	1141



TABLE 1b  
Calendar Year Basis  
Graduate Degrees Granted

Year	Master's Degree		Doctorate		Year	Master's Degree		Doctorate	
		Cumulative		Cumulative			Cumulative		Cumulative
1895					1935	27	254	5	47
1896	2	2			1936	35	289	2	49
1897	2	4			1937	47	336	2	51
1898	1	5			1938	63	399	3	54
1899		5			1939	57	456	5	59
1900	1	6			1940	48	504	10	69
1901	1	7			1941	65	569	7	76
1902		7	1	1	1942	31	600	6	82
1903		7	1	2	1943	18	618	5	87
1904		7		2	1944	8	626	2	89
1905	2	9		2	1945	16	642	1	90
1906	2	11		2	1946	19	661	1	91
1907	2	13	1	3	1947	32	693	3	94
1908		13	1	4	1948	56	749	10	104
1909		13	1	5	1949	65	814	11	115
1910	1	14		5	1950	93	907	11	126
1911	2	16	1	6	1951	115	1022	10	136
1912	1	17	1	7	1952	83	1105	14	150
1913	1	18		7	1953	106	1211	14	164
1914	8	26	3	10	1954	77	1288	7	171
1915	8	34	5	15	1955	84	1372	11	182
1916	6	40	3	18	1956	105	1477	12	194
1917	9	49		18	1957	100	1577	11	205
1918		49		18	1958	101	1678	7	212
1919	1	50		18	1959	114	1792	18	230
1920	2	52		18	1960	130	1922	9	239
1921	3	55	1	19	1961	146	2068	21	260
1922	3	58	2	21	1962	187	2255	19	279
1923	11	69	2	23	1963	211	2466	30	309
1924	5	74	1	24	1964	225	2691	26	335
1925	3	77		24	1965	251	2942	49	384
1926	7	84	1	25	1966	416	3358	49	433
1927	4	88		25	1967	511	3869	58	491
1928	9	97	1	26	1968	600	4469	93	584
1929	5	102	1	27	1969	623	5092	112	696
1930	14	116	3	30	1970	706	5798	204	900
1931	16	132	4	34	1971	784	5582	246	1146
1932	29	161	1	35	1972	1058	6640	268	1414
1933	37	198	1	36					
1934	29	227	6	42					



TABLE II

## Departments with Largest Numerical Increases 1971-72

Department/ School	Degree Candidates		% Increase	Number Applied		% Accepted		% Accepting Who Enrolled		Quality Point Average of Those Accepting	
	Fall 1970	Fall 1971		Fall 1970	Fall 1971	Fall 1970	Fall 1971	Fall 1970	Fall 1971	Fall 1970	Fall 1971
Education	827	1053	27%	858	1764	32%	36%	65%	75%	2.77	2.74
Business Administration	218	264	21%	531	677	41%	36%	29%	36%	2.73	2.81
Speech	53	88	66%	96	185	65%	58%	53%	40%	3.20	3.03
Landscape Architecture and Regional Planning	49	82	67%	92	143	59%	54%	65%	44%	2.93	2.80
Public Health	33	61	85%	39	95	72%	54%	57%	65%	2.81	2.92
Physical Education	50	76	52%	64	95	72%	68%	39%	52%	2.90	2.87
Anthropology	38	62	63%	50	124	52%	51%	50%	55%	3.11	2.90
History	130	153	18%	319	101	38%	49%	37%	30%	3.12	3.07
Home Economics	31	50	61%	50	305	40%	67%	55%	62%	2.49	3.10
Nursing	16	33	106%	12	43	92%	82%	82%	82%	3.06	2.97
English	278	295	6%	571	27	38%	19%	38%	49%	3.09	3.10



TABLE III

## Enrollment and Admissions Figures for 1971-72 for all Departments

	Fall 1971 Enrollment	Spring 1972 Admissions	Spring 1972 Enrollment	Increment	Fall 1972 Admissions	Fall 1971 Enrollment	Spring 1972 Admissions	Spring 1972 Enrollment	Increment	Fall 1972 Admissions
<b>SCHOOL OF ARTS AND SCIENCES</b>										
<b>Faculty of Fine Arts and Humanities</b>										
Art	58	4	62	39	39	58	3	54	54	54
Comparative Literature	20	2	21	9	9	20	3	40	23	23
English	295	12	299	41	41	295	14	53	20	20
French and Italian	75	2	75	9	9	75	8	12	13	13
Germanic Languages and Literatures	54	2	52	17	17	54	2	62	41	41
Hispanic Languages and Literatures	41	2	42	14	14	41	3	39	16	16
History	153	7	152	28	28	153	2	39	39	39
Linguistics	22	2	21	15	15	22	2	25	3	3
Music	22	2	21	19	19	22	2	25	3	3
Philosophy	42	2	45	16	16	42	2	45	3	3
Slavic Languages and Literatures	15	2	13	9	9	15	2	15	3	3
Subtotal	796	39	803	(+7)	204	796	2	304	18	205
<b>Faculty of Natural Sciences and Mathematics</b>										
Astronomy	24	2	19	8	8	24	2	33	33	33
Biochemistry	26	2	26	10	10	26	2	28	9	9
Botany	39	2	41	13	13	39	2	43	18	18
Chemistry	114	5	109	35	35	114	2	36	22	22
Geology	64	3	63	28	28	64	2	38	15	15
Mathematics and Statistics	86	4	76	45	45	86	2	12	11	11
Microbiology	35	2	25	17	17	35	2	13	7	7
Physics	91	3	88	19	19	91	2	24	13	13
Zoology	59	3	59	34	34	59	2	24	13	13
Subtotal	538	26	506	(-32)	209	538	24	355	(+3)	161
<b>Faculty of Social and Behavioral Sciences</b>										
Anthropology	62	3	66	20	20	62	2	31	9	9
Economics	64	3	63	30	30	64	2	22	18	18
Political Science	110	3	110	34	34	110	4	53	(+3)	47
Psychology	155	8	152	55	55	155	2	33	(+3)	33
Sociology	73	4	84	18	18	73	2	60	(+4)	60
Speech	88	5	100	35	35	88	3	58	(+1)	58
Subtotal	552	26	575	(+23)	184	552	2	305	(+1)	305
Total	1886	91	1884	(-2)	597	1886	3	1144	(+1)	714
<b>SCHOOL OF BUSINESS ADMINISTRATION</b>										
Computer and Information Science	62	2	66	18	18	62	2	45	18	18
Labor Relations and Research Center	20	2	20	11	11	20	2	21	11	11
Marine Science	11	2	11	11	11	11	2	11	11	11
Polymer Science and Engineering	45	2	47	11	11	45	2	47	11	11
S-College	1	1	1	(+1)	(+1)	1	1	1	(+1)	(+1)
Total	140	8	144	(+1)	71	140	8	144	(+1)	71
<b>SCHOOL OF EDUCATION</b>										
<b>INTERDISCIPLINARY DEPARTMENTS AND PROGRAMS</b>										
Computer and Information Science	62	2	66	18	18	62	2	45	18	18
Labor Relations and Research Center	20	2	20	11	11	20	2	21	11	11
Marine Science	11	2	11	11	11	11	2	11	11	11
Polymer Science and Engineering	45	2	47	11	11	45	2	47	11	11
S-College	1	1	1	(+1)	(+1)	1	1	1	(+1)	(+1)
Total	140	8	144	(+1)	71	140	8	144	(+1)	71
<b>GRAND TOTAL</b>										
1886 + 91 = 1977										
1977 - 2 = 1975										
1975 + 1 = 1976										
1976 + 1 = 1977										
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2097 + 1 = 2098										
2098 + 1 = 2099										
2099 + 1 = 2100										





FIGURE I  
Inquiries and Applications

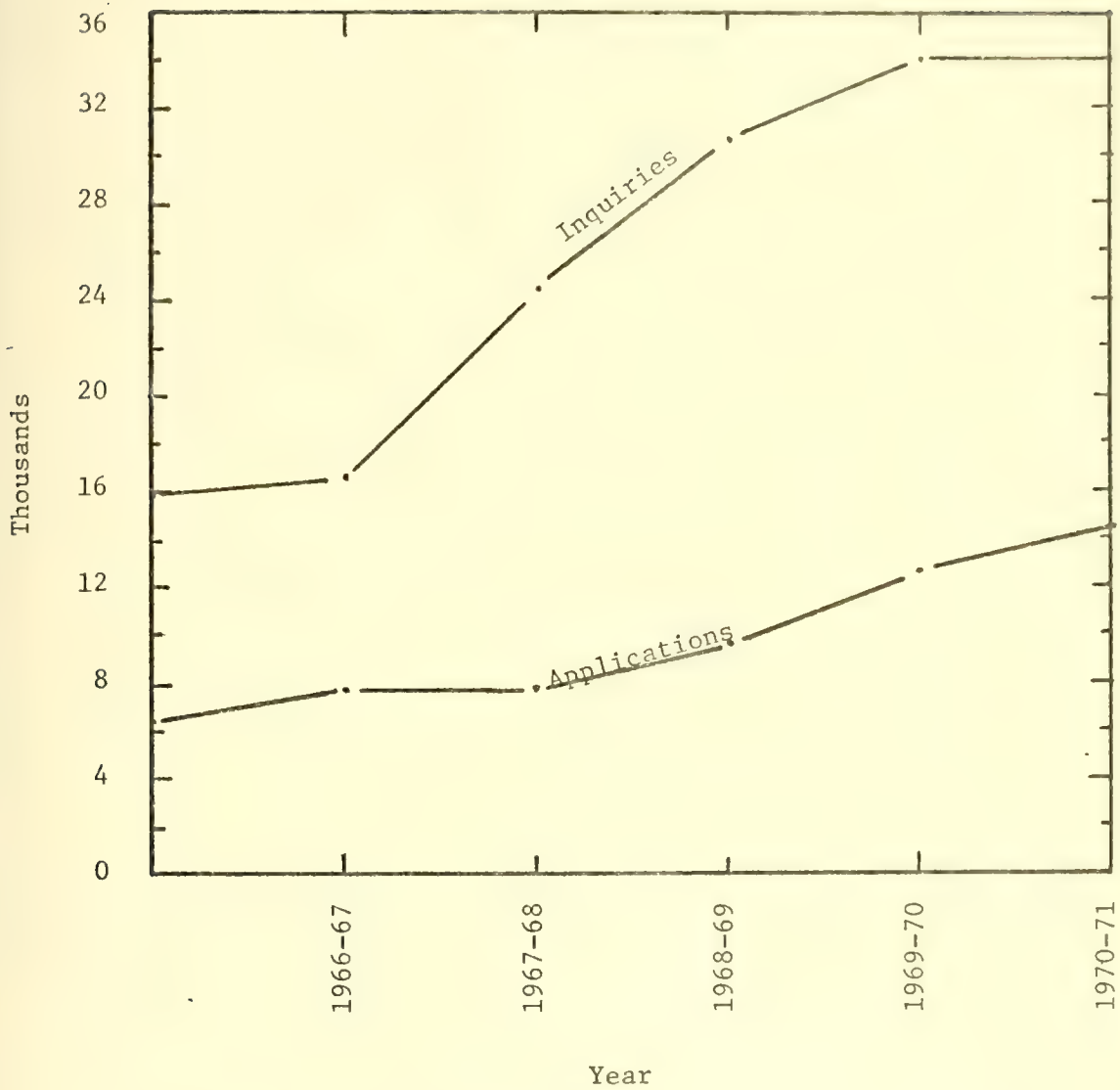
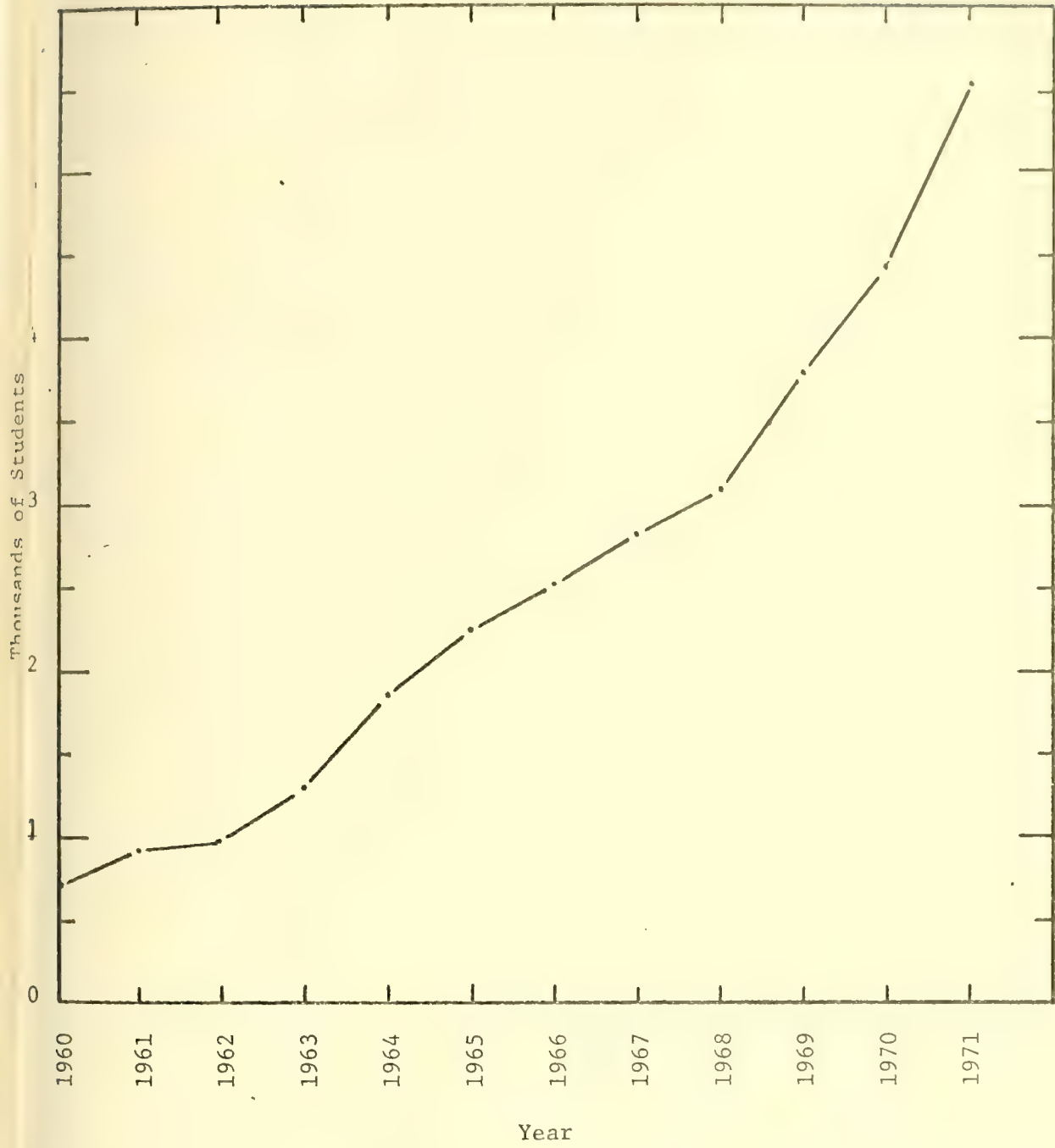




FIGURE II

Graduate School Enrollment 1960-1971







TO THE BEST OF MY KNOWLEDGE, THE INFORMATION GIVEN ABOVE IS CORRECT AND COMPLETE:

Signature of Student ..... Date .....

**PART II – To Be Completed By Graduate Program Director**

THE INFORMATION FURNISHED BY THE ABOVE NAMED STUDENT IN THE ..... DEPARTMENT (PROGRAM) HAS BEEN VERIFIED FROM DEPARTMENTAL RECORDS.

Date ..... Signature .....  
Name Typed .....

**PART III – To Be Completed By Head of School, Department, Program, or Designated Representative**

I RECOMMEND THAT THE ABOVE NAMED STUDENT BE AWARDED THE ..... DEGREE  
AT THE ..... 19 ..... DEGREE-GRANTING PERIOD.

Date ..... Signature .....  
Name Typed .....

**INSTRUCTIONS**

- (1) All entries on this form, except signatures **must be typed**. Any entry which does not apply should be marked N/A (Not Applicable).
- (2) If your name has been changed for any reason since you first registered as a **graduate student**, please show both your present name and the name under which you originally registered.
- (3) Consult the Graduate School Bulletin for correct degree designations.
- (4) Graduate course credit towards a Master's Degree is valid for six years. A waiver on this point may be granted, it must be requested **NINETY DAYS PRIOR TO ANTICIPATED DATE OF GRADUATION**.
- (5) There are three degree-granting periods each year: (a) in September, (b) In February, (c) in May or June. There are no Commencements in September and February. Degrees requested for these periods will be mailed. Unless otherwise indicated, it will be assumed that those degrees awarded in May (June) will attend Commencement. Persons receiving degrees in September and February **may** attend the final Commencement if they so desire.
- (6) Students needing to verify information in order to complete this form should visit the Records Office of the Graduate School. Assistance in completing this form may be obtained from the Graduate Program Director of your Department or from the Office of Graduate Degree Requirements, in the Graduate School.
- (7) For Students Presenting a Thesis: Please note that you must turn into the Office of Graduate Degree Requirements an **ORIGINAL** and one copy (Xerox, Carbon, or Multilith); both to be bound in red buckram and lettered as specified in the Graduate School **Handbook**. A copy may NOT be substituted for the original.

**DO NOT WRITE IN THIS SPACE – FOR GRADUATE SCHOOL USE ONLY**

Date Form Received: ..... Received By: .....

Entries Verified By: ..... Date: .....

Discrepancies Extracted to Check-List: (By) ..... (Date) .....

Department Notified of Discrepancies: (By) ..... (Date) .....

Date of Birth: .....

CERTIFICATION OF ELIGIBILITY FOR A DOCTORAL DEGREE

- PLEASE READ INSTRUCTIONS ON REVERSE SIDE BEFORE COMPLETING FORM -

PRT I - To Be Completed By Student

NAME (Last, First, Middle) STUDENT NUMBER:
NAME UNDER WHICH ORIGINALLY REGISTERED:
LOCAL ADDRESS: (Street, Town/City, State, Zip)
PRESENT REGISTRATION STATUS: (Check One) (1) Taking Courses (2) Program Fee (3) Not Enrolled
ADDRESS TO WHICH DIPLOMA SHOULD BE MAILED:
DEPARTMENT (OR PROGRAM) IN WHICH I AM A DEGREE CANDIDATE:
DEGREE TITLE OF DEGREE FOR WHICH I AM A CANDIDATE:
NAME OF MY COMMITTEE CHAIRMAN:
TITLE OF MY DISSERTATION:
FIRST GRADUATE COURSE AS CREDIT FOR THIS DEGREE WAS TAKEN AT: YEAR:
DEGREE-GRANTING PERIOD AT WHICH I WISH TO RECEIVE MY DEGREE:
DESIRE TO RECEIVE MY DEGREE: (Check One) (1) In Person (2) By Mail

- Guidance committee appointed: (Date)
Preliminary examination completed: (Date)
Language examination completed: (Date)
Dissertation committee appointed: (Date)
Approved dissertation outline submitted: (Date)
Final examination completed: (Date)
Commencement fee paid: (Date)
Microfilming fee paid: (Date) By Money Order or Certified Check No.
Copyrighting fee paid: (Date) By Money Order or Certified Check No.
University Microfilms Corp. form signed, dated, and submitted to the Graduate School: (Date)
Survey of Earned Doctorates form completed, signed, and submitted to the Graduate School: (Date)
Unbound original, one bound copy and three copies of a 600-word abstract of dissertation submitted to the Graduate School: (Date)
"Certification of Eligibility for a Doctoral Degree" form completed and submitted to Department: (Date)

THE BEST OF MY KNOWLEDGE, THE INFORMATION GIVEN ABOVE IS CORRECT AND COMPLETE:
(Signature of Student) (Date)

PRT II - To Be Completed By Graduate Program Director

THE INFORMATION FURNISHED BY THE ABOVE NAMED STUDENT, WHO IS A CANDIDATE IN THE DEPARTMENT (PROGRAM) HAS BEEN VERIFIED FROM DEPARTMENTAL RECORDS.
(Date) (Signature) (Name Typed)

PRT III - To Be Completed By Head of School, Department, Program, or Designated Representative

I RECOMMEND THAT THE ABOVE NAMED STUDENT BE AWARDED THE DEGREE
THE 19 DEGREE-GRANTING PERIOD.
(Date) (Signature) (Name Typed)

(SEE REVERSE SIDE)

## INSTRUCTIONS

- (1) All entries on this form, except signatures must be typed. Any entry which does not apply should be marked N/A (Not Applicable).
- (2) If your name has been changed for any reason since you first registered as a **graduate student**, please show both your present name and the name under which originally registered.
- (3) Consult the Graduate School Bulletin for correct degree designations.
- (4) Graduate course credits towards a Doctoral Degree are valid for nine years. A waiver on this point may be granted, but it must be requested **NINETY DAYS PRIOR TO ANTICIPATED DATE OF GRADUATION**.
- (5) There are three degree-granting periods each year: (a) In September, (b) In February, (c) In May or June. There are no Commencements in September and February. Degrees requested for these periods will be mailed. Unless otherwise indicated, it will be assumed that those degrees awarded in May (June) will attend Commencement. Persons receiving degrees in September and February **may** attend the final Commencement if they so desire.
- (6) Students needing to verify information in order to complete this form should visit the Record's Office of the Graduate School (Second Floor, Graduate Research Center). Assistance in completing this form may be obtained from the Graduate Program Director of your Department or from the Office of Graduate Degree Requirements, Room A 233, Graduate School, Graduate Research Center. (Telephone 5-0666)
- (7) Please note that you must turn in to the Office of Graduate Degree Requirements one unbound ORIGINAL and one bound copy (Xerox, carbon, or multilith); the copy must be bound in black buckram and lettered as specified in the Graduate School **Handbook**. A copy may NOT be substituted for the original.
- (8) Complete information relative to microfilming, copyrighting, and binding procedures and information as to fees for same is given in the Graduate School **Handbook**, available from your Department's Graduate Program Director. Forms relative to microfilming and copyrighting, as well as the "Survey of Earned Doctorates" form may be obtained from the same source. Please use the heading prescribed in the **Handbook** in preparing your 600-word abstract.
- (9) Please note that microfilming, copyrighting, and binding fees **MUST** be paid by Certified Bank Check or Money Order. Personal checks or cash can NOT be accepted. The Commencement fee may be paid by personal check or cash.

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### DO NOT WRITE IN THIS SPACE – FOR GRADUATE SCHOOL USE ONLY

Date Form Received: ..... Received By: .....

Entries Verified By: ..... Date: .....

Discrepancies Extracted to Check-List: (By) ..... (Date) .....

Department Notified of Discrepancies: (By) ..... (Date) .....

Date of Birth .....

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## Dissertation Committees

As soon as the student has passed his preliminary comprehensive examination, the Chairman or Graduate Program Director of the student's major department\* shall recommend to the Dean of the Graduate School the names of at least three members of the Graduate Faculty to serve as a Dissertation Committee. At least two of the persons so nominated shall be from the major department.\* Where appropriate and feasible, one member shall be appointed from outside the department.\* In such cases, the outside member shall serve as the representative of the Graduate Council and shall, upon completion of the final oral examination, file a report with the Graduate Council on the dissertation and the general procedures followed in the final oral examination. The outside member shall be a voting member of the Dissertation Committee.

In instances where it is not appropriate or feasible to appoint an outside member at the time the Dissertation Committee is formed, the Dean of the Graduate School shall appoint such a member as the representative of the Graduate Council prior to the scheduling of the final oral examination. This member will read the dissertation and participate as a voting member in the final oral examination, filing a report with the Graduate Council (as noted above).

All members of the Dissertation Committee must approve the dissertation before the final oral examination is scheduled. Attendance at the final oral examination is open to all members of the candidate's major department and to all members of the Graduate Faculty, but only the members of the Dissertation Committee may cast votes. A unanimous vote of the Dissertation Committee is required for the student to pass the final examination. If at the final examination two members of the Dissertation Committee cast negative votes, the candidate will be informed that he has not passed the examination. If there is only one negative vote, the degree will be held up pending action of the Graduate Council.

\*Refers to administrative entity for which degree has been authorized (i.e., department, program, school, etc.).

As passed by Graduate Council 9 May 1972.



## TWO NEW STATUSES TO BE USED TO DESCRIBE ALL IRREGULAR GRADUATE STUDENTS

Final approval by Graduate Council, October 27, 1971.

Graduate Special Status: Open to students who have a bachelor's degree or its equivalent. A student may enroll for a maximum of 12 credits or 2 consecutive enrollment periods (including Summer Session), whichever comes first. This status may not be renewed beyond the credit/time regulation as stated above. Credits earned may be applied toward a graduate degree at this institution, subject to acceptance into a degree program, and provided the credits are acceptable to the department/school.

Graduate Non-Degree status: Open to students who have a bachelor's degree or its equivalent. Acceptance is for one calendar year, and credits earned under this status are not - and will not be come - applicable towards a graduate degree at this University. This status may be renewed upon its expiration, provided space is available.

## RESIDENCE REQUIREMENT FOR PH.D. AND ED.D. CANDIDATES

Final approval by Graduate Council October 27, 1971.

1. The spirit and essence of the residence requirement is that all candidates for graduate degrees from the University of Massachusetts shall spend a reasonable period of time in continuous and close interaction within the University community to derive those benefits that accrue outside the formal classroom/seminar context.
2. Satisfaction of the residence requirement may be determined, where appropriate, by factors other than (a) geographical place of domicile, (b) occupation or work schedule, or (c) stage in the candidate's graduate career - e.g. before or after taking the Comprehensive Examination, or starting work on the Dissertation.
3. The candidate must have been a full time student for at least two consecutive academic semesters (i.e., not summer) as part of his degree requirements.
4. Each Degree Program shall define and submit to the Graduate School for approval - once and beforehand for all subsequent degree candidates - what comprises a full-time student. When the Department/School notifies the Graduate School that a candidate is eligible formally to be awarded a graduate degree, it shall also certify that the residence requirement (as specified above) has been fulfilled.



## PASS-FAIL OPTION

Final approval by the Graduate Council October 27, 1971

The Scholarship and Standards Committee recommends that the current Pass-Fail regulations for Master's degree candidates be retained unchanged. Specifically:

1. Each department/school may, at its discretion, permit candidates enrolled in its Master's degree program to receive up to a maximum of 15 pass-fail credits.
2. No minimum number of pass-fail credits is implied.
3. The option as to which courses - and how many - may be taken on a pass-fail basis rests with the department/school rather than with the individual candidate.

## UNIVERSITY POLICY ON SPONSORED RESEARCH

Final approval by the Graduate Council November 27, 1971

In the light of the educational aims of the University and its interests in the free and constructive uses of the information derived from its research, it is the policy of the University that:

1. It will enter into a grant or contract only when it has freedom to disclose the purpose and scope of the proposed research, the methods, and the results of such research:
  - a. To permit informed discussion concerning the appropriateness of such research within the University.
  - b. To apprise colleagues in the immediate and related disciplines of the nature and importance of the work as a potential contribution to the disciplines involved.
2. It will only enter into grants or contracts which do not require the approval of any outside person or agency prior to the publication or dissemination of the results of any research. It does recognize, however, that where proprietary data or information has been provided by a sponsor, that rights to the use of such proprietary material shall be respected.
3. It will only enter into grants or contracts which permit complete freedom to disclose,
  - a. The existence of the contract or grant,
  - b. The identity of the sponsor, and if a subcontract is involved, the identity of the prime sponsor.



## INCOMPLETE GRADES

Final approval by the Graduate Council October 27, 1971.

The Committee on Scholarship and Standards recommends:

- (1) Continuation of essentially the present policy: That the graduate student must obtain credit for an "incomplete" grade by finishing the work of the course before the end of one calendar year from the time of enrollment. If an "incomplete" remains on a student's record after the deadline, IF (incomplete) will be recorded.
- (2) That the operational policy of automatically converting "incomplete" grades to F at the end of the calendar year be strictly enforced, effective at once. This policy should not preclude the possibility of an F grade, so assigned later being changed to any other grade, except "incomplete", by a memorandum signed by (A) the course professor, (B) the Department Head and (C) the Dean of the Graduate School.
- (3) That the following courses be exempt from the policy described in item 2 above:
  - (A) 700 - Special Problems
  - (B) 800 - Master's Thesis
  - (C) 900 - Doctoral Dissertation
- (4) That each Department/Program develop its own system of keeping accurate track of "incomplete" grades, so that it may, through its own advising system, prevent students from accumulating incompletes which may either lead to or indicate the presence of other problems.

## GRADUATE PROGRAM OF A SCHOOL OR A DEPARTMENT

The Qualifications Committee recommends:

The graduate program of a School or a department shall be determined by the graduate faculty of that School or department. It is hoped that the graduate program in any School or department will be conceived as a total departmental or School effort, but the ultimate recommendations will be formulated by graduate faculty of the School or department.

Final approval by the Graduate Council October 27, 1971.





FINAL, AT LEAST PARTLY ORAL, EXAMINATION FOR DOCTORAL CANDIDATES

Final approval by Graduate Council October 27, 1971.

The Committee on Scholarship and Standards recommends:

1. That the doctoral candidate's "final examination, at least partly oral," continue to be a normal requirement of the Graduate School. This examination need not be limited to a defense-of-dissertation, but may - at the discretion of the examining committee - range more broadly over the candidate's science/discipline/field.
2. That the Head/Chairman of any Department/Program may, at his option in response to a candidate's Guidance or Dissertation Committee's recommendation, request the Dean of the Graduate School to waive the candidate's final examination. The following conditions all must pertain when such requests are made, however:
  - a. they refer only to one candidate
  - b. they contain, in writing, whatever justification the petitioning Head/Chairman deems relevant.
3. That permission to waive the final, at least partly oral, examination be granted solely by the Dean of the Graduate School after he has consulted with whatever evaluative body/committee the Graduate Council designates.

ADMISSION TO GRADUATE SCHOOL OF STUDENTS WITHOUT BACHELOR'S DEGREES.

The Committee on Scholarships and Standards recommends:

1. Continuation of essentially the present policy: That the bachelor's degree, or its equivalent, from any college or university of recognized standing shall normally be required of applicants for admission to the Graduate School.
2. That in rare and highly extraordinary cases, an otherwise promising candidate for admission who does not possess a bachelor's degree (or its equivalent) may still be considered for admission. In such cases, the following conditions must be met, however:
  - A. All supporting documents customarily required of applicants holding bachelor's degrees must be supplied, including:



1. transcripts of any previous academic work
2. recent letters of recommendation
3. Graduate Record Examination scores (both Aptitude and Advanced)
4. any other test scores or documents required of other applicants by the appropriate Department

B. Applicants whom the appropriate Department consents to admit must also be accepted by the Admissions Committee of the Graduate School. This committee may agree to the applicant's admission only after:

1. its detailed examination of the applicant's complete dossier and
2. its receipt of explicit, and satisfactory, written justification of the requested admission from the appropriate Department's admission board, committee, or officer.

3. That applicants accepted in the manner described above be admitted only on Provisional Student status. If and when this is later changed to Degree Student status, the degree program shall be specified as master's, not doctoral, level. This does not preclude later changing the candidate's degree program to doctoral, however, though not before his/her successful completion of the master's degree.

Final approval by the Graduate Council October 27, 1971.



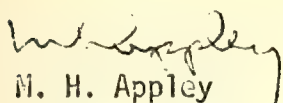
Instructional Guidelines for Membership  
on the Graduate Faculty

Three levels of membership:

- Level 1. Doctoral Dissertation direction - terminal degree plus two refereed publications plus experience directing Masters' theses (where applicable). Experience as a member of doctoral committees is desirable.
- Level 2. Master's thesis direction - terminal degree plus one refereed publication.
- Level 3. Teaching - terminal degree in the applicant's field or particular specialized competence. Applicants who are approved to teach graduate courses are eligible to serve as members of thesis and/or dissertation committees, but are not eligible to function as chairmen of such committees.

Specialized competencies and experiences may be recognized in lieu of the above standards at all three levels - particularly as they apply in professional programs.

Revision approved by the Graduate Council, 14 December 1971.

  
M. H. Appley  
Graduate Dean

Administrative approval was given the additional items to be added to the guidelines for an application to membership on the Graduate Faculty:

- 1. That a department head or chairman must seek the recommm recommendations of the applicant's peers . . . such recomme recommendation to be included on the application in the space provided for comments by the department head.
- 2. That each applicant receive a copy of the guidelines at the time he receives the application.



Professor Price moved that the statement on dissertation credits presented by the Scholarship and Stewardship Committee be approved. The statement was amended so that paragraph 4 should read "4. This regulation shall go into effect July 1, 1972." The resultant statement (see below) was approved.

**Dissertation  
Credits**

1. Each doctoral student at the University of Massachusetts shall register for Doctoral Dissertation credits each and every semester during which he is enrolled, either part or full time and is involved in writing, research or other creative work involved in his dissertation. Each school, department or program will determine whether a minimum number of dissertation credits is required of its doctoral students and, if so, what that minimum will be.
2. The number of Doctoral Dissertation credits which the candidate registers for per registration period shall reflect the fraction of a full time load (15 credits) he is actually devoting to the dissertation, as well as his utilization of University resources.
3. No student shall register for dissertation credits until the chairman of his dissertation committee has been officially appointed by the Graduate School.
4. This regulation shall go into effect July 1, 1972.

New Bulletin copy to read:

New Bulletin  
copy

"5. The passing of a final examination, at least partly oral, conducted by the Dissertation Committee primarily upon, but not limited to, the contents of the candidate's dissertation. The examination cannot be scheduled until all members of the Committee and the candidate's Department Chairman or his designee have approved the dissertation."





## 7. Special projects and programs.

a. Graduate Alumni Program (GAP). Principal Clerk Elizabeth Cadigan, who has the longest term of service by far of any Graduate School staff member, has spent much of this past year in Memorial Hall in an attempt to update graduate alumni records. This project was undertaken to reawaken interest of graduate alumni in the University in the hope that they would become a source of moral and financial support to the many programs of the Graduate School. Copies of the *Graduate Observer*, the quarterly journal of the Graduate School, were sent to all identifiable alumni.

b. Teaching Improvement Program (TIP). Moving to the Graduate Research Center with the rest of the Graduate School offices, the Teaching Improvement Program has been able to increase its services to Teaching Assistants throughout the University and to begin the development of the demonstration TV tapes and a small reference library on teaching. The *TA Handbook*, in its second edition, answers more of the questions raised by the graduate student-teachers, and availability of message-taking service through the Graduate School switchboard has increased the capacity of the Program to respond to requests for TV classroom taping and other assistance more quickly. Recognition of the TIP outside the University is evident in an invitation to present a lecture-demonstration on its activities to the Summer Workshop of the Council of Graduate Schools in the United States at Dartmouth College in New Hampshire, this August.

c. Biomedical Sciences Support Grant. For a number of years, the University has received an annual grant from the United States Public Health Service to be used to promote research and training in the health-related sciences. During the fiscal year 1970-71, this amounted to \$61,715. A committee consisting of D. L. Black (Veterinary and Animal Science), R. M. Glorioso (Electrical Engineering), S. C. Holt (Microbiology), Herbert O. Hultin (Food Science), W. P. Kroll (Physical Education), R. T. Louttit (Psychology), W. E. McEwen (Chemistry), J. M. Nordin (Biochemistry), R. S. Porter (Polymer Science and Engineering), and Harold Rauch (Zoology), met with Associate Dean Camerino to review proposals received from faculty members and faculty groups.

In the year 1971-72, the available funds were used to support health-related research and training in fifteen departments: Biochemistry, Chemical Engineering, Chemistry, Environmental Sciences, Food Science, Marine Science, Microbiology, Nursing, Nutrition and Food, Physical Education, Physics, Psychology, Speech, University Health Services, and Zoology.



d. Interdisciplinary activities. Among efforts to promote interdisciplinary activities, the Graduate Dean's office this year sponsored meetings of (1) representatives of the Departments of Psychology, Sociology, Nursing, Public Health, Education, Human Development and Anthropology to explore ways and means of sharing field facilities and of possible joint curricular efforts, both graduate and undergraduate, (2) representatives of art, computer science, and technology units, under the direction of Professor Robert Mallery of the Art Department to explore the establishment of a Five-College art and technology center; participated in advisory councils and meetings on (3) water resources, (4) the Institute for Man and His Environment, and (5) the Polymer Research Institute.







THOMAS ARISTOTELIS

UNIVERSITY OF MASSACHUSETTS

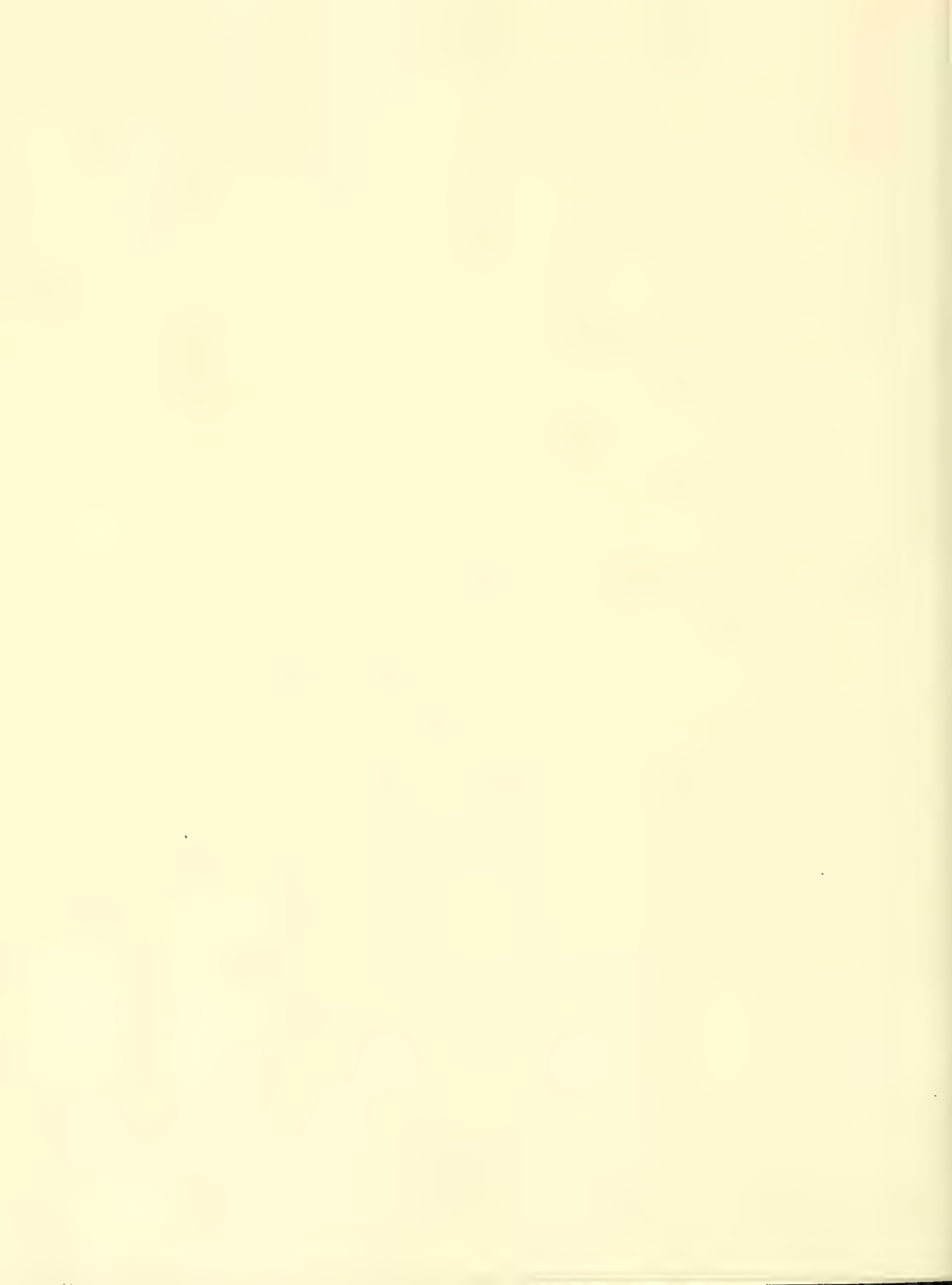
GRADUATE SCHOOL

AUGUST, 1911





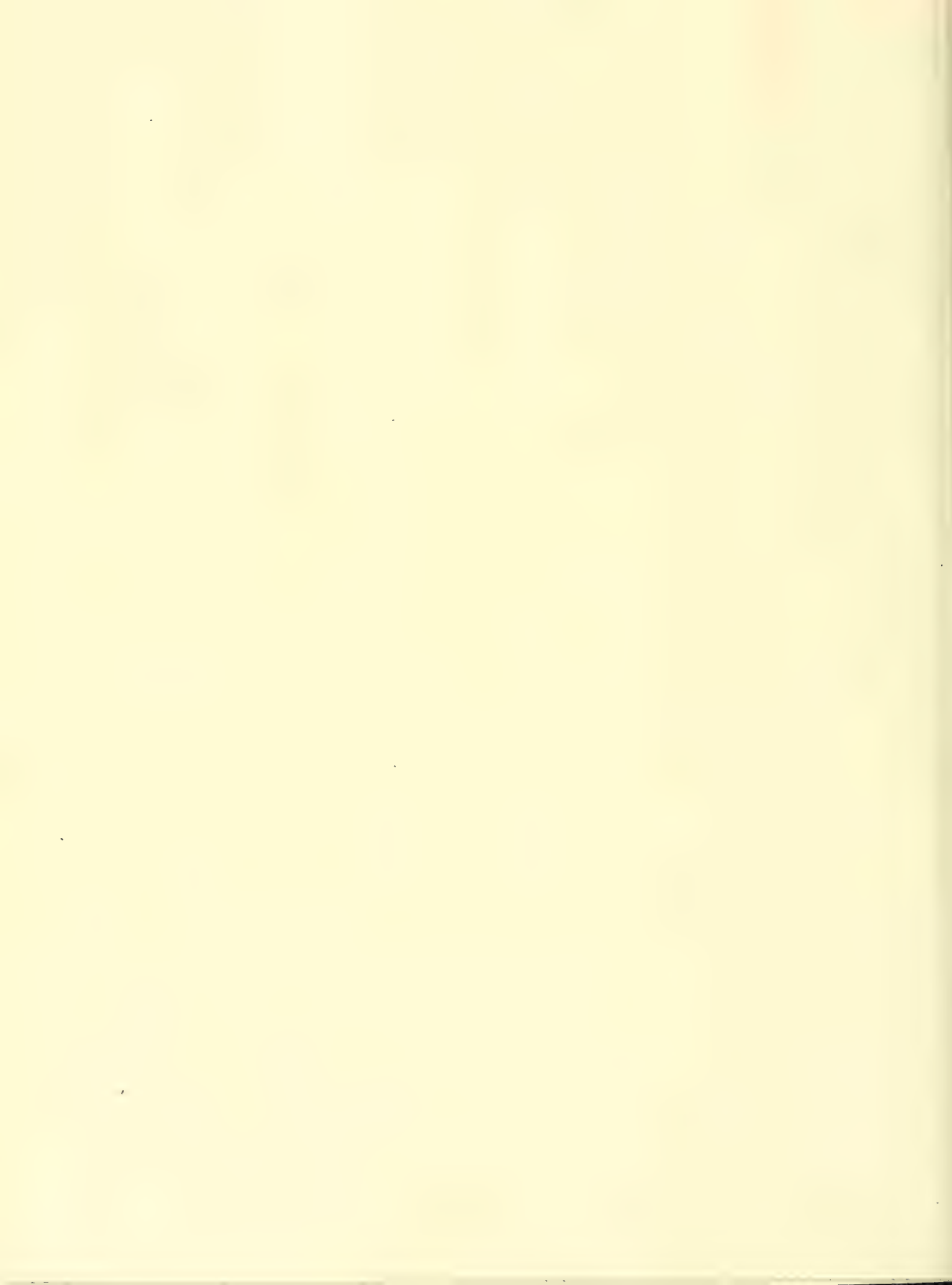




5.	Final Examinations	21
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E.	Additional Information	27
2.)	Credit Union	27
3.)	Facilities within Amherst	27







ing that they were being paid by the Commonwealth for teaching,

ply your task by providing you with:

1. a summary of academic requirements pertaining to under-graduates
  2. a list of questions not covered in this booklet
  3. a brief description of services available to both under-graduates and graduate students
- university teaching.

In some cases this will mean that we won't have the app







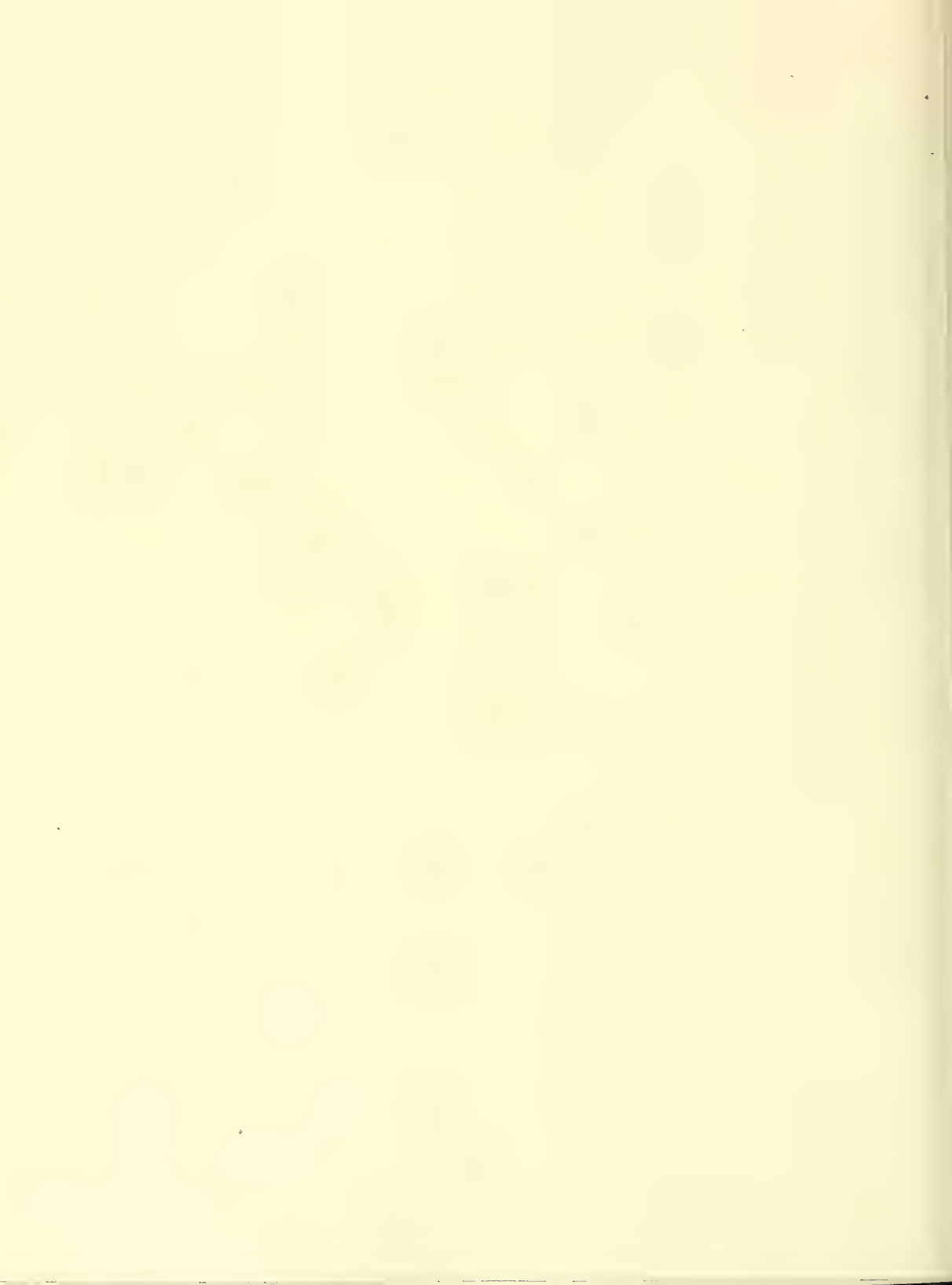


assistants are not required to pay tuition if their stipend

Affairs, dated April 20, 1971, stating guidelines.







ll significantly improve.

Assistant to redress any of his personnel problems. An



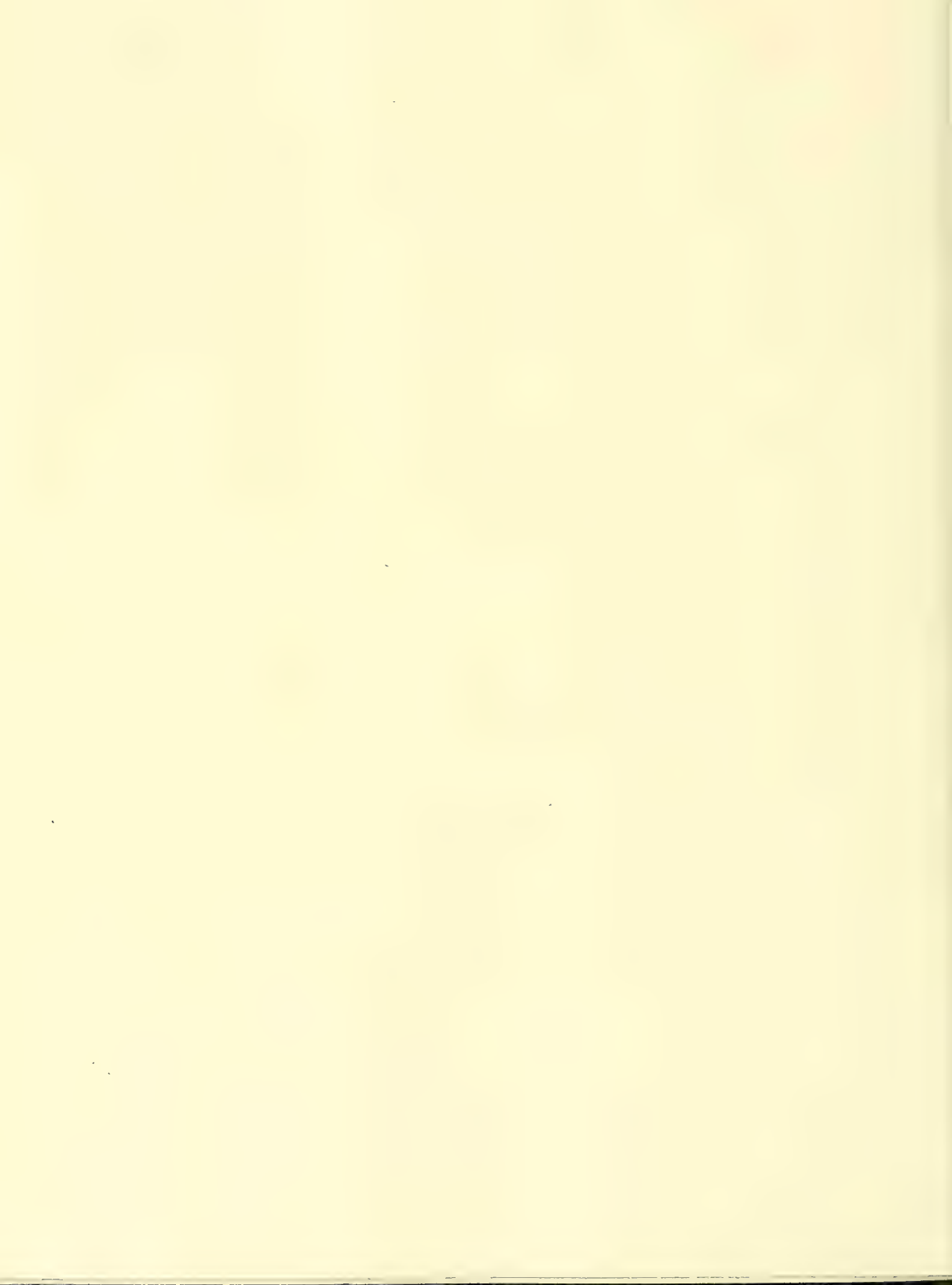


located in room 233 of the Gr

#### General Regulations

deficiencies, etc.

200-399 Undergraduate credit only: upper division.



0 Master's Thesis.

In the grades which a student is offering requirements, a minimum standard for satisfactory work earned for the degree at the University of Massachusetts below 3.0.

Full-time students register for eight credits or more per

they are working full-time on research.

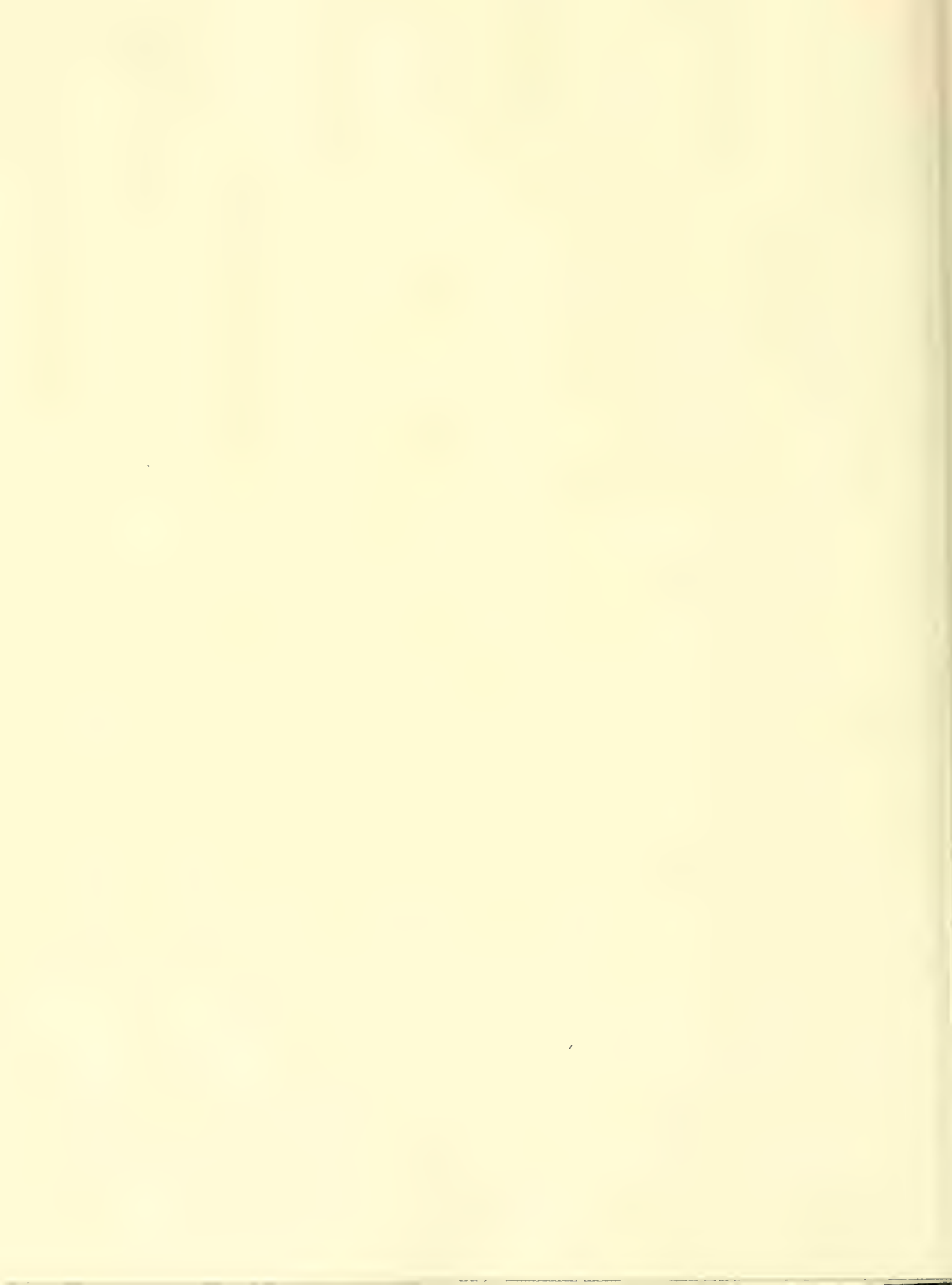


5.

without penalty. No courses may be added after this date.

d.) During periods (b) and

year from the time of enrollment in the course (whether or not he is enrolled). At the end of that period, if a grade is not student.



n of the Graduate School.

Using on doctoral dissertations may use these libraries by  
obtaining special permission from the Dean of the Graduate School.

Student's Guidance Committee.

Enrolled in Five-College Cooperative Ph.D. programs





libraries.

purposes of those courses and:



fall semester.

fees if he has not already done so. Due to the size of the

one class for the same time. In addition, a student might

registration Day.



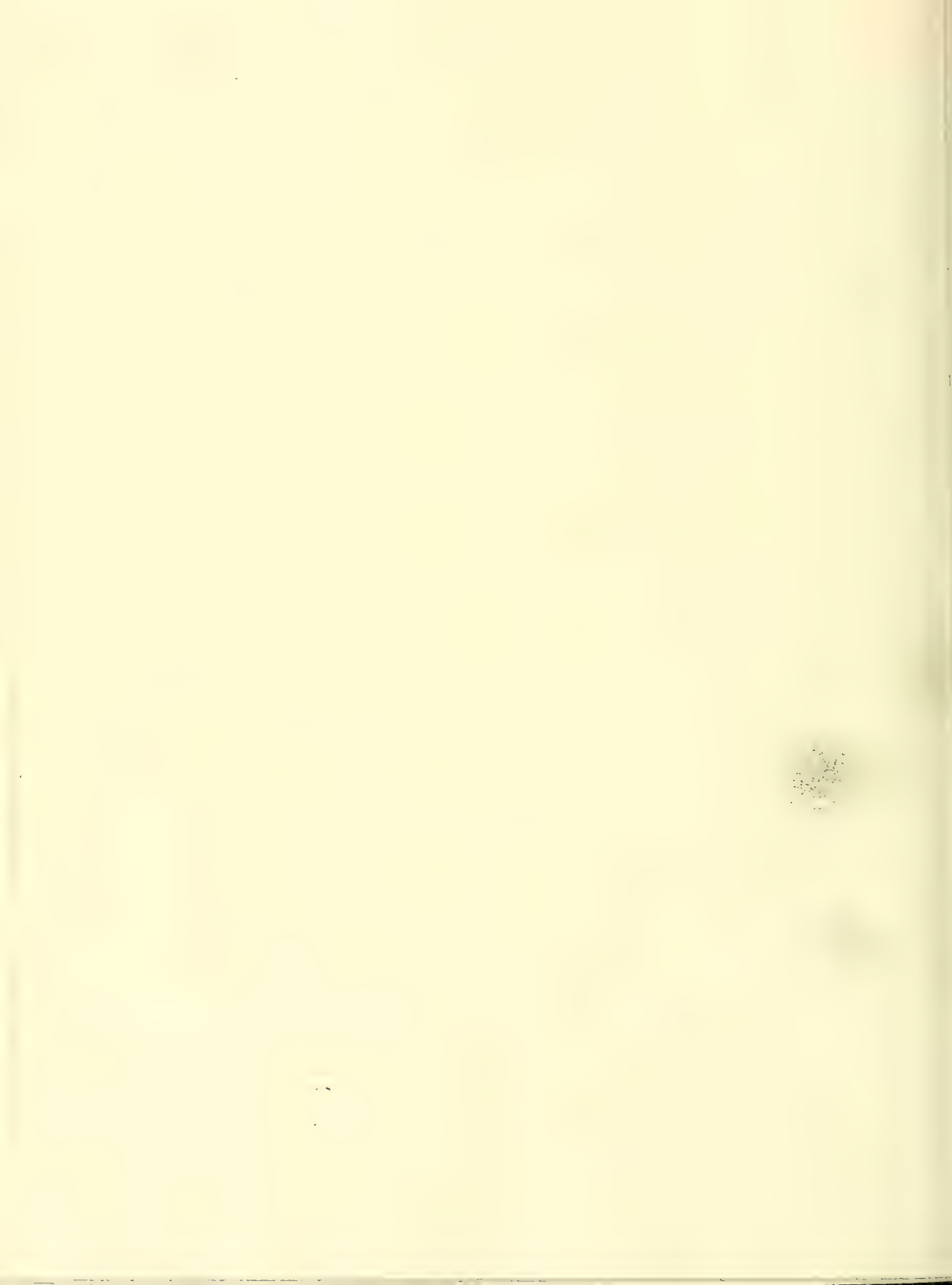




as a substitute for...

stitute a course without notation on his

ord. Monday through Saturday are defined as full academi









COURSE GRADE



CARD  
Faculty of Education

NAME  
ID NUMBER

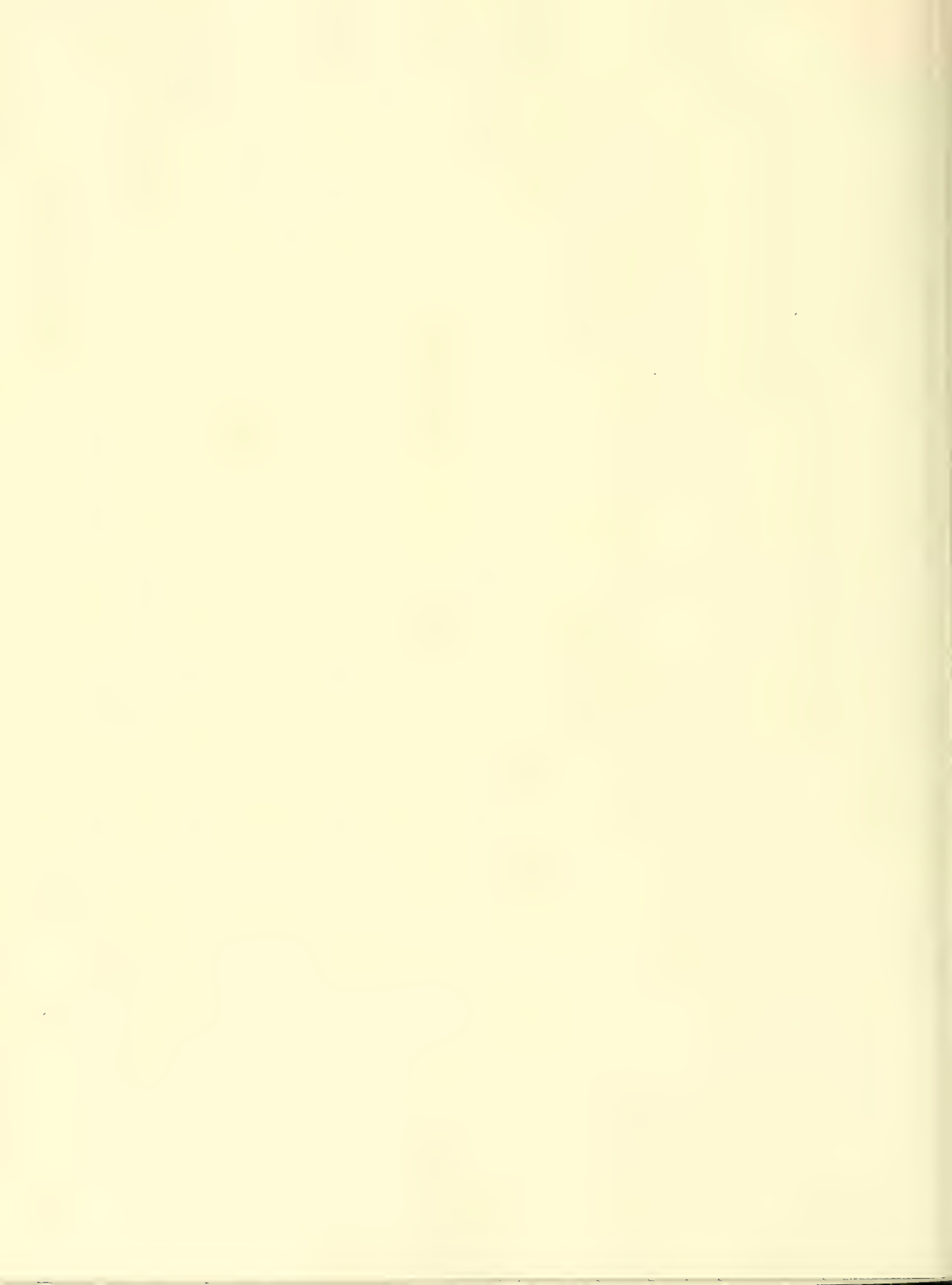

SUBJECT: EDUC - 4000

1. The teacher's role is to facilitate learning...

2. The teacher should use a variety of assessment methods...

3. The teacher should create a safe and supportive learning environment...

4. The teacher should use differentiated instruction to meet the needs of all learners...







1. The first part of the document is a letter from the author to the editor, dated 10/10/10. The letter discusses the author's interest in the journal and the topic of the proposed article. The author mentions that they have been working on this topic for some time and believe it would be a good fit for the journal. They also mention that they have already published some work in this area and would like to share their latest findings with the readers of the journal. The letter concludes with a request for the editor to consider the author's proposal for publication.

2. The second part of the document is the author's response to the editor's letter, dated 10/15/10. The author thanks the editor for their letter and expresses their appreciation for the editor's interest in their work. They also mention that they have been thinking about the editor's comments and have decided to make some changes to the proposed article. The author explains that they have added more data to the article and have revised the conclusions to better reflect the findings. They also mention that they have added a new section to the article, which discusses the implications of their findings for future research. The author concludes their response by expressing their hope that the editor will find the revised article acceptable for publication.









permanent record is changed and the student is notified.

Full-time students to be usefully venturesome in the choice of their elective courses.

pass-fail courses so designated in the Schedule of Courses

courses in a student's major (unless his department rules

the second summer session.

A pass-fail student who does passing (i.e., A through D)

course earns a student graduation credits, but the course is



Registrar within the ten-day period. Students are required to sign the card in recognition that the pass-fail course

A pass-fail course cannot be converted to a regular grading basis after the ten-day period has passed.

more than two final examinations in one day. Any student who

two in one day should report this to the Schedule Office, 168 Whitmore Administration Building.

For more complete information concerning undergraduate requirements as well as information concerning residence hall regulations and special programs, please consult the current University of Massachusetts Undergraduate Course and Faculty Directory which is available at the Registrar's office in Whitmore Administration Building.



should be made, exploratory referrals to the Office of the Dean of Students is welcomed. The Student Personnel offices include the following.

- 1.) Foreign Student Advisor (229-E Whitmore) offers assistance to foreign students, faculty, and staff with respect to immigration status, housing, and financial assistance.
- 2.) Counseling and Guidance Center (243 Whitmore) provides vocational, educational, and personal counseling.
- 3.) Placement and Financial Aid Services (237 Whitmore) provides vocational and financial counseling, aids students in finding suitable employment, awards loans, grants, and scholarships, assigns part-time work, and acts as a source of information concerning military service.

Information and counseling on Selective Service matters may also be obtained at either the Valley Peace Center or the Draft Counseling Office in the Student Union.

- 4.) Off-Campus Housing Office (236 Whitmore; 5-2785) maintains a list of rooms, apartments, and houses in the area for sale or rent.





## Health Services

students prevent health problems which might limit the effectiveness of their college experience. Direct services to students are supported by the Health Fee.

A staff of physicians, nurses, psychologists, pharmacists, physical therapists, technologists, and other personnel especially trained to meet student health needs are housed in the infirmary building. Students are encouraged to use the infirmary building. Students are encouraged to use the infirmary building. Students who would consult their family physician and would use the community hospital at home.

to any care rendered on the campus by members of the staff can be arranged by the Health Services, but the cost of this care is a responsibility of the student. A supplementary insurance program has been developed to provide for most for students entering or reentering in February who may sub-



Students are encouraged to seek care during the following hours:

WEEKDAYS, 8 a.m. to 12 noon, 1 p.m. to 5 p.m.

SATURDAYS, 8 a.m. to 11:30 a.m. (for  
problems only)

consult one of the Mental Health staff if it appears that a medical problem is partly the result of tension or anxiety; this is often the case with students who live under conditions of considerable stress.

Health staff, located in Machmer Hall. ALL RECORDS ARE STRICTLY

#### C. Teacher Improvement Program

The Teacher Improvement Program (TIP) was established in the Spring of 1970 by the Graduate School with the expressed purpose of aiding individual TAs and departments in upgrading their teaching competence. Our current facilities include videotape equipment and a small library



he video tape facilities or requests for taping should be directed  
to either the Graduate School main office (Room 217, Graduate Research

Center, tel. 45-0869).

Anyone, faculty or TA, is invited to come to our offices in the  
Graduate Research Center to discuss any problems related to teaching  
at the University or to suggest new directions for this program.

Audiovisual Center Services

The University of Massachusetts Audiovisual Center is located on  
the ground level of the west wing of Thompson Hall.

staff with equipment, materials and services to facilitate instruction.  
We can help in the following ways:

specialized AV equipment is kept at the AV Center. This can be  
delivered to individual departmental offices or classrooms. It  
should be scheduled as far in advance as possible, and return



(Mr. Bates--Room 22--Tel. 5-2464)

(ES: The Center has a limited library of:

Room 18--Tel. 5-2454 or 5-2456)

of masters for making overhead projection transparencies and





support instruction.

most part in an area to which he is not normally entitled,

fine.

eligible to join. Payroll deductions can be arranged. For information call 5-2343 (Draper Hall, Room 12).

Faculty Newcomers is available in limited supply from Mrs.

Building. This Guide lists facilities and services within the town of Amherst and the immediate area.

- 4.) Graduate Student Senate. Each year in the fall there are elections by department for representatives to the Graduate



Campus Center.

As of press-time, the University has agreed to

(357 Whitmore).

graduate Student Senates is available to answer any legal

business hours by calling 5-5-0739 or visiting the Legal  
Services Office located in the student activities area of







The University Library subscribes to numerous periodicals which pub-  
 lish articles on teaching. Many of these periodicals are  
 indexed in Education Index which is available in the Reference Room  
 of Goodell Library and in the Education Library. Look under the  
 heading "Colleges and Universities--Teaching."

#### Teaching In General

- Greenberg, Herbert M. Teaching with Feeling. New York: Macmillan  
 Company, 1969. LB 1067 G7 (also in Education)
- Marshall, Max. Teaching Without Grades. Corvallis, Oregon: Oregon  
 State University Press, 1968. LB 2368 M3
- Postman, Neil. Teaching as a Subversive Activity. New York:  
 Delacorte, 1969. LA 217 P6
- Rogers, Carl R. Freedom to Learn. Columbus, Ohio: Charles Merrill,  
 1969. LB 1051 R636
- Rosenthal, R.L. Jacobson. Pygmalion in the Classroom: Teacher  
Holt, Rinehart and Winston, 1968. LB 1131 R585 (also in Education)
- Vandenberg, Donald. Teaching and Learning. Urbana: University of  
 Illinois Press, 1969. LB 1055 V3 (Also in Education)









College Teacher. Lexington, Mass: D.C. Heath and Company, 1967.  
Psych. LB 17

Morris, William H., ed. Effective College Teaching. Washington:

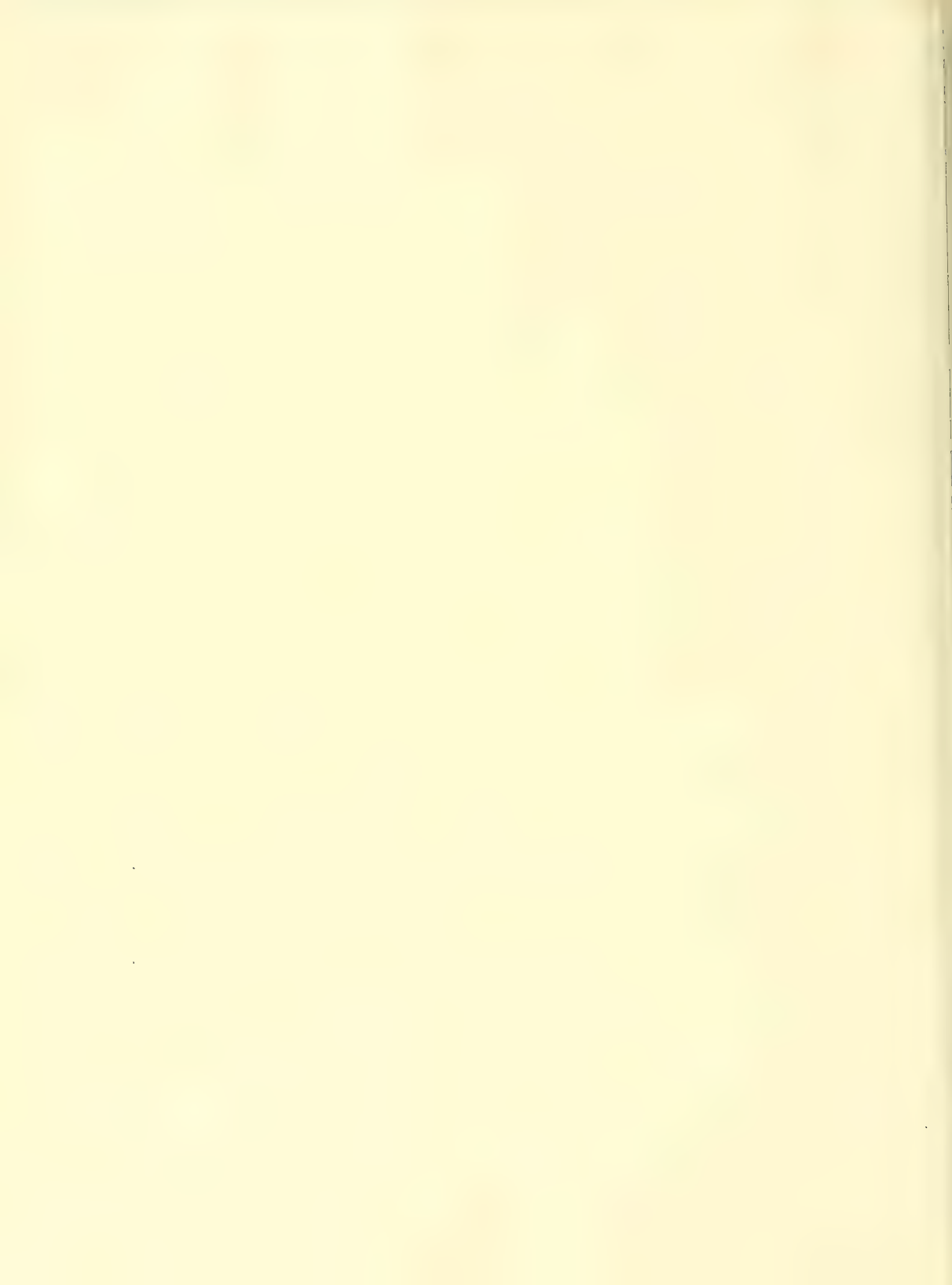
Nowlis, Vincent. The Graduate Student as Teacher. Washington, D. C.:  
American Council on Education. 1968. LB 2371 M8 (Also in  
Education)

Iowa: W. C. Brown Co., 1963. LB 2331 P8

Runkel, Philip, R. Harrison and M. Runkel, eds. Changing  
Classroom. San Francisco: Jossey-Bass, 1969. LB 23

Skilling, H. H. Do You Teach. New York: Holt, Rinehart and Winston,  
1969. LB 2231 S 55.

Thornton, James W. New Media and College Teaching. Washington, D. C.  
American Association for Higher Education, 1968. LB 2331 T45





















## 8. Future plans and needs.

a. The current review of graduate programs by a committee chaired by Associate Dean Gentile should help point the way toward program priorities in graduate education on the Amherst campus of the University and provide a basis for program enhancement, consolidation and/or elimination as deemed in the best interest of the educational objectives of the University. It should be clear, however, that a cursory examination of programs without in-depth external review by specialists in the fields under study cannot and should not, by itself, be a basis for program discontinuance. Thus the most that can be expected from the current review is a priority statement for action. Where the program(s) involved in proposed changes agree to them, of course, change can be implemented. Where the recommendations are contested, external review should be immediately undertaken. It is unfortunate that funds were not available to permit such external reviews as part and parcel of the program assessment process.

b. Over-all enrollment control is gradually being achieved through the use of admissions quotas for the separate programs. However, the effect of setting enrollment ceilings for each program has so far worked to the disadvantage of special and non-degree students who have been given low priority as compared to degree enrollees by the various departmental admissions committees. In the future, it may be necessary to set separate admissions quotas for degree, special and non-degree admissions to each program with no freedom to transfer from one category to another. Alternatively, the accounting system could be changed to report only degree candidates and allow other enrollments on a "space available" basis only.

c. If the losses of Federal fellowship support continues (and there is no reason to believe otherwise), we may be threatened with a reversal of the steadily improving quality of graduate enrollees. Coupled with proposed tuition increases, the limited number of fellowships places our departments in a less than favorable competitive position in respect of the applicants of highest quality. As these are the ones who set the tone of each program, it seems clear that every effort should be made to provide support annually to the best few applicants to each program. University fellowship support (currently limited to 57 3-year fellowships for a student body of over 5,000) is not sufficient to provide the quality protection needed. At least 150 fellowships (or fellowship-assistantship combinations) should be made available for this important purpose.

d. Research coordination, a responsibility of the Office of the Graduate Dean, is currently afforded only one professional and one secretarial person for an operation processing some \$10,000,000 plus of external grand funds, an Office of Research Services, an internal grants committee, and a series of related functions. A minimum of four professionals and four to six clerical level persons



should be assigned to this function if the potential of external support for research, training and scholarship of 1200 faculty is to be properly exploited. There is no doubt whatever that the costs of additional staff for these functions would be recovered in increased income to the University and increased service to the Commonwealth and the University community. The shortage of staff for increased amount and scope of activity in the Graduate School is particularly apparent in the research area.





REPORT OF THE  
RESEARCH COUNCIL

Presented by

Pat W. Camerino, Chairman

at the

196th Meeting of the Faculty Senate

October 12, 1972

Research Council Membership 1971-1972

Pat W. Camerino (Chairman) (E)  
William A. Darity  
F. J. Francis  
Donald Freeman  
Christian Garaud  
Ronald Hambleton  
B. Honigberg  
G. Richard Huguenin

Walter Kroll  
Robert E. McGarrah  
Robert Potash  
Benjamin Ricci  
H. T. U. Smith  
Charlotte Spivack  
Wayman Strother  
\*Max Wortman

\*Senator



## ABSTRACT

The Research Council is the Committee of the Faculty Senate charged with the responsibility for reviewing proposals for Faculty Research Grants (FRG's) and Faculty Growth Grants (FGG's), and for making recommendations concerning the research policies of the University of Massachusetts/Amherst.

Because of a constrained budget for academic year 1971-1972, the Council introduced a new system into its review procedures for FRG's and FGG's. This Annual Report discusses this priority system in detail.

During 1971-1972 the Council reviewed 144 different proposals for FRG's in which investigators requested \$111,446. The Council approved 137 of these applications at a level amounting to \$88,366. A total of 117 of these proposals were awarded with an allocation of \$68,709. Throughout the year, ten interim or emergency awards were made for \$4,439. Therefore, 127 FRG's were awarded to investigators in 48 departments using the total allocation from the Research Trust Funds amounting to \$73,148. In 1970-1971 there were 156 awards made with the \$84,500 available at that time. Tables presented in this Annual Report summarize the distribution of FRG's according to the departments and administrative units receiving them.

Faculty Growth Grants, which are \$1,000 Summer Fellowships, provide a more flexible source of modest funding for faculty members. There were 53 applications for fellowships for the Summer of 1972. The funds available allowed 22 awards to be made to young faculty members in 15 different departments or administrative units. An identical number of awards had been made for the previous Summer.

In order to assist faculty in applying for FRG's and FGG's, the Council also turned its attention to a revision of the Guidelines and Application Forms for these awards. Thus, the University of Massachusetts/Amherst -- Guide for Faculty Research Grants was revised in November 1971 and the corresponding Guide for Faculty Growth Grants was revised in December 1971. These guides must be used for all future submissions for these programs.

In 1971-1972 the Council and the University directed renewed attention to policies effecting research within the University. Based upon a policy statement appearing in Senate Document 71-005, the Board of Trustees at its meeting of May 10, 1972 voted. "That it is the policy of the University of Massachusetts to undertake only those research projects in which the purpose, scope, methods, and results can be fully and freely disclosed."

A special report (Sen.Doc. 72-061 and 72-061A) was presented by the Council at the Senate meeting of May 11, 1972 concerning a policy on the protection of the rights and welfare of human subjects. It was voted that. "It is a responsibility of the University and its members to assure that in [activities in which it is necessary to engage the cooperation of human subjects] the physical, psychological, and sociological integrity of these subjects is not violated."

Although no new motions are presented in this Annual Report, the Council will bring to the attention of the Senate such motions its believes to be necessary to advance the research, scholarship and creative activities of the University.

1. The first part of the document discusses the importance of maintaining accurate records of all transactions. It emphasizes that proper record-keeping is essential for the integrity of the financial system and for the ability to detect and prevent fraud.

2. The second part of the document outlines the specific requirements for record-keeping, including the need for clear, legible entries and the requirement to retain records for a minimum of seven years.

3. The third part of the document discusses the consequences of non-compliance with the record-keeping requirements, including the potential for civil and criminal penalties.

4. The fourth part of the document provides a summary of the key points discussed in the document and offers recommendations for ensuring compliance with the record-keeping requirements.

5. The fifth part of the document discusses the importance of regular audits and the role of the Internal Revenue Service (IRS) in enforcing the record-keeping requirements.

6. The sixth part of the document discusses the importance of maintaining accurate records of all transactions, including those that are not required to be reported to the IRS.

7. The seventh part of the document discusses the importance of maintaining accurate records of all transactions, including those that are not required to be reported to the IRS.

8. The eighth part of the document discusses the importance of maintaining accurate records of all transactions, including those that are not required to be reported to the IRS.

9. The ninth part of the document discusses the importance of maintaining accurate records of all transactions, including those that are not required to be reported to the IRS.

10. The tenth part of the document discusses the importance of maintaining accurate records of all transactions, including those that are not required to be reported to the IRS.

11. The eleventh part of the document discusses the importance of maintaining accurate records of all transactions, including those that are not required to be reported to the IRS.

12. The twelfth part of the document discusses the importance of maintaining accurate records of all transactions, including those that are not required to be reported to the IRS.

13. The thirteenth part of the document discusses the importance of maintaining accurate records of all transactions, including those that are not required to be reported to the IRS.

14. The fourteenth part of the document discusses the importance of maintaining accurate records of all transactions, including those that are not required to be reported to the IRS.

## PPEFACE

The Research Council is the Committee of the Faculty Senate charged with the responsibility for reviewing proposals for Faculty Research Grants and Faculty Growth Grants, and for making recommendations concerning the research policies of the University of Massachusetts/Amherst. This Council is chaired by the Associate Graduate Dean for Research. In accord with Senate procedures, an annual report on the activities of the Council has been prepared for fiscal year 1972 (academic year 1971-1972).

### FACULTY RESEARCH GRANTS

Research, scholarship and creative activities are mandatory for a vital university. However, during the last fiscal year the financial support that could be offered from sources within the University of Massachusetts for these purposes was limited. Consequently the Research Council, in its review of proposals for Faculty Research Grants, directed its attention to new approaches in order to distribute these limited resources in an equitable manner to faculty in need of modest support for these activities. In recognition that projects originate throughout the year, the Council instituted an allocation plan to meet this need.

In October 1971 it appeared that the funds available for Faculty Research Grants would amount to \$70,000 in contrast to the \$84,500 allocated during the previous year.

The normal procedure for the review of proposals calls for meetings in October, January, March and May. In addition to grants made as a result of these reviews, the Chairman of the Council has been authorized to make interim or emergency awards without a Council review. This procedure is utilized primarily during the Summer when it is impractical to convene the Council. Be-

cause of its desire to reserve funds for allocation throughout the year (rather than recommending that funds be awarded on a first-come-first-served basis) the Council agreed to the distribution of the total amount available on a percentage basis for each of its four meetings. Since the October meeting has historically reviewed the largest number of proposals, the percentage distribution for the October, January, March and May meetings in 1971-1972 was suggested to be: 35%, 20%, 20%, 20%. The Council also voted that the Chairman should use about 5% of the available funds for interim awards.

At its October meeting the Council reviewed 59 proposals requesting \$47,885 -- an amount greatly in excess of that available. Therefore the Council adopted a "priority score" system in order to recommend which proposals should be awarded at that time and which ones should be delayed until later in the year when a more accurate assessment could be made of the demands on the limited budget.

In order to accomplish its review of proposals and not overburden the members of the Council, a system of subcommittees has been used. The composition of the subcommittee, drawn from the full Council membership, changes for each review session. The five members on the subcommittee for a given review period, examine the proposals prior to the subcommittee meeting. At the time of this meeting each application is discussed and then each member assigns a numeric score (from 1 to 5) to the proposal. The score is based on the committee member's own judgement of the merit of the work and on individual interpretation of the discussion of the proposal. An average score is then calculated from the separate scores assigned by the reviewers. This average score becomes the "priority score."

At the full Council meeting the members are presented with a listing of all proposals ranked according to the priority scores. Each member of

the Council is provided with the first page of each application, which gives the investigator's summary of the work to be undertaken. The priority score listing indicates the accumulated dollar amount recommended by the reviewers so that for any given dollar amount available, a ready determination can be made of the number of applications and the "lowest" priority score that can be funded at this dollar level. The Council then has the responsibility to make recommendations concerning the "cut-off" for the particular review period.

On the basis of \$70,000 being available for the year and with \$24,500 (i.e. 35%) ear-marked for the October review, the Council recommended that the first 32 proposals at an approved level of \$25,455 be awarded -- providing that the chairman could "negotiate" this total dollar amount downward to a level within the \$24,500 "ceiling". Proposals that could not be awarded following the October review were reviewed again in December by another sub-committee and so on for the remaining review periods of 1971-1972.

During academic year 1971-1972 the Research Council reviewed 144 different proposals requesting \$111,446. The Council approved 137 of these proposals at a level amounting to \$88,366. A total of 117 of these proposals were awarded at a level of \$68,709. Throughout the course of 1971-1972, ten interim grants were made at a level of \$4,439. Therefore with fiscal year 1972 funds, 127 Faculty Research Grants were awarded at an overall level of \$73,148. (Although \$70,000 was the original allocation for FRG's, an additional \$3,000 became available in June. An additional \$148 resulted from funds returned by an investigator who had no further need for them.)

Table I shows the distribution of requests, recommendations by Council, and awards according to the administrative unit with which the investigators are associated. In order to provide a more ready compassion of these values, the data have been recalculated for Table II which shows the percentage distribution and the average size grant.

The Faculties of Humanities & Fine Arts, Natural Sciences & Mathematics, and Social & Behavioral Sciences submitted the majority of the proposals (73%) and were awarded the majority of grants (57%). On a dollar basis the "College of Arts and Sciences" requested 71% of the total amount and received 73% of the funds awarded. The average request for a proposal reviewed by the Research Council amounted to \$774. The average grant recommended by the Council was \$645. Because of negotiations of the recommended level, the average award was \$576 for a proposal recommended by the Council. The average interim or emergency grant was \$444.

In 1970-1971 a total of 164 faculty members requested \$110,341 for Faculty Research Grants. The funds available allowed 156 of these proposals to be awarded. A comparison of the last two academic years is given below:

	ACADEMIC YEAR	
	1970-1971	1971-1972
number of requests	164	154
dollar amount requested	\$ 110,341	\$ 115,885
number of awards	156	127
dollar amount awarded	\$ 84,500	\$ 73,148
average award	\$ 540	\$ 576
% number awarded	95%	82%
% dollar awarded	76%	63%

	% change:	(1971-1972) - (1970-1971) (1970-1971)
number of requests		- 6%
dollar amount requested		+ 5%
number of awards		- 19%
dollar amount awarded		- 13%
average award		+ 7%

During the last fiscal year Faculty Research Grants were received by investigators in 48 different departments of the University. The departments receiving FRG's in the "College of Arts and Sciences" are identified in Table I.



At its first meeting of the year the Research Council revised the application forms for Faculty Research Grants in order to present new guidelines to the Faculty for the preparation of FRG proposals. This form, "University of Massachusetts/Amherst -- Guide for Faculty Research Grants" (Revised, November 1971) must be used for all future submissions for FRG support. This document gives the purpose of Faculty Research Grants as follows:

An important function of the University is to encourage scholarly research and creative activities by members of the Faculty. This is accomplished by providing modest financial support through Faculty Research Grants (FRGs). These funds may be used to initiate new studies or in certain cases to support phases of on-going research.

Because the level of funds available for these activities is limited, most investigators are encouraged to initiate active solicitation of outside research support as soon as possible. It is recognized that outside financial aid for some activities is not always available. In such cases Faculty Research Grants may be awarded to furnish a minimal level of the needed support.

The funds received for an FRG can be used for such budget categories as:

- 03 student assistance or other personnel costs
- 13 consumable supplies
- 15 equipment
- 10 travel

#### FACULTY GROWTH GRANTS

The FRG does not support faculty salaries. Faculty Growth Grants have been used within the University to allow a more flexible source of modest funding for faculty projects. An FGG provides a \$1000 Summer fellowship to young faculty members. The Research Council at its December 1971 meeting revised the application forms for these awards. This revision of the "University of Massachusetts/Amherst -- Guide for Faculty Growth Grants" must now be used for all submissions.

The review of FGG proposals is accompanied in a manner analogous to the FRG review. The subcommittee which reviews the applications in depth consists of three members of the Council and six additional representatives -- three

nominated by the Provost and one by each of the three Deans of the "College of Arts and Sciences." The priority scores and recommendations of this sub-committee are transmitted to the Research Council. The Faculty Senate Constitution charges this body with the responsibility of making recommendations to the Provost for the awarding of Faculty Growth Grants.

At its March 1972 meeting the Council reviewed recommendations for 53 Faculty Growth Grant proposals. The funds available allowed 22 awards to be made for \$1000 per Summer fellowship. Fifteen departments or administrative units were represented by the awardees: Anthropology, Botany, Economics, Education, English, Entomology, Geology/Geography, History, Linguistics, Mathematics, Physics-Astronomy, Political Science, Sociology, Speech and Veterinary/Animal Sciences. The individual fellows are identified in Table III.

(In academic year 1971-1972 the Provost's Office awarded ten Faculty Growth Grants for Teaching. The grants are intended to provide summer support to faculty members engaged in projects specifically aimed at the improvement of undergraduate teaching at UMass. Although the review of the submitted proposals did not come under the purview of the Research Council, it might be noted that the ten recipients are: Mary Barber, Business Administration, Leora Baron, Classics; Anthony Borton, Agriculture, Neil Carlson, Psychology; George Dersham, Zoology; Gerald Gunderson, Economics; Alan Harler, Music; Robert Hiltz, Education; Gary Tarr, Art; and Martin Nobst, Anthropology.)

#### RESEARCH POLICY

The Research Council is charged by the Faculty Senate Constitution with the responsibility "to make recommendations to the Chancellor of the University and to the Senate concerning the research policies of the University."

Two years ago the Research Council addressed the question of the appropriateness on the campus of various types of research projects. This concern was discussed in Senate Document 71-005 submitted as the Council's Annual Report at the Senate meeting of November 12, 1970. During the past year the

Board of Trustees addressed this same issue and based upon the policy given in Sen. Doc. 71-005, voted -- at its meeting of May 10, 1972

"That it is the policy of the University of Massachusetts to undertake only those research projects in which the purpose, scope, methods, and results can be fully and freely disclosed."

With an increasing concern for human values, the Research Council also turned its attention to a discussion of a general policy and guidelines for the protection of the rights and welfare of human subjects. This policy and guidelines were formulated by an ad hoc Human Subjects Review Committee established to review proposals transmitted to the Department of Health, Education and Welfare in compliance with DHEW regulations in this area. The general policy adopted by the Research Council at its March meeting and by the Faculty Senate on May 11, 1972 states:

The advancement of knowledge is one of the functions of a University. Research is one of the methods for this function. In the performance of research or other activities associated with the University, it may be necessary to engage the cooperation of human subjects. It is a responsibility of the University and its members to assure that in such activities the physical, psychological, and sociological integrity of these subjects is not violated.

As a result of the Senate deliberations given in Sen. Doc. 72-061 and 72-061A, the Human Subjects Review Committee has been established as a subcommittee of the Research Council.

During the past year the Council has also turned its attention to a consideration of a patent policy and other policies for research/scholarship/creative activities. The results of these discussions will be brought to the attention of the Faculty Senate in the form of motions as the Council continues in its efforts to offer advice to the Faculty on research matters within the University of Massachusetts/Amherst.

Administrative Unit	Requested No.	Requested Amount	Recommended No.	Recommended Amount	Awarded No.	Awarded Amount
College of AGRICULTURE	7	6,557	7	4,695	7	4,295
Faculty of HUMANITIES & FINE ARTS	43	28,910	40	21,097	34	16,048
Faculty of NAT'L SCI & MATH	35	28,743	33	23,327	28	20,290
Faculty of SOCIAL & BEHAVIORAL SCI	34	24,552	33	21,858	29	16,825
School of BUSINESS ADMIN	8	6,410	8	4,500	8	3,267
School of EDUCATION	6	5,483	6	4,255	3	2,202
School of ENGINEERING	5	3,792	4	2,410	3	2,000
School of HOME ECONOMICS	6	5,079	6	4,870	5	3,100
School of NURSING	1	1,250	1	1,000	1	950
School of PHYSICAL ED.	2	13,175	2	10,500	2	800
Dept. of PUBLIC HEALTH	3	1,998	3	1,908	3	1,925
GRADUATE SCHOOL	28	564	2	564	1	168
OTHER*	2	1,372	2	1,372	2	1,272
	154	115,885	147	92,805	127	73,148

\*University Health Service, Institute for Man & His Environment

TABLE II Comparison Data for Faculty Research Grants

ADMINISTRATIVE UNIT	% DOLLAR AMOUNT		Average Awarded
	Requested	Awarded	
College of AGRICULTURE	5.7	5.9	\$ 613
Faculty of HUMANITIES & FINE ARTS	24.9	21.9	472
Faculty of NATURAL SCIENCES & MATHEMATICS	24.8	27.7	700
Faculty of SOCIAL & BEHAVIORAL SCIENCES	21.2	23.0	580
School of BUSINESS ADMINISTRATION	5.5	4.5	408
School of EDUCATION	4.7	3.0	734
School of ENGINEERING	3.3	2.7	667
School of HOME ECONOMICS	4.4	4.2	620
School of NURSING	1.1	1.3	950
School of PHYSICAL EDUCATION	1.0	1.1	400
Department of PUBLIC HEALTH	1.7	2.6	642
GRADUATE SCHOOL	0.5	0.2	108
OTHER	<u>1.2</u>	<u>1.7</u>	636
	100.0	99.8	

Average Requested in Council Reviewed Proposal	\$773
Average Approved by Council	645
Average Awarded in Grant Reviewed by Council	576
Average Interim Award	444

TABLE III Departments in "College of Arts and Sciences"  
Receiving Faculty Research Grants

<u>DEPARTMENT</u>	<u>Number of Grants</u>	<u>\$ Amount</u>
<b>HUMANITIES AND FINE ARTS</b>		
Afro-American Studies	1	\$ 502
Art	7	4,862
Classics	1	585
Comp. Lit.	1	800
English	8	3,990
French & Italian	1	350
Germanic Languages & Literature	1	170
History	10	3,664
Linguistics	1	250
Music	1	300
Slavic Languages & Literature	2	575
TOTALS	34	\$ 16,048
<b>NATURAL SCIENCES AND MATHEMATICS</b>		
Biochemistry	2	1,375
Botany	4	3,100
Chemistry	5	2,955
Geography	1	500
Geology	4	3,288
Mathematics	1	162
Microbiology	1	500
Physics	3	1,900
Zoology	8	6,516
TOTALS	29	20,296
<b>SOCIAL AND BEHAVIORAL SCIENCES</b>		
Anthropology	4	1,204
Asian Studies	2	1,000
Economics	1	200
Political Science	4	1,989
Psychology	10	7,353
Sociology	6	4,179
Speech	2	900
TOTALS	29	16,825

TABLE IV Faculty Growth Grants - Summer 1972 Fellowships

<u>Applicant</u>	<u>Academic Rank</u>	<u>Department</u>
ADAMS, Donald H.	Asst. Prof.	Mathematics
BACH, Stanley	Asst. Prof.	Political Science
BELL, Bernard H.	Asst. Prof.	English
BURGHARDT, Galen	Asst. Prof.	Economics
CONNORS, Edward	Asst. Prof.	Mathematics
DOHRING, Donald O.	Asst. Prof.	Geology
EDWARDS, Lawrence	Asst. Prof.	Entomology
EHRENBERG, Ronald	Asst. Prof.	Economics
EINHORN, Eric S.	Asst. Prof.	Political Science
FAULKINGHAM, Ralph H.	Asst. Prof.	Anthropology
HALL, Donald W.	Asst. Prof.	Entomology
HALLOCK, Robert B. *	Asst. Prof.	Physics
HERINGER, James	Asst. Prof.	Linguistics
MARCUM, James R.	Asst. Prof.	Veterinary & Animal Sci.
PEELLE, Howard A.	Asst. Prof.	Education
PELZ, Stephen E.	Asst. Prof.	History
ROOF, W. Clark	Asst. Prof.	Sociology
RUBINSTEIN, Bernard	Asst. Prof.	Botany
SHADOIAN, Jack	Asst. Prof.	English
TADAMARU, Eugene	Asst. Prof.	Astronomy
TOKAY, F. Harry	Asst. Prof.	Speech
WALKER, James W.	Asst. Prof.	Botany
WEBSTER, Peter L.	Asst. Prof.	Botany

\*Dr. Hallock received NSF support between the time of the recommendation for his FGG and its award. He, therefore, declined the FGG, allowing another award to be made.





MEMORANDUM

From: Charles F. Meade Date: August 10, 1977

To: Dean W. C. C. C.

Subject: General Analytical Section of Office of Research Services

I. The purpose of the General Analytical Laboratory is to provide a rapid, accurate, reasonably sensitive and convenient analytical service for faculty and students of the University and surrounding colleges. The cost for analyses is approximately one-half that of commercial laboratories and the turnaround time is approximately three to five times faster.

II. We service the following departments:

Chemistry  
 Chemical Engineering  
 Polymer Science and Engineering  
 Biochemistry  
 Plant and Soil Sciences  
 Physics  
 Microbiology  
 Geology  
 Zoology  
 Department of Fisheries and Wildlife  
 Physical Plant  
 Botany  
 Anthropology  
 Harvard University  
 University of Georgia  
 Suburban Experiment Station

III. Total billing for this past fiscal year, 7/1/71 - 7/31/72, \$8,754.50, is attached.

IV. (a) We will be offering a course in the Chemistry Department (Chem. 517, Microquantitative Analyses). We received one of the highest course evaluations in the graduate chemistry department last year.

(b) We published a paper in the Journal of Inorganic Chemistry, 11, 217 (1972) entitled "A Modified Unterzaucher Procedure for the Determination of Total Oxygen in Organometallic Compounds".

(c) We are developing methods of fingerprinting compounds by thermal degradation - Gas Chromatography which should result in several papers this next year.

Respectfully submitted,



Charles F. Meade



Albert D. King

10 August 1972

Dean Pat W. Camerino

Office of Research Services: Annual Report - Electronics Lab

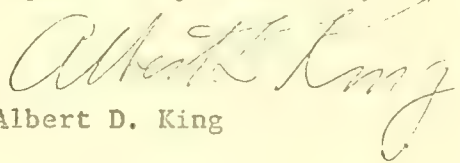
The Electronics Lab of the Office of Research Services is available for design and construction of special purpose electronic equipment, discussions on commercial apparatus and its proper utilization, calibration of voltage and current meters, and repair of electronic equipment. An attempt is being made to establish a viable standardization laboratory.

Formal work this past year was done for over 36 faculty members in 21 departments of the University, as well as many informal phone and personal request for information. The number of graduate students asking for assistance increased again this year. Repair work remained about average, ten requests for the year.

As in the past, one or two departments take the bulk of the total assigned time, one 41%, another 24%, but as usual they are not the ones for the previous years. This past year required considerable repair and calibration time on the Laboratory's own equipment, some of it now eight years old. The new, larger laboratory improves the operation, but will require time for rearrangement and organization.

This coming year looks as if it would be again devoted to designing special apparatus and major remodeling of standard equipment. The use of the laboratory facilities for standardization of meter hopefully will be more fully utilized.

Respaectfully submitted,



Albert D. King



MEMORANDUM

From: Gordon Good

Date: August 21, 1972

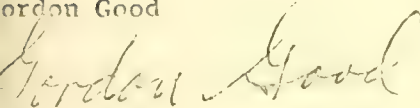
To: Prof. W. Caserio

Subject: Office of Research Services: Glass Blowing Unit.

Glassblowing services for research purposes are made available to all departments, faculty, and to graduate students, subject to the approval of their advisors. These services apply to research as well as fabrication of many design elements. Over 100 faculty members and their students from more than 10 departments are having use of the laboratory on a regular basis. Our new expansion located in the Graduate Research Center has allowed us ample space to add a high vacuum oil bath, a furnace, lamping, and all-brass line work, and in addition to our existing existing oven, lathe, bell sander, cutoff saw and diamond hole drilling units.

A new course, "Laboratory Glassblowing for Scientists", Chem. 705 has been developed, and was initiated in the second semester of the '71-'72 academic year. It is open to graduate students who feel a need for learning basic glassblowing techniques to aid in their research program and will be available each semester as the demand indicates. Presently we are working with the teaching improvement program videotaping apparatus model demonstrations for classroom use and it will be introduced in the next lesson program.

Gordon Good





TO: Linda Molitoris  
 FROM: [unclear]  
 SUBJECT: ORS-Secretariat and Secretariat Office

This is in response to your memorandum of August 14, 1972. Through all, the ORS-Secretariat is an office established to provide secretarial services to those faculty members who are used to have secretarial services available to all departments of the University, and to all departments in these departments.

The typing that is done consists mainly of short articles, pamphlets, books and journals. Also, many professors come to this office for material that have to be run-off on the Xerox.

Since January of 1972 we have served the departments:

- |                        |                        |
|------------------------|------------------------|
| Anthropology           | French                 |
| Art                    | Government             |
| Education              | Graduate School        |
| Electrical Engineering | Landscape Architecture |
| English                | Marine Sciences        |
|                        | Polymer Science        |

Of these departments, Education uses our service the most frequently--most likely because of the great number of faculty that it has.

As for the future of this office, . . . . ????? (Good Luck!)

I have also checked the departments that Mr. Pallazola has served since he has been working for us in the Technical Illustrator position. They are:

- |                         |                             |   |
|-------------------------|-----------------------------|---|
| Anthropology            | Food Science and Technology | 1 |
| Astronomy               | Geology                     | 1 |
| Biochemistry            | Graduate School             | 2 |
| Botany                  | History                     | 1 |
| Business Administration | Man and His Environment     | 1 |
| Chemical Engineering    | Marine Sciences             | 1 |
| Chemistry               | Microbiology                | 4 |
| Computer Science        | Physics                     | 1 |
| Economics               | Plant and Soil Sciences     | 3 |
| Education               | Psychology                  | 2 |
| Fisheries               | Zoology                     | 2 |

This is all that the information that I can give you concerning his office.

*Linda Molitoris*  
 \_\_\_\_\_  
 Linda Molitoris  
 ORS-Secretariat Office





Pat W. Camerino

Associate Graduate Dean

Office of

for Research

I know you would all be far doing your "share" to make the 1973-74 year a better one than the 1972-73 year. I'll be glad to hear from you.

Could you provide me with a paragraph or two, from your report, on the 1973-74 year? I'd like to see what you think is always appropriate. I would encourage you to include some on the things you serve, how many departments, and so on. You might begin your "report" with a line or two on the purpose of your section. You could conclude with comments on the accomplishments for the past year and your suggestions for the directions you would hope to see next year.

I would like to have your response by August 21.

In the meantime you might want to know about next fiscal year's budget. Well, we still don't have a break-out at the present moment. I promise to get it to you as soon as I have one.

Cordially,

PWC/nsc

Pat W. Camerino  
Associate Graduate Dean  
for Research

cc: Dean Appley  
Mr. Broekhuizen



Computer and Information Science  
Annual Report - 1971-72

Operating Budget for Fiscal Year 1971-72: \$246,300.00

Personnel as of September 1, 1971:

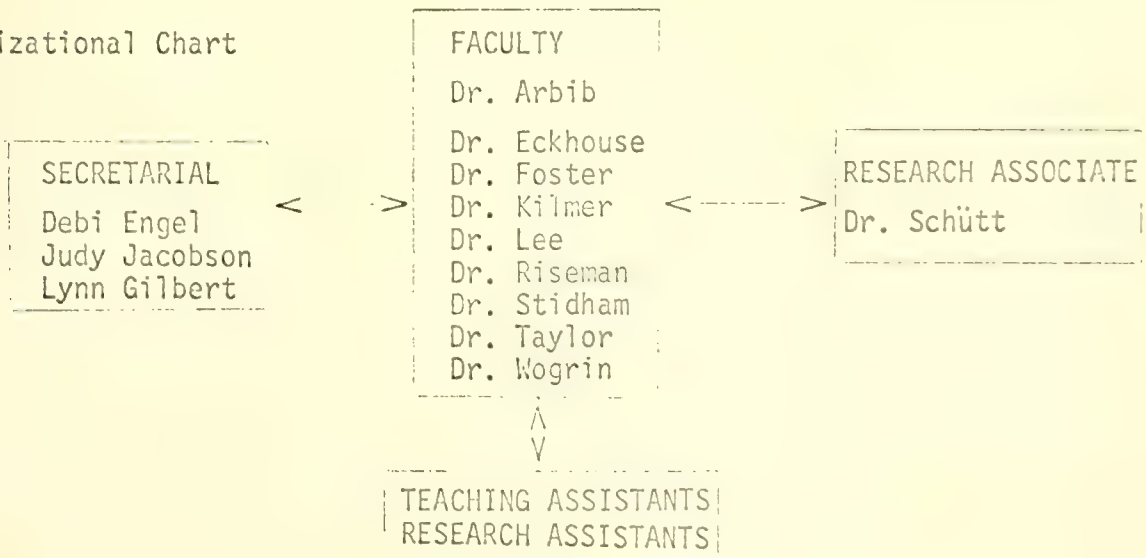
Michael A. Arbib, Professor and Chairman  
Caxton C. Foster, Professor  
William L. Kilmer, Professor  
John A. N. Lee, Professor  
Conrad A. Wogrin, Professor  
Richard H. Eckhouse, Jr., Assistant Professor  
Edward M. Riseman, Assistant Professor  
Sue N. Stidham, Assistant Professor  
Robert W. Taylor, Assistant Professor  
Dieter W. Schütt, Post-Doctoral Research Associate

Associated Faculty

G. Ernest Anderson, Associate Professor of Education  
Robert R. Archer, Professor of Civil Engineering  
Leonard S. Bobrow, Assistant Professor of Electrical Engineering  
Roger W. Ehrich, Assistant Professor of Electrical Engineering  
Robert M. Glorioso, Assistant Professor of Electrical Engineering  
Imsong Lee, Professor of Electrical Engineering  
Charles H. Randall, Associate Professor of Mathematics  
Frederick D. Stockton, Associate Professor of Civil Engineering

Administrative - 1      Professors - 4      Assistant Professors - 4  
Post-Doctoral Research Associates - 1      Associated Faculty - 8  
Non-Professional - 3

Organizational Chart





Number of Majors enrolled: 84

Number of students taking Computer Science courses (not including majors):

Fall - 856

Spring - 438

Total 1,024



Major Accomplishments -

1971-72 has been a very significant year for the program. During this year we changed our name from the Computer Science Program to the Computer and Information Science Program, and received approval from the Board of Trustees to offer the Ph.D. To strengthen ourselves for this new role, we have added five faculty members - Drs. Eckhouse, Kilmer and Taylor joined us this year, and we have recruited Drs. Ledgard and Tenney to join us in September of 1972. We have moved beyond the proposal for the Ph.D. program in coming up with a new course structure of four courses, which integrates the diverse areas of computers, theory and cybernetics which constitute our program, and which will better enable our graduate students, whether at the Master's or the Doctoral level, to perceive the unity that underlies the different research specializations of our faculty. Moreover, these courses are better planned than earlier courses to provide a firm basis for our more advanced offerings, and so will hopefully enable students to go deeper in individual subjects, while better appreciating the interrelationship between different courses. With this new course structure in hand, we have been able to devise a Ph.D. qualifying exam which will not only play its primary role of helping us to advise students as to whether or not they should proceed beyond the Master's degree to a Ph.D., but will also encourage students to bring together their knowledge in all areas of the department.

The increasing number of faculty, and the accession to Ph.D. status, has meant the initiation of a number of high level research seminars. Even more of these are planned for next year, and it is hoped that these will be a primary way of getting students and faculty to work together on new research projects. However, such developments as mentioned above in our graduate program should not be taken as an indication that we do not care for our undergraduates. Quite the contrary. We now offer the second largest number of BDIC's, and have also restructured our service courses to better help all students interested in computer science, whether that interest be a major or a minor one at the undergraduate level. Dr. J. A. N. Lee has obtained supplementary funding to allow us to set up a computer concepts facility, which will allow students to carry out experiments on gadgets of a kind which will help the students improve their proficiency in computing procedures. Meanwhile, under the able direction of Dr. Richard Eckhouse, Jr.,





Professor Michael A. Arbib, Professor and Chairman of Computer Science

#### Publications

"Recursiveness, by Samuel Eilenberg and Calvin C. Elmer," Bulletin of the American Mathematics Society, Vol. 77, pp. 512-521, 1971.

"How We Know Universals: Retrospect and Prospect," Mathematical Biosciences, Vol. 11, pp. 95-108, 1971.

"Decomposition Theory for Automata and Biological Systems," in System Structure, A. S. Morse, Ed., New York: Control Systems Society, Institute of Electrical and Electronic Engineers, Inc. (IEEE Catalog No. 71 C 61-CSS), pp. 1-56, 1971.

"Infantile Autism and Childhood 'Schizophrenias': A Cybernetic Approach to Mental Development," with R. M. Kahn, in The Mental Health Field: A Critical Appraisal, M. Levitt and B. Rubenstein, Eds., Detroit: Wayne State University Press, pp. 304-330, 1971.

#### Technical Reports

"A Model of the Vertebrate Central Command Systems," November 31, 1971.

"System Structure," August 13, 1971.

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"Two Papers on Group Machines," February 8, 1972.

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"Decomposition Theory for Automata and Biological Systems," Joint Automatic Control Conference, St. Louis, July 1971.

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#### Research Projects

The following research topics are now in active status and are partially supported by two research grants, one from NIH and one from AROD: Theory of role of eye movements in visual perception; (with C. Boylls) Model of cerebellum; (with P. Dev) Vision and distributed memory; (with R. Didday) Sensory motor functions; (with E. Manes) Category theory of systems; (with R. Laing) Automata Theory and Development. In addition, having just completed "The Metaphorical Brain" for Wiley, I am now actively working



Professor Michael A. Arbib, Professor and Chairman of Computer Science

#### Publications

"Recursiveness, by Samuel Eilenberg and Calvin C. Elmer," Bulletin of the American Mathematics Society, Vol. 77, pp. 512-521, 1971.

"How We Know Universals: Retrospect and Prospect," Mathematical Sciences, Vol. 11, pp. 95-108, 1971.

"Decomposition Theory for Automata and Biological Systems," in System Structure, A. S. Morse, Ed., New York: Control Systems Society, Institute of Electrical and Electronic Engineers, Inc. (IEEE Catalog No. 71 C 01-C33), pp. 1-56, 1971.

"Infantile Autism and Childhood 'Schizophrenias': A Cybernetic Approach to Mental Development," with R. M. Kahn, in The Mental Health Field: A Critical Appraisal, M. Levitt and B. Rubenstein, Eds., Detroit: Wayne State University Press, pp. 304-330, 1971.

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Professor Michael A. Arbib (cont'd.)

on three other books: "System Theory" (with L. Markus) and "Labeled Algebra" (with L. Bobrow) for Saunders; and "Models and Patterns in Developmental Biology" (with D. Ede) for Academic Press.

Proposal entitled "Categorical Machine Theory, with Applications to Syntax-Directed Translation and Control Theory" submitted to U. S. Army Research Office, National Aeronautics and Space Administration, Office of Naval Research, and National Science Foundation.



Professor Richard H. Eckhouse, Jr., Assistant Professor of Computer Science

#### Papers

"The Computer Science Laboratory," presented at the Second Symposium on Education in Computer Science, St. Louis, March 1972.

"Automated Accounting Procedures," presented at the Second Annual Seminar for Directors of Academia Computing Centers, Boulder, August 1971.

#### Technical Notes

"System Design: Process Models," TN/CS/00031, April 1972.

"Automated Accounting Systems," TN/CS/00032, April 1972.

#### Conferences Attended

SIGCSE, Washington University, March 1972.

DECUS, Boston, May 1972.

SJCC, Atlantic City, May 1972.

#### Research Proposal

To National Science Foundation, "The Application of VDL Definition Techniques to the Design, Checking, and Validation of Computer Hardware and Software," June 1972 (with J. A. N. Lee).

#### Other Professional Activities

Colloquium presented to the Department of Computer Science at SUNY, Buffalo, November 1971. Topic: Planning for a Computer Science laboratory.

Management and upgrading of Computer Science laboratory.





Professor Sue N. Stidham, Assistant Professor of Computer Education

Publications

"An Introduction to Assembly Language Programming Using IBM"



Professor Edward M. Riseman, Assistant Professor of Computer Science

### Publications

"The Inhibition of Potential Parallelism by Control Flow," with C. C. Foster, accepted for publication, IEEE Transactions on Computers.

"Percolation of Code to Enhance Parallel Dispatching and Execution," with C. C. Foster, accepted for publication, IEEE Transactions on Computers.

### Research Projects

Research is being carried out in pattern recognition, parallel processing and machine architecture (with Foster of Computer Science), computer aided instruction and artificial intelligence (with Peele of School of Education), and to some extent collaboration in the area of computer art and aesthetics (with Robert Mallory of the Art Department).

Co-principal Investigator (with C. C. Foster) on a grant from Control Data Corporation, "A Study of Machine Language Utilization and Optimization," June 1, 1971 - August 1, 1971.

Co-principal Investigator (with C. C. Foster), "A Study of Machine Language Utilization and Optimization," National Science Foundation, October 1, 1971 - March 31, 1973 (\$50,000).

Principal Investigator, "Automated Feature Selection and the Use of Contextual Analysis in Pattern Recognition," Office of Naval Research, March 1, 1972 - February 28, 1973 (\$30,000).

Co-principal Investigator (with R. Mallory, Art Department), "A Computer Model of Aesthetic Criteria," Faculty Research Grant, University of Massachusetts, March 1971 - Fall 1971.

Co-principal Investigator (with H. A. Peele, School of Education), "Learning by Teaching a Computer," Faculty Research Grant, University of Massachusetts, April 1972 - September 1972.



Professor Caxton C. Foster, Professor of Computer Science

Publications

"When the Chips Are Down" TN/CS/00028, Computer and Information Science Department, University of Massachusetts, January 1972.

"A Generalization of AVL Trees," TN/CS/00033, Computer and Information Science Department, University of Massachusetts, June 1972.

Research Projects

Co-principal Investigator (with E. M. Riseman), "A Study of Machine Language Utilization and Optimization," National Science Foundation, October 1, 1971 - March 31, 1973 (\$50,000).

Co-principal Investigator (with E. M. Riseman), "A Study of Machine Language Utilization and Optimization," Control Data Corporation, June 1, 1971 - December 1, 1971 (\$20,000).



Professor Robert W. Taylor, Assistant Professor of Computer Science

Publications

"Generalized Data Base Management System, Data Structures and Their Mapping to Physical Storage," Ph.D. Dissertation, University of Michigan, August 1971.

"A Data Definition and Mapping Language," submitted to Communications of the ACM (with E. H. Sibley, University of Michigan).

"Improved Graphic Routines for the PDP-15/UT-15," DECUS Spring Symposium, May 1972 (with L. Leiro).

"COBOL Extensions to Handle Data Bases: the DETG Report," to be published in Proceedings of the University of Michigan Engineering Summer Conference on Data Base Management Systems (also available as TN/CS/00030, Computer and Information Science Department, University of Massachusetts).

Other Professional Activities

Lecturer at the University of Michigan Engineering Summer Conference on Data Base Management Systems.

Elected to membership on CODASYL (Conference on Data Systems Languages) Storage Structure Definition Language Task Group. This committee is conducting research into methods for the automatic conversion of data files among dissimilar computer systems.





Professor Conrad A. Wehrin, Professor of Computer Science, Director of the University Computing Center

Professional Activities

Advisor to the Vice Chancellor of University of Singapore.

Administrator of Science and Technology on Computer Facilities and Computer Science Program in Singapore.

Chairman, Tenure and Grievance Committee

Senator, Faculty Senate

University Computer Committee

Chairman, University System Planning Committee

Chairman, Electrical Engineering Department Search Committee

Computer and Information Science Personnel Committee

Conferences Attended

Information Science Association Conference, Denver.

FOCUS 7 Conference, Duluth.



Professor John A. N. Lee, Professor of Computer Science

Publications

Computer Semantics, Van Nostrand Reinhold, Spring 1972 (375 pages).

Computers, Boy Scouts of America, Spring 1972 (84 pages).

"Bibliography on Syntax Directed Translation," Computing Reviews.

"The Formal Description of a PDP-8-like Computer," Communications of the ACM.

"The Formal Definition of BASIC," Computer Journal, Vol. 15, No. 1, February 1972, pp. 36-41.

"The Definition and Validation of the Radix Sorting Technique," Proceedings of the Conference on Proving Assertions About Programs, SIGPLAN Notices, Vol. 7, No. 1, 1972.

Other Professional Activities

Chairman, ACM Standards Committee.

Member and Principal Representative, ANSI Committee X3.

Chairman, ANSC-X3/SPARC/AHCC or Numeric Representatives.

Member, Board of Directors, Computer Environments Comp.



Professor William Kilmer, Professor of Computer Science

### Publications

"A Diffusely Preprogrammed But Sharply Trainable Hippocampal Model," with T. McLardy, International Journal of Neuroscience, Vol. 2, pp. 241-248, 1971.

"On Some Realistic Constraints in Prey-Predator Mathematics,": Journal of Theoretical Biology, Vol. 35, pp. 111-123, 1972.

"Toward an Algal Production Model for a Michigan Hardwater Lake," and "Toward a Dynamic Model of a Temperate Zone Woodland Stream," with K. Cummins, in the 1971 annual report from Michigan State University, College of Engineering, on the Environmental Systems Project, July 1971.

"A Note on Arbib's Treatment of Grossberg's Learning Equations," International Journal of Man-Machine Studies, in press, 1972.

### Research Project

Currently engaged in research on a grant from the National Institute of Health: "Information Processing in the Brain," with Principal Investigator, M. A. Arbib.



7. Special Projects or programs operated by your unit during period covered.

The innovations in all three areas of Computers, Theory, and Cybernetics were developed in the frame of the newly approved Ph.D. program, rather than as separate projects or programs. A number of undergraduates were sponsored through BDIC. A number of faculty engaged in vigorous interdepartmental cooperation.

8. Future plans and needs:

Equipment: Upgrading the Computer Systems Laboratory to a level comparable to that offered by a PDP-10

Faculty: Appointment in all three areas including researchers in operating systems, computer architecture, data structure, complexity theory, artificial intelligence, systems neurophysiology, and cybernetic psychology.

Graduate Student Support: More.

Undergraduate Students: Support for a Computer Concepts Facility.





3.

A. C. Gentile, Acting Chairman

MARSCI - 1971-72

Dayton Carritt  
Lawrence Klapow  
Charles Yentsch

4. Degrees granted June 1972 - 2 MS in MARSCI

11 majors

	<u>Enrollments</u>	<u>Graduate</u>		<u>Undergraduate</u>	
		<u>Fall</u>	<u>Spring</u>	<u>Fall</u>	<u>Spring</u>
MARSCI	201/501	13	12	0	32
	225/525	0	0	87	2
	501	11	10	0	0
	572	0	1	0	0
	700	15	13	0	0
	800	2	2	0	0

Additional information about this program is given in the Marine Station appendix (q.v.).



5. Carritt, D.E. Oceanic Residence Time and  
Geobiochemical Interactions. In Impingement of Man on the Oceans.  
Ed. D. W. Hood.  
John Wiley & Sons (1971)

Williams, W. Gary and D. E. Carritt  
Coulometric Calibration of a thermal conductivity detector for  
oxygen and nitrogen.  
Anal. Chem. 44 #12 2119-20 (1972)



SUMMARY OF THE ACTIVITIES OF  
THE POLYMER RESEARCH INSTITUTE AND  
THE POLYMER SCIENCE AND ENGINEERING PROGRAM

The attached report covers the activities of both the Institute and the Program during the last year. In addition to the detailed information, certain summary information may be helpful. The operating budget for PSE and PRI for the year were, respectively, \$136,680 and \$186,000. Staff reporting to the Graduate School includes one administrator, three faculty and three non-professional.

An organizational chart is given on page 5 and the detailed status of students is indicated on page 1-3. The appendices indicate the research activities. Pages 1-8 list the accomplishments and projections for PSE and PRI.

We would be glad to have your comments on this report.



## INTRODUCTION

The past year has represented a healthy continuation of the activities of the Polymer Research Institute (PRI) and the Polymer Science and Engineering Program (PSE). The numbers of graduate students, post-doctoral fellows and associate scientists have remained at about the same level as in the previous year. The financial support, in the form of government and industrial grants and contracts, has maintained its level and future prospects are encouraging. The move to the new Graduate Research Center (GRC) facilities has been delayed but it is now planned for July, 1972. However, major equipment allocations (summarized later) have been possible through the utilization of GRC building funds.

### GRADUATE STUDENTS AND FELLOWS

The numbers of graduate students in the program during the past few years is summarized in the following table.

#### Fall Graduate Enrollment in Polymer Science and Engineering

	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>	<u>1971</u>
PSE Majors	2	16	29	36	42	43
Others in Residence*	10	7	8	10	15	14
Part-Time PSE Majors	7	12	16	18	18	14

\*Most of the students outside PSE come from the Department of Chemistry and the School of Engineering. Over half this group is under the thesis supervision of PSE faculty.

No expansion in numbers in 1971-72 was carried out, partly because of the uncertainty of financial support and partly because of a slight decline in numbers of students. An effort was made to consider the potential in finding jobs for our graduates in the selection of new students.

The numbers of degrees awarded in PSE are summarized in the next table.

Advanced Degrees Conferred in Polymer Science and Engineering

	<u>1968</u>	<u>1969</u>	<u>1970</u>	<u>1971</u>	<u>1972</u>
M.S. Degrees	5	7	7	9	10*
Ph.D. Degrees	0	1	1	8	6*

\*Includes those expected to receive degrees by June, 1972.

The decrease in number from last year reflects some oscillation in the approach to a steady state. The number last year was somewhat high in that it resulted from the large increase in enrollment in 1967-68 associated with the initiation of the program.

The persons receiving degrees are listed in the next table.

Advanced Degrees Conferred in  
Polymer Science and Engineering

<u>1968</u>	<u>1969</u>	<u>1970</u>	<u>1971</u>	<u>1972</u>
<u>Master's</u>	<u>Master's</u>	<u>Master's</u>	<u>Master's</u>	<u>Master's</u>
A. Torgalkar*	W. Chu	F. Emerson	D. Alberghini	T. Cassidy
S. Go	T. Hashimoto	A. Fritzsche	C. Beatty	G. Fragala*
M. Yang	R. Penwell	S. Fang	T. Bloomstrom	D. Gaylord
W. Robinson	W. Prest	P. Kapadia	C. Chou	W. Kuo
W. Taggert	J. Southern	B. Mentro*	G. Cigal	L. Manrique*
	G. Wilkes	R. Ulrich	N. Demetriadis	A. Misra
	C. Wu	J. Wang	F. Khambatta	C. Ong
			R. McKnight	B. Oster
			D. Yoon	C. Sherwood
				R. Sinha
	<u>Ph.D.</u>	<u>Ph.D.</u>	<u>Ph.D.</u>	<u>Ph.D.</u>
	T. Kajiyama	G. Davis	E. Chang	C. Beatty
			F. Emerson	S. Jabarin
			T. Hashimoto	L. Mango
			L. McKenna	W. Prest
			R. Penwell	J. Sutherland
			J. Southern	M. Yang
			A. Tanaka	
			C. Wu	

\*Master's with thesis.



A list of our students and their research topics is included in table at the end of the report.

The employment situation for our students, while reflecting the quiet economy, is relatively good in comparison with the situation in the other physical sciences and engineering. Students have had to make a greater effort to secure jobs, and some compromises have been necessary in the choice of position, but, in almost all cases, a satisfactory position has been found. The sources of employment of our graduates is summarized as follows:

Employment of PSE Graduates, 1971-1972

<u>Present Location</u>	Number of Graduates	
	<u>M.S.</u>	<u>Ph.D.</u>
Teaching University or Four-Year College	0	3
Industry and Business	7	8
Military Service	1	0
Post-Doctoral Fellowship	0	3
Unknown	1	0
Continuing Education		
At UMass. for Ph.D.	13	0
At Another University	2	0

There are 19 enrolled in our post-doctoral fellow and visiting scientist program. This is the largest number we have had at one time. It includes several visiting professors. The number and quality continues to build steadily as the University program receives greater recognition. We feel that these persons, working along with our graduate students, set the pace for productive research, and assist the staff in providing inspiration and close guidance for our students. These fellows and scientists and their research projects are summarized in the table at the end of the report.

An excellent effort in student recruitment has been made this year, principally through the effort of Professor Vogl. This has led to 18 acceptances by students of fine quality from the 20 offers which were made. These are listed as follows.

Students Admitted into Polymer Science and Engineering Program

<u>Name</u>	<u>Previous School</u>
B. Abbs	Northwestern University
A. Beeber	Muhlenberg College
R. Butterworth	Clark University
R. Campbell	University of Delaware
F. Cummings	University of Notre Dame
L. Demejo	Rochester Institute of Technology
J. Fried	Rensselaer Polytechnic Institute
D. Hoffman	Juniata College
J. Ibar	Ecole Nationale Superieure de Chimie de Paris, France
P. Kincaid	University of Houston
L. Kleiner	University of Delaware
J. Mijovic	University of Belgrade, Yugoslavia
Z. Petrovic	Strathclyde University, U.K.
A. Schuler	University of Massachusetts
J. Starr	Lowell Technological Institute
T. Su	Worcester Polytechnic Institute
B. West	Lowell Technological Institute
M. Wolkowicz	Western New England College

In addition, the following students who are presently enrolled in the Polymer Science and Engineering Program as special students have been admitted as full-time students. They are

<u>Name</u>	<u>Previous School</u>
O. Foyo-Carbonell	Polytechnic Institute of Brooklyn
S. Lien	Taiwan Normal University
N. Morar	University of Waterloo
A. Reisman	University of Massachusetts
G. Sheldrick	University of Massachusetts
S. Thomas	Norwich University

We believe that by fall we shall meet our quota of 20 new students set by the Graduate School. We believe that this increase in numbers of students is justified in spite of the economic situation, in view of the increased need of polymer-trained scientists and engineers arising from the expanding utilization of polymeric materials. This is reflected in our receiving applications from students having their prior training in other areas of materials science. Openings for positions at universities for persons with polymer-related training continue to appear, as a result of the need for education of prospective employees in the polymer-materials industry.

It is our expectation that the number of graduate students will continue to grow to about 75 full-time equivalent students in PSE by 1973.

### CURRICULUM

The basic curriculum outlined at last year's meeting has been instituted. As a result of suggestions made at previous PRI meetings, we have placed increased emphasis on a student "Research Problem" presentation as a Ph.D. requirement. Attempts are being made to evaluate Ph.D. students earlier in their stay by application of a cumulative examination system and by periodic review of status by the PSE faculty.

### FACULTY

No faculty additions have been made during the past year. Our full-time and associated faculty are as follows.

#### Faculty in Polymer Science and Engineering

<u>Department of Chemistry</u>	<u>Polymer Science and Engineering Program</u>	<u>School of Engineering Department of Chemical Engineering</u>
Commonwealth Professor Richard S. Stein and Polymer Research Institute Director	Professor Roger S. Porter Head, PSE	Professor Robert W. Lenz Associate Head, PSE
Associate Professor William J. MacKnight	Professor Frank E. Karasz	Associate Professor Robert L. Laurence
Professor James C. W. Chien	Adjunct Associate Professor Seymour Newman	Professor Stanley Middleman
	Professor Fraser P. Price	
	Professor Otto Vogl	

A faculty addition of an assistant professor has been approved for this year. It is our hope to hire a person who emphasizes theoretical studies.

We feel that this staff expansion is justified in consideration of the increasing numbers of graduate students and visiting scientists. At present,

the average number of persons supervised by a staff member is 6. The need is increased in that the time has come when our staff has become eligible for sabbatical leaves. This year, one (MacKnight) is away and next year three (Lenz, Porter, Stein) will be away for at least part of the year.

#### FACILITIES

We shall welcome the move into the GRC in July, 1972, to help relieve the crowded facilities which we presently occupy. The consolidation of our efforts into a centralized area shall much improve the coherence of our program.

Even with the move into the GRC, space will be short, especially for teaching laboratory courses. The future of the long-range plan for acquiring space in a proposed new engineering building is uncertain because of the declining overall engineering enrollments. Efforts will be made to obtain supplementary teaching space in existing facilities.

The availability of equipment funds in connection with the GRC has made possible the acquisition of several items of major equipment including:

#### Instrument Purchases in the Last Year

Brabender Attachments  
Complex Modulus Apparatus  
Differential Scanning Calorimeter, DSC-2  
Floor Model Instron Tester, Model TT-CM  
Gas Chromatograph  
Gel Permeation Chromatography Automation  
High Resolution Infrared Spectrometer  
Infrared Spectrometer - Laboratory Model  
NMR Apparatus - 40 MC  
Rotational Viscometer  
Shop Lathe  
X-Ray Automation Attachments

#### FINANCING

The staff has continued to be successful in securing research support from contracts and grants which are summarized at the end of the report. The total amount of such support exceeds \$0.5 million. It has been used to purchase supplies and equipment and to pay graduate student research assistantships and post-doctoral fellows. As in the past, PRI continues to solicit support of only non-classified, publishable research which is of fundamental nature and relevant to our educational goal.

The industrial grant program has been successfully continued with the vigorous coordination by Professor Karasz. During the past year this support has amounted to \$74,000 and has come from the following organizations.

Grants to Polymer Science and Engineering Program

Celanese  
E. I. DuPont  
Esso Research and Engineering  
Ford  
Gillette  
B. F. Goodrich  
Hooker  
IBM Corporation  
Kendall  
Monsanto  
Owens-Illinois  
Plastics Institute  
Stauffer  
Tennessee-Eastman  
Union Carbide  
Xerox

As in the past, a fraction (25%) of the overhead on research contracts and grants to staff members of PRI is deposited in a PRI trust fund for operating expenses. This year \$12,500 was made available from this source as compared with approximately \$15,000 last year.

The industrial grants and overhead funds have been used principally to finance student fellowships. Some 17 students were aided from this source. They have also been used in assisting with the provision of secretarial and technical services, the acquisition of limited amounts of secretarial services and supplies, supporting the seminar program and aiding the travel of staff and students to scientific meetings.

As in the past, all permanent professional staff are full-time University employees and are not paid from such "soft" money sources.

SPECIAL ACTIVITIES

The active seminar program this year was coordinated by Professors Porter and Vogl. The outside speakers are summarized in an appendix.

A Summer Institute for Teachers in Materials Science, financed by a grant from NSF, was held June 7 to July 16, 1971. About 24 university Teachers in materials science-related subjects attended this 6 hour/day course taught by most of the PSE staff. A program is appended.

Two Plastics Institute of America Short Courses were offered:

(a) July 21-23, 1971, "Polypropylene Theory and Practice" organized by Professor Karasz,

(b) "Programmed Life of Plastics" organized by Professor Chien.

An International Colloquium on Synthetic Polymer Chemistry, organized by Professor Vogl, was held on July 31, 1971, in which a number of foreign scientists who were in Massachusetts in connection with the IUPAC Symposium in Boston spent an exciting day in Amherst at this meeting of a selected group of scientists. A program is appended.

The U.S.-Japan Seminar on Statistical Mechanics and Spectroscopy of Polymers were held August 2-6, 1971, coordinated by Professor Stein and Professor W. J. Stockmayer of Dartmouth College. This seminar was jointly sponsored by the NSF and the Japan Society for the Promotion of Science. It was attended by 10 leading Japanese scientists and 20 of their American counterparts. A program is appended.

A Special Seminar Program for Distinguished Guests (in the area because of the Boston American Chemical Society Meeting) was organized by Professor Porter and held on April 17, 1971. A program is appended.

#### ADVISORY BOARD

The composition of the PRI Advisory Board remains the same and a membership list is appended. An attempt will be made this year, at the Board's suggestion, to use the Board more effectively. A closed meeting of the Board (attended by R. S. Stein and R. S. Porter) will be held on the evening preceding the open meeting to permit more intensive discussion of subjects of interest to the Board and the PRI-PSE staff. A summary of the proceedings of this evening meeting will be presented and discussed at the open meeting on the following day.

APPENDICES

## STUDENTS AND RESEARCH TOPICS

<u>Student</u>	<u>Supervisor</u>	<u>Research Topic</u>
Y. Akana	Stein	Studies of the Crystallization of Poly-Trans 1,4-Butadiene
D. Alberghini	Laurence	Mixing in Polymerization Reactors
A. Allegrezza (b)	Lenz	Investigations on the Polymerization of $\alpha,\alpha$ -Disubstituted- $\beta$ -Propiolactones
T. Asada (a)	Stein	Optical Studies of Liquid Crystal Mesophase Transitions
K. Baba	Stein	Rheo-Optics of Ethylene-Propylene Rubbers
D. Bailey	Vogl	Reactive Polymers - Polymeric UV Stabilizers
C. Beatty	Karasz	Calorimetric Studies of Polymers
D. Bigg (b)	Middleman	Shear Mixing in Polymers
J. Brown (b)	Laurence	Effect of Reversibility on Molecular Weight Distribution in Step-Growth Polymerizations
R. Calabrese (b)	Middleman	Deposition and Dispersion of Airborne Particulates
C. Chang (b)	Stein	Dynamic X-Ray Diffraction and Birefringence of Crystalline Polymers
E.-P. Chang (a)	Chien	Morphology and Mechanical Properties of Collagen Fibers and Films
H. Chang	Vogl	Regular Copolyamides
A. Chatterjee	Newman	Polymer Nucleation
A. Copas (b)	Middleman	Membrane Separation of Proteins
L. Denton (b)	Laurence	Optimization of Batch Polymerizations



<u>Student</u>	<u>Supervisor</u>	<u>Research Topic</u>
Dewey	Karasz Lenz MacKnight	Synthesis and Properties of Tactic Chloroacrylate Esters
C. Dickinson (a)	Chien	EPR of Haemoglobin
C. Dudgeon (b)	Vogl	High Temperature Polymers from Bis-Ortho Esters
R. Finkelstein (a)	Stein	X-Ray Studies of the Relaxation of Crystalline Orientation
A. Fritzsche	Price	Crystallization Transformation Kinetics Under Shear
J. Funt (b)	Lenz	Solid State Isomerization of Polybutadiene
R. Gabler (a)	Karasz	Homodyne Spectroscopy of Biopolymers
D. Garrett (a)	Chien	Heterogeneous Catalysis for Olefin Polymerization
S. Go	Lenz	Reaction-Induced Crystallization of Polyesters
C. Griffen	Porter	Studies on Liquid Crystals: Thermodynamics, Microscopy and Rheology
W. Herring (b)	Laurence	Insolubilization of Enzymes on Solid Surfaces
S. Hong	Stein	Infrared Dichroism Studies of Polymer Relaxation
J. Illinger	Karasz	Studies of Polyurethanes
J. Kao (a)	MacKnight Stein	Low-Angle X-Ray Scattering by Ionomers
F. Khambatta	Karasz	Dynamical Mechanical Measurements Under Pressure
D. Klempner (a)	Karasz	High Pressure X-Ray Studies
M. Kolodney (b)	Laurence	Industrial Chemistry of Insolubilized Enzymes
R. Krzewki (a)	Porter	Thermodynamics of Polymers and Liquid Crystals
W. Kuo	Lenz	Linear Polybenzyl
Y. Lin	Chien	Autoxidation of Polybutene-1

<u>Student</u>	<u>Supervisor</u>	<u>Research Topic</u>
G. Long (b)	Lenz	Evaluation of Derived Polypropylene Membrane for Water Purification
L. Manrique	Porter	Instrumentation Studies of Morphology of Polyethylene Produced in Simple Shear
A. Misra	Stein	Optical Studies of the Crystallization of Polyethylene Terephthalate
R. Neira	Karasz	Thermodynamic Studies of Polymers
T. Niikuni	Porter	Production and Tensile Properties of Continuous Crystals of Polyethylene
C. Ong	Stein	Light Scattering and Birefringence of Strained Rubbers
J. Ong	Price	Polymer Crystallization from Very Viscous Solvents
B. Oster	Lenz	Role of Monomer Complex Formation in Sulfur Dioxide-Olefin Copolymerization
D. Pauk	Laurence	Dynamics and Optimization of Copolymerizations
G. Pearson (b)	Middleman	Elongational Viscosity Measurements in Solution
J. Pikarsky (b)	Lenz	Preparation and Evaluation of New Membranes for Water Purification
W. Prest	Porter	Influence of Molecular Weight Distribution on Polymer Properties
R. Prud'homme (b)	Stein	Static and Dynamic Light Scattering by Crystalline Polymers
T. Riihimaki	Middleman	Rheology of Protein Solutions
P. Riley (b)	Laurence	Stability of Periodic Flows
D. Roberts (b)	Vogl	Synthesis of Ionomers
S. Schneller (b)	Chien	Nitrogen Fixation
C. Sherwood	Porter	Mechanochemistry and Free Radicals in Amorphous Polymers
A. Sicree (a)	Vogl	Novel Ionomers
D. Stevenson (a)	Vogl	Polymers for Reverse Osmosis Membranes

<u>Student</u>	<u>Supervisor</u>	<u>Research Topic</u>
P. Sukanek (b)	Laurence	Stability of Flows with Frictional Heating
J. Sutherland	Lenz	Stereoregular Polymerization of $\alpha$ -Methylstyrene and Related Monomers
K. Tada (a)	Vogl	Preparation of Optically-Active Polymers from Asymmetric Lactones
T. Tanaka (a)	Vogl	Alternating Copolymers
W. Taggart	MacKnight	Studies of Ionomers
J. Tang	Chien	Hydroperoxidation of Polyolefins
A. Taylor (b)	Middleman	Turbulent Dispersion in Dilute Viscoelastic Fluids
J. Thornton	Price	Computer Modeling of Polymers
J. Tkacik	MacKnight	Electron Microscopic Studies of Polyblends
T. Tung (b)	Laurence	Low Reynolds Number Entrance Flows
R. Ulrich	Price	Isothermal Spherulite and Single Crystal Growth Under Shear Measurements
D. Wang (b)	Chien	Absolute Rate Constants in Autoxidations
J. Wang	Porter	Rheology of Poly-1-Olefin Series Up To Poly-1-Octadecene
N. Weeks	Porter	Special Polyethylene Morphology
L. Westfelt (a)	Lenz	Cationic Copolymerization of Isobutene and Styrene-Type Monomers
R. Whitlock (a)	Porter	Fundamentals in Gel Permeation Chromatography
E. Wilusz	Karasz	Properties of Polyblends
W. Wise (a)	Chien	NMR, X-Ray and EPR Studies of Haemoproteins
M. Yamada (a)	Porter	Polymer Rheology Under High Shear and Pressure
D. Yoon	Stein	Theoretical Studies of Optical Properties of Crystalline Polymers

(a) Post-Doc's and Visiting Scientists

(b) Students in Other Departments

CURRENT RESEARCH FUNDING

JAMES C. W. CHIEN

<u>Title of Research</u>	<u>Agency</u>	<u>Funds Per Year</u>
Catalysts for Olefin Polymerization	American Chemical Society	\$ 6,700
A Physicochemical Study of Collagen Structures	National Institutes of Health	\$14,000
A Mechanistic and Synthetic Study of Nitrogen Fixation by Biological and Model Systems	National Science Foundation	\$ 8,000
Metal and Liquid Bindings in Hemoproteins and Enolase	National Institutes of Health	\$34,000
Autoxidation of Polymers - Measurements of Individual Rate Constants	National Science Foundation	\$17,000

FRANK E. KARASZ

<u>Title of Research</u>	<u>Agency</u>	<u>Funds Per Year</u>
Conformation of Polypeptides	National Science Foundation	\$15,000
Molecular Structure and Thermodynamic Properties	Air Force Office of Scientific Research	\$25,000
Thermodynamic Properties	National Science Foundation	\$23,000
Homodyne Spectroscopy (Co-Principal Investigator)	National Science Foundation	\$18,000
Effect of Pressure on Polymers	Petroleum Research Fund	\$ 7,667

ROBERT L. LAURENCE

<u>Title of Research</u>	<u>Agency</u>	<u>Funds Per Year</u>
Catalytic Reaction Studies Using Immobilized Multi-Enzyme Catalysts	National Science Foundation	\$44,000

ROBERT W. LENZ

<u>Title of Research</u>	<u>Agency</u>	<u>Funds Per Year</u>
Reaction-Induced Crystallization of Polymers	National Science Foundation	\$22,000
Preparation and Evaluation of New Polymers; and New Composite Materials Via Direct Polymerization on or in Catalyst Carrying Substrates	Department of Defense Project Themis	\$25,000
Studies on the Polymerization of Benzyl Chloride	Esso Research and Engineering Company	\$4,500

WILLIAM J. MACKNIGHT

<u>Title of Research</u>	<u>Agency</u>	<u>Funds Per Year</u>
Microphase Separation in Organic Polymers Containing Salt Groups	National Science Foundation	\$26,000
Effect of Stereoregularity on the Glass Transition	Petroleum Research Fund	\$ 8,000

STANLEY MIDDLEMAN

<u>Title of Research</u>	<u>Agency</u>	<u>Funds Per Year</u>
Development of An Artificial Kidney	National Institutes of Health	\$ 5,145

ROGER S. PORTER

<u>Title of Research</u>	<u>Agency</u>	<u>Funds Per Year</u>
The Viscosity of Partially Crystalline Polymers	National Science Foundation	\$34,200
Shear-Induced Changes in Polymer Molecular Weight Distribution	U.S. Army-Durham	\$10,940
Column Methods for Separation of Large Molecules	National Science Foundation	\$20,500

FRASER P. PRICE

<u>Title of Research</u>	<u>Agency</u>	<u>Funds Per Year</u>
Transformation Kinetics in Mesophases	National Institutes of Health	\$15,600
Crystallization of Polymers Under Extreme Conditions	National Science Foundation	\$23,600

OTTO VOGL

<u>Title of Research</u>	<u>Agency</u>	<u>Funds Per Year</u>
New Polymers for Desalination Membranes	U.S. Department of the Interior, Office of Saline Water	\$17,319
Novel Ionomers	Wright-Patterson AFB	\$ 3,500
Reactive Polymers - Polymeric Sun Screens	U.S. Department of the Army	\$12,615

RICHARD S. STEIN

<u>Title of Research</u>	<u>Agency</u>	<u>Funds Per Year</u>
Structure of Synthetic Polymers	Office of Naval Research*	\$25,000
Optical and X-Ray Studies of Polymer Relaxation	National Science Foundation	\$25,100
Light Scattering and Orientation in Mesophases	National Institute of Health	\$15,000
Dynamic Orientation Studies of Crystalline Polymers	Army Research Office (Durham)	\$25,000

\*Terminates October 1972

RECENT SEMINAR SPEAKERS

POLYMER SCIENCE AND ENGINEERING  
UNIVERSITY OF MASSACHUSETTS

Professor T. Kagiya Kyoto University Kyoto, Japan	An Energetic Study on the Catalytic Activity in Ionic Polymerizations	7/13/70
Dr. Paul Rempp Center for Macromolecular Research Strasbourg, France	Kinetics of Anionic Polymerization in the Presence of Small Quantities of Polar Additives	7/17/70
Dr. Colin Price University of Manchester Manchester, England	Characterization and Properties of Some Elastomeric Block Copolymers	7/27/70
Professor S. Onogi Kyoto University Kyoto, Japan	Rheo-Optical Properties of Polyethylene  Rheological Properties of Narrow Distri- bution Polystyrene Melts	7/29/70
Dr. G. Ebert University of Marburg Marburg, Germany	Studies on Hydrophobic and Hydrophilic Interactions in Protein Fibers	7/31/70
Dr. J. J. van Aartsen AKZO Laboratories Arnhem, Holland	Light Scattering as a Tool for the Characterization of Polymeric Materials	9/18/70
Dr. H. Van Oene Ford Motor Company Dearborn, Michigan	Modes of Dispersion in Polymer/Polymer Composites	9/22/70
Dr. W. Glenz Research Triangle Institute Durham, North Carolina	Infrared Spectroscopy of Drawn Polyethylene	9/25/70
Professor C. Bamford University of Liverpool United Kingdom	Non-Ideal Polymerization	9/25/70



Professor K. Ivin University of Belfast Northern Ireland	Thermodynamics and Reversibility of Addition Polymerization	10/7/70
Professor H. K. Hall University of Arizona Tucson, Arizona	Polymers Containing Small Rings	10/7/70
Dr. J. Schaefer Monsanto Company St. Louis, Missouri	High Resolution Pulsed $^{13}\text{C}$ -NMR Study	10/7/70
Dr. A. Barney DuPont DeNemours Wilmington, Delaware	Fluorocarbon Elastomers	10/9/70
Professor S. Palit Calcutta, India	Polymers in Non-Solvents	10/12/70
Dr. A. Kovacs Strasbourg, France	Phenomena in the Solid State of Polymers	10/15/70
Professor R. Lord Massachusetts Institute of Technology Cambridge, Massachusetts	Laser Raman Spectra of Polymers	10/16/70
Dr. R. Combs Tennessee Eastman Company Kingsport, Tennessee	Relationship of Melt Flow, Glass Transition Temperature, and Inherent Viscosity of Thermoplastic Polyester	10/23/70
Professor Eric Baer Case Western Reserve Univ. Cleveland, Ohio	Mechanical Behavior of Polymers at Cryogenic Temperatures Under High Pressures	10/30/70
Professor E. Fischer University of Mainz Germany	Small Angle X-Ray Scattering Studies on Phase Transitions in Polymeric and Oligomeric Systems	11/4/70
Dr. W. F. Fowler Eastman Kodak Company Rochester, New York	Vinyl Polymerization with Emphasis on Reactivity Ratio Determinations	11/6/70
Dr. W. Gaylord Gaylord Research Laboratory Newark, New Jersey	Alternating Copolymerization	11/13/70
Dr. A. Langer Esso Research Laboratory	Chelated Organolithium Catalysts	11/20/70

Professor I. N. Einhorn University of Utah Salt Lake City, Utah	Chemistry of Fire Retardancy in Polymers	11/24/70
Dr. H. D. Keith Bell Laboratories Murray Hill, New Jersey	Single Crystals of Polypeptides and Polynucleotides	12/2/70
Dr. R. R. Hindersinn Hooker Chemical Company Niagara Falls, New York	Fire Retardant Technology and Mechanism of Fire Retardancy	12/4/70
Dr. C. G. Bragaw E. I. DuPont Wilmington, Delaware	Theory of Rubber Toughening of Brittle Polymers	1/15/71
Dr. J. F. Sieckhaus Olin Research Center	Boron Polymers	1/29/71
Dr. D. Massa University of California San Diego, California	Computerized Measurements of Dynamic Viscoelastic Properties of Dilute Polystyrene Solutions	2/10/71
Professor R. H. Marchessault University of Montreal Montreal, Canada	Linear and Helical Conformations	2/19/71
Professor M. Szwarc Syracuse University Syracuse, New York	Electron Transfer Processes	2/24/71
Dr. M. B. Price Celanese Research Laboratory Summit, New Jersey	Plastics Ecology	3/12/71
Professor G. Smets University of Louvain Belgium	Photochromism in Polymeric Systems	3/22/71
Dr. R. E. Wetton University of Loughborough United Kingdom	Molecular Motion in Substituted Polystyrene	3/25/71
Professor H. Brumberger Syracuse University Syracuse, New York	Studies on Conformation and Morphology	4/5/71

Dr. Graham Williams University of Wales United Kingdom	Dielectric Properties of Polymers	4/7/71
Dr. F. H. Winslow Bell Laboratories Murray Hill, New Jersey	Polymer Structure and Pyrolytic Behavior	4/16/71
Dr. C. Sroog E. I. DuPont Wilmington, Delaware	Polyimides	4/23/71
Dr. G. McGraw Tennessee Eastman Kingsport, Tennessee	Polarized Fluorescence Measurements	4/26/71
Professor G. V. Vinogradov Institute of Petrochemical Synthesis Moscow, U.S.S.R.	Polymer Rheology	4/27/71
Professor C. S. Marvel University of Arizona Tucson, Arizona	High Temperature Polymers	5/6/71
Professor A. Peterlin Camille Dreyfus Institute Durham, North Carolina	Plastics Deformation of Crystalline Polymers	5/7/71
Dr. S. Chen Eastman Kodak Company Rochester, New York	Multiple Transitions in Some Unusual Polymers Having High Glass Transition Temperatures	5/11/71
Dr. R. Moore Eastman Kodak Company Rochester, New York	The Influence of H <sub>2</sub> O Content on the Mechanical and Rheo-Optical Properties of PMMA	5/12/71
Dr. J. McGrath Union Carbide Bound Brook, New Jersey	Recent Advances in Organic-Silicone Block Copolymers	5/14/71
Mr. V. Peck Tennessee Eastman Company Kingsport, Tennessee	Electron Microscopy for the Study of Polymer Structure	6/21/71

Dr. Jean-Claude Galin Center for Macromolecular Research Strasbourg, France	Recent Investigations on Reactions of Polymers	7/22/71
Professor A. Keller University of Bristol Bristol, England	Recent Studies of Polymer Morphology	7/23/71
Professor H. A. Plate Moscow State University Moscow, U.S.S.R.	Thermo-elastics of Polymer Liquids	8/18/71
Dr. O. F. Solomon Polytechnical Institute Bucharest, Romania	Some Aspects of Polymerization	9/1-3/71
Professor C. G. Overberger University of Michigan Ann Arbor, Michigan	Conformation of Asymmetric Polyamides in Solution	9/24/71
Dr. W. Brasis Dow Chemical Company Midland, Michigan	Molding Polymerization Processes	9/30/71
Professor Herman Mark Polytechnic Institute of Brooklyn Brooklyn, New York	Trends in Polymer Development	10/8/71
Dr. A. Guyot Institute for Research on Catalysis Lyon, France	Kinetic Study of the Phillips Catalyst and the Nature of the Active Site	10/13/71
Dr. W. F. Watson Rubber and Plastics Association Great Britain	Industrial Research on Rubber and Plastics Material	10/26/71
Dr. Dale Gregory Tennessee Eastman Kingsport, Tennessee	The Viscosity of Poly(ethylene Terephthalate) Melts	11/4/71
Professor A. Metzner University of Delaware Newark, Delaware	Extensional Flows	11/5/71

Dr. A. Ziabicki Polish Academy of Sciences Institute for Basic Problems of Technology Warsaw, Poland	The Theory of Network Systems  Kinetic Theory of Oriented Crystallization	11/8/71  11/9/71
Professor J. L. Ericksen Johns Hopkins University Baltimore, Maryland	On the Treatment of Constraints in Continuum Mechanics	11/12/71
Dr. H. Kilson E. I. duPont deNemours Wilmington, Delaware	Design of Polycondensation Processes	11/18/71
Professor D. Uhlmann Massachusetts Institute of Technology Cambridge, Massachusetts	Viscous Flow in Glass-Forming Polymers	12/10/71
Dr. Elaine Petrie Eastman Kodak Company Rochester, New York	Relaxation Phenomena Associated with Non-Equilibrium Nature of Organic Glass	12/13/71
Dr. A. Silberberg The Weizmann Institute of Science Israel	Macromolecules at Interfaces	1/18/72
Professor M. Litt Case Western Reserve Univ. Cleveland, Ohio	Polymeric Semi-Conductors	2/11/72
Professor R. Tanner Brown University Providence, Rhode Island	Non-Isometric Flows	2/18/72
Dr. D. Petke Tennessee Eastman Company Kingsport, Tennessee	Surface Energy and Surface Tension of Polymer Melts	2/25/72
Professor G. Wilkes Princeton University Princeton, New Jersey	Light Scattering Study on Bio- and Bio-Related Polymer Films	3/1/72
Professor A. Vrij Massachusetts Institute of Technology Cambridge, Massachusetts	Light Scattering Near Consolute Point	3/3/72

Professor R. D. Gilbert North Carolina State Univ. Raleigh, North Carolina	Solvent Effects in the Synthesis of Block Copolymers Using Bifunctional Cellulose Oligomers	3/6/72
Professor A. T. DiBenedetto University of Connecticut Storrs, Connecticut	Technology Transfer to Developing Countries - A Case Study on Roofing Material	3/10/72
Professor P. J. Flory Stanford University Palo Alto, California	Evolution of the Macromolecular Motif	3/10/72
Dr. C. Denson General Electric Company Louisville, Kentucky	Extensional Flows of Bulk Polymers	3/13/72
Dr. E. Helfand Bell Laboratories Murray Hill, New Jersey	Theory of Polymer/Polymer and Other Interfaces	3/13/72
D. P. Alberghini Graduate Student Polymer Science and Engineering	Polymer Mechanochemistry	3/16/72
A. K. Fritzsche Graduate Student Polymer Science and Engineering	Crystallization Transformation Kinetics Under Shear	3/17/72
Dr. G. Brady Bell Laboratories Murray Hill, New Jersey	Studies on Dissolved Long-Chain Molecules	3/24/72
Dr. F. L. Hamb Eastman Kodak Rochester, New York	Copolyesters of Glycols and Bis- phenols: A New Preparation Process	3/27/72
Professor A. Eisenberg McGill University Montreal, Quebec, Canada	Mechanical Properties of Ion-Containing Polymers	4/6/72
Professor J. Lando Case Western Reserve Univ. Cleveland, Ohio	The Effect of Packing and Chemical Defects on the Crystalline Structure of Fluorine-Containing Polymers	4/7/72
Professor J. L. Kardos Washington University St. Louis, Missouri	Properties of Crystalline Polymers Employing Composite Theory	4/14/72

Dr. C. R. Desper U.S. Army Materials Research Center Watertown, Massachusetts	Ultrahigh Orientation in Crystalline Polymers	4/24/72
Dr. A. E. Tonelli Bell Laboratories Murray Hill, New Jersey	Flexibility and Physical Properties: Polyphenylene Oxide, Polycarbonate and Polysulfone	4/25/72
Dr. I. C. Sanchez Xerox Corporation Rochester, New York	Theoretical Studies in Polymer Physics	4/27/72
Dr. J. Tan Eastman Kodak Rochester, New York	Conformations and Solution Character- istics of Copoly(Ethyl Acrylate- Acrylic Acid)	4/27/72
Dr. H. P. Schreiber McGill University Montreal, Quebec, Canada	Temperature Scanning Studies of Polyolefin Solutions	4/28/72
Dr. S. D. Stellman Princeton University Princeton, New Jersey	Computer Simulation of Polymer Conformation	5/2/72
R. Ulrich Graduate Student Polymer Science and Engineering	Isothermal Spherulite and Single Crystal Growth Under Shear Conditions	5/5/72
Professor F. Rodriguez Cornell University Ithaca, New York	Lecture Demonstrations of Polymer Structure and Transitions	5/12/72
G. Dever Graduate Student Polymer Science and Engineering	Structure and Properties of Stereo- regular Poly(Alpha-Chloroacrylates)	5/16/72
Dr. D. Bly E. I. DuPont Wilmington, Delaware	Recent Advances in Theory and Application of Gel Permeation Chromatography in Polymer Analysis	5/19/72
W. Kuo Graduate Student Polymer Science and Engineering	Linear Polybenzyls	5/23/72

SUMMER INSTITUTE IN POLYMER SCIENCE

JUNE 7 - JULY 16, 1971

<u>Date</u>	<u>Lecturer</u>	<u>Subject</u>
June 7, 8, 9	Vogl	Organic Polymerizations, to include opening remarks by administration
June 10, 11, 14	Chien	Biopolymers and spectroscopy of polymers - NMR, EPR, etc.
June 15, 16, 17	Price	All polymer characterization exclusive of spectroscopy
June 18, 21, 22	Karasz	Physical Chemistry of High Polymers
June 23, 24, 25	MacKnight	Viscoelasticity - Molecular
June 28, 29, 30	Stein	Physical Chemistry of High Polymers
July 1, 2, 5	Middleman	General rheology and continuum theory
July 6, 7, 8	Lenz	Polymerization Kinetics
July 9, 12, 13	Laurence	Reactor Design and Diffusion
July 14, 15, 16	Baer	(Case Western Reserve University)
	Porter	Closing Remarks



INTERNATIONAL PROGRAM ON SYNTHETIC POLYMER CHEMISTRY

INTRODUCTORY REMARKS

O. Vogl, Colloquium Chairman, Amherst

POLYMER SCIENCE AT THE UNIVERSITY OF MASSACHUSETTS

M. Appley, Amherst

SYNTHETIC POLYMER CHEMISTRY IN TWO DECADES

C. G. Overberger, Ann Arbor

NEW PHENOMENA IN RADICAL POLYMERIZATION

Chairman: G. Smets, Louvain

Speaker: V. Zubov, Moscow

Panel Discussion

Discussion Leader: C. H. Bamford, Liverpool

Panelists: J. Furukawa, Kyoto; N. G. Gaylord, Newark;  
G. Manecke, Berlin; N. Plate, Moscow; B. Ranby,  
Stockholm; M. Szwarc, Syracuse; F. Tudos, Budapest

NEW CONCEPTS IN CATIONIC POLYMERIZATION

Chairman: T. Tsuruta, Tokyo

Speaker: F. Williams, Knoxville

Panel Discussion

Discussion Leader: V. Stannett, Raleigh

Panelists: K. Hayashi, Sapporo; J. P. Kennedy, Akron; D. Pepper,  
Dublin; P. H. Plesch, Keele; T. Saegusa, Kyoto;  
P. Schleyer, Princeton; P. Sigwalt, Paris

CONCLUDING REMARKS

M. Szwarc, Syracuse

PROGRAM FOR  
U.S.-JAPAN SEMINAR ON  
STATISTICAL MECHANICS AND SPECTROSCOPY OF POLYMERS

MONDAY, AUGUST 2, 1971

MORNING PROGRAM

S. Onogi, Chairman  
F. Bovey, Vice-Chairman

- R. G. Snyder                      Conformation in Amorphous Polyethylene from Vibrational Spectra of the Isotopically Substituted Polymer
- H. Tadokoro                      Structural Studies of Several Crystalline Polymers
- S. Krimm                           Spectroscopic Studies of Chain Folding in Polyethylene

EVENING PROGRAM

K. Nagai, Chairman  
J. Koenig, Vice-Chairman

- P. Flory                            Optical Anisotropies of Chain Molecules
- W. Stockmayer                    Shapes of Flexible Chain Molecules
- N. Saito                            Stability of Tertiary Structures in Proteins

TUESDAY, AUGUST 3, 1971

MORNING PROGRAM

N. Saito, Chairman  
P. J. Flory, Vice Chairman

- M. Fixman                        Stiffness in Polymer Statistics
- A. S. Scheraga                    Energies of Protein Chains
- K. Matyjaszewski                Chain Conformations of Polypeptide Copolymers

AFTERNOON PROGRAM

- A. Nakajima, Chairman  
H. Scheraga, Vice-Chairman
- F. A. Bovey                      The Study of the Solution Conformations of Polypeptides  
and Oligopeptides by High-Resolution NMR Spectroscopy
- H. Fujita                        Dimensional Changes of Polypeptide Molecules in the  
Helix-Coil Transition Region
- A. Wada                         Dielectric Studies of the Alpha-Helix in the Transition  
State to the Random Coil

WEDNESDAY, AUGUST 4, 1971

MORNING PROGRAM

- H. Kawai, Chairman  
W. Stockmayer, Vice Chairman
- J. L. Koenig                    Raman Spectra of Synthetic Polymers
- W. Petticolas                  Raman Spectroscopy of Biological and Synthetic Polymers
- R. Pecora                      Light Scattering from Chemically-Reacting Systems

EVENING PROGRAM

- M. Kurata, Chairman  
M. Fixman, Vice-Chairman
- K. Nagai                        Light Scattering by an Isotropic System Composed of  
Anisotropic Units with Application to the Porod-  
Kratky Chain
- W. Prins                        Light Scattering Studies of Thermally Reversible  
Gelation in Aqueous Polymer Solutions
- M. Huggins                      A New Treatment of Polymer Solution Thermodynamics

THURSDAY, AUGUST 5, 1971

MORNING PROGRAM

- H. Tadokoro, Chairman  
A. Peterlin, Vice-Chairman
- L. Mandelkern                  Crystallization of Hydrogenated and Deuterated  
Polyethylene and Their Mixtures
- A. Peterlin                      E.S.R. Investigations of Chain Fracture and Radical  
Formation in Strained Crystalline Polymers

EVENING PROGRAM

H. Fujita, Chairman

M. L. Huggins, Vice-Chairman

S. S. Sternstein      Minimum Free Energy Deformations and the Micromechanics  
of Elastomer Networks

H. Kawai              Domain Structures of Multiblock Copolymers Cast from  
Solution

M. Kurata             A Theory of the Glass Transition Phenomena

FRIDAY, AUGUST 6, 1971

MORNING PROGRAM

A. Wada, Chairman

W. Prins, Vice-Chairman

R. Jernigan            Relaxation of Inter-Segmental Distances in n-Alkane Chain

J. D. Ferry            Viscoelastic Properties of Dilute Solutions Over An  
Extended Frequency Range

K. Osaki              Infinite-Dilution Viscoelastic Properties of Linear  
and Star Polybutadiene and Comparison with Bead-Spring  
Theory Using Exact Eigenfunctions

AFTERNOON PROGRAM

T. Asada, Chairman

J. D. Ferry, Vice-Chairman

S. Onogi and T. Asada   Rheo-Optical Studies of High Polymers. XX. The  
Deformation Process and Crystalline Transitions in  
Polybutene-I

T. Asada and S. Onogi   Time and Temperature Dependencies of Crystalline and  
Amorphous Orientation in Low Density Polyethylene

R. Stein, A. Tanaka    Dynamic X-Ray Spectroscopy of Crystalline Orientation  
and T. Oda

PROGRAM FOR DISTINGUISHED VISITING GUESTS  
MONDAY, APRIL 17, 1972  
ROOM 157, GOESSMANN LABORATORY

Invited Informal Fifteen-Minute Presentations  
by Distinguished Foreign Guests

Discussion Leader Professor Roger S. Porter

- Professor R. N. Haward, The University of Birmingham, England  
"The Fracture of Glassy Polymers as a Deformation Process"
- Professor R. Kitamaru, Kyoto University, Japan  
"Special Polyethylene Morphology"

Discussion Leader Professor Robert W. Lenz

- Professor G. Wegner, The University of Mainz, Germany  
"Solid-State Polymerization of Oxacyclics and Acetylene"
- Professor I. Vlagiu, Institute of Physical Chemistry, Romania  
"Aspects of Synthesis of Poly(Amide Ester Acrylic) Fibers for  
Special Properties Such as Stability to Heat and Ionizing Radiation"
- Professor J. Stejny, University of Bristol, England  
"Polymerization and Crystallization of Poly(Tetrahydrofuran)  
and Poly-1,4 Epoxy Cyclohexane"

Discussion Leader Professor Otto Vogl

- Professor G. M. Burnett, University of Aberdeen, Scotland  
"Kinetics of Free Radical Polymerizations in Solution"
- Professor Y. Yamashita, Nagoya University, Japan  
"Modern Aspects of Radical Copolymerization"
- Professor H. Hopff, Swiss Federal Institute of Technology, Switzerland  
"General Studies in the Field of Monomers and Polymers"
- Professor P. Pinazzi, Laboratory of Organic Polymer Chemistry, Le Mans, France  
"Studies on Small Ring Compounds"

1:30 PM

Short Presentations on Areas of Individual Research by the  
University Faculty in Polymer Science and Engineering

3:00 PM

Close of Meeting

PRI ADVISORY BOARD

Dr. S. L. Aggarwal  
General Tire and Rubber Company  
Akron, Ohio

Dr. N. E. Aubrey  
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Hoboken, New Jersey

Professor C. Overberger  
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Army Materials Center  
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Professor S. Siggia  
Department of Chemistry  
University of Massachusetts  
Amherst, Massachusetts

Professor M. Szwarc  
New York State College of Forestry  
Syracuse, New York

Professor Garth Wilkes  
Department of Chemical Engineering  
Princeton University  
Princeton, New Jersey

Dr. W. C. Wooten  
Tennessee Eastman Company  
Kingsport, Tennessee

UNIVERSITY COMPUTING CENTER  
ANNUAL REPORT  
Fiscal 1972

1. Appropriations

	<u>Fiscal 1970</u>	<u>Fiscal 1971</u>	<u>Fiscal 1972</u>
Accounts 01-02 (Salaries & Wages)			
State Funds	\$ 64,500	\$ 99,132	\$ 150,200
Trust Funds	240,500	231,364	269,800
TOTAL	<u>\$305,000</u>	<u>\$ 330,496</u>	<u>420,000</u>
Accounts 03-16 (all other)			
State Funds	\$ 71,300	\$ 199,986	\$ 206,300
Trust Funds	575,800	639,454	568,100
Institutional Allow- ance Account	5,200	15,374	
TOTAL	<u>\$652,300</u>	<u>\$ 854,814</u>	<u>\$ 774,400</u>
TOTAL ALL ACCOUNTS	<u>\$957,300</u>	<u>\$1,185,310</u>	<u>\$1,194,400</u>

2. Personnel by Job Title

	<u>Sept. 1969</u>	<u>Sept. 1970</u>	<u>Sept. 1971</u>
Professor	1	1	1
Staff Associate	7	5	7
Staff Assistant	4	9	8
Sr. Elec. Specialist, Gr. 17	-	1	2
D. P. Superv. Optr., Gr. 15	1	1	1
Sr. Programmer, Gr. 15	1	1	1
Chief Stat. Mach. Optr., Gr. 13	1	3	3
Jr. Programmer, Gr. 12	2	2	2
Head Clerk, Gr. 11	-	1	1
Elec. Computer Optr., Gr. 10	2	1	1
Principle Clerk, Gr. 9	1	-	-
Sr. Stat. Mach. Optr., Gr. 8	1	1	1
Sr. Stat. Clerk, Gr. 8	-	1	1
Sr. Clerk Typist, Gr. 6	-	2	2
Stat. Mach. Optr., Gr. 5	2	2	2
Jr. Clerk Stenog., Gr. 4	3	1	2
TOTAL	<u>26</u>	<u>32</u>	<u>35</u>





3. Personnel Functional Classification

	<u>Sept., 1969</u>	<u>Sept., 1970</u>	<u>Sept., 1971</u>
Administrative	3	3	4
Professional Staff	8	11	12
Non-Professional Staff	<u>15</u>	<u>18</u>	<u>19</u>
TOTAL	26	32	35



Computer Usage

	<u>Fiscal 1970</u>	<u>Fiscal 1971</u>	<u>Fiscal 1972</u>
a. Total Number of Accounts	1,033	975	1,382
By Type: Faculty	485	497	531
Student	289	234	507
Course	185	156	219
Administrative	26	21	47
Other	78	67	78
b. Departments Served	60	63	97
Student Users per Semester	3,700	3,925	4,660
Faculty Users	610	607	725
c. Jobs Run Under Batch	81,300	75,950	74,800
Jobs Run Under Time-Sharing	834,000	1,495,900	2,117,300
Time-Sharing Sign-ons	159,400	147,000	167,800



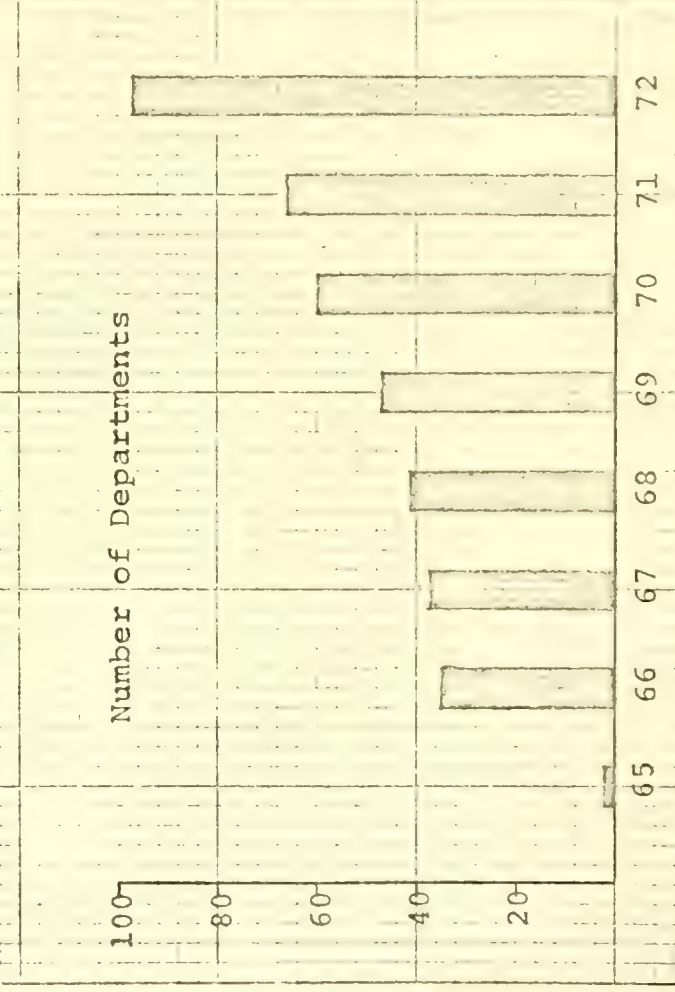
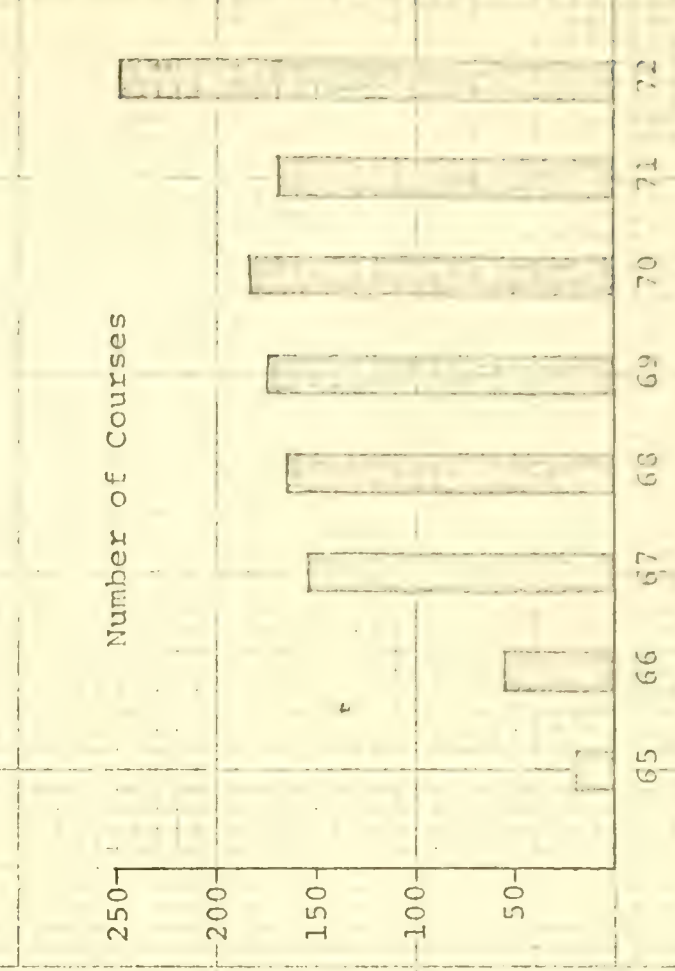
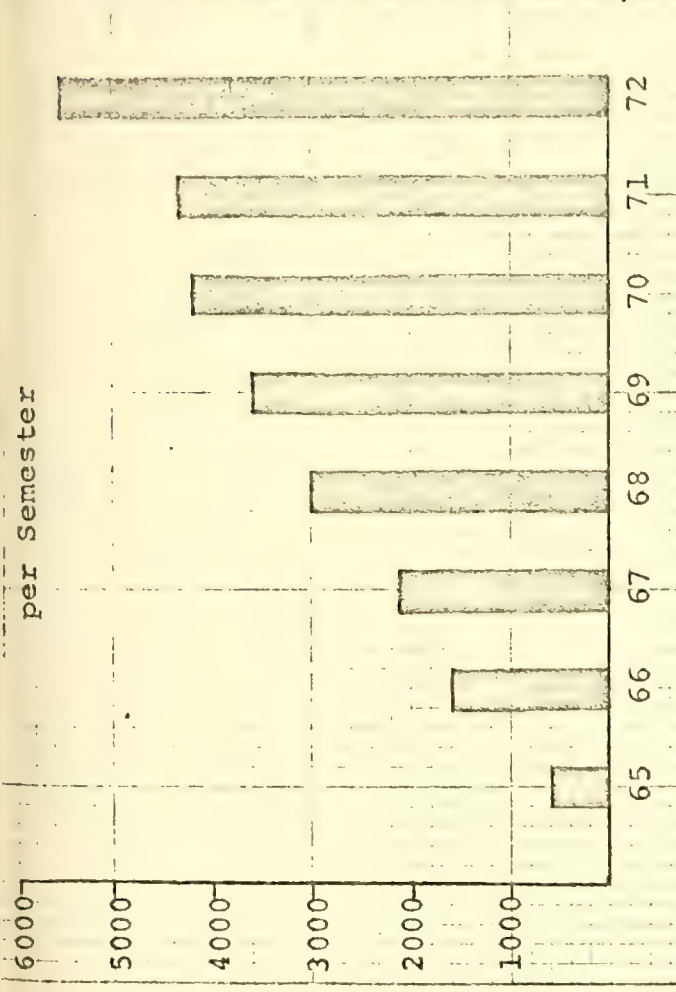
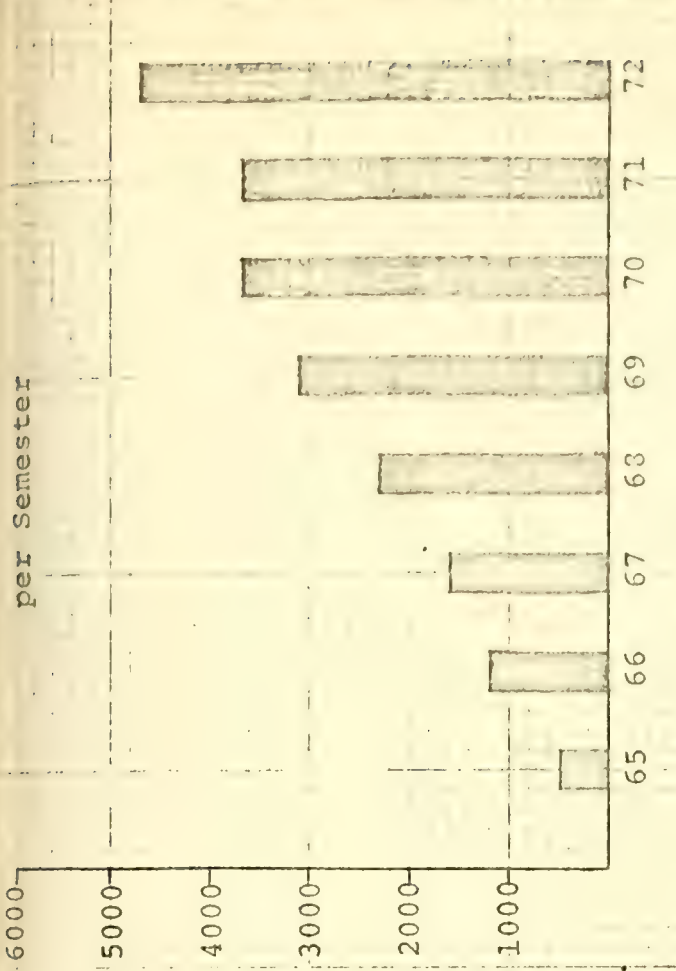


TABLE IV. EIGHT YEAR RECORD OF USE OF UNIVERSITY COMPUTING CENTER

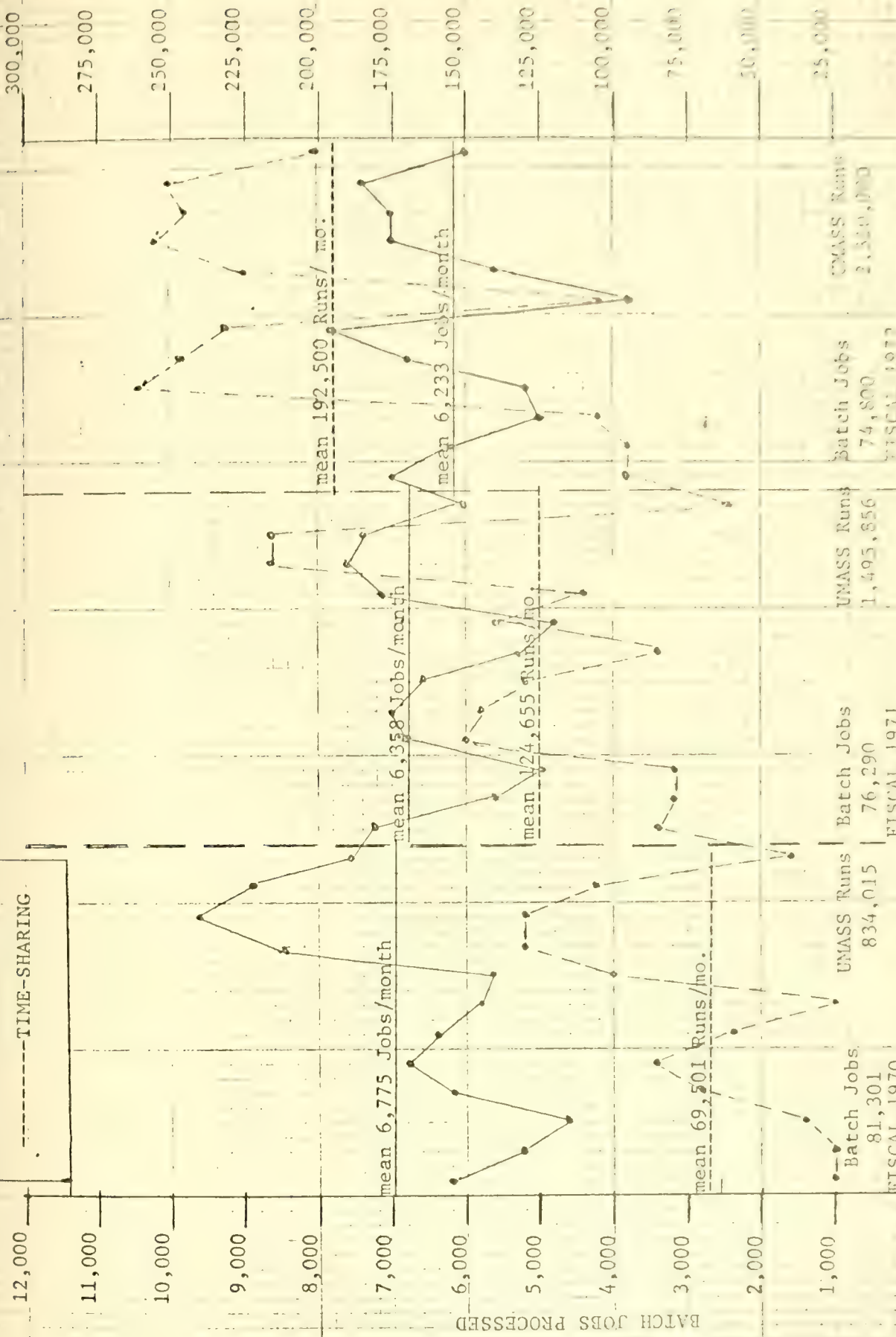


TIME-SHARING RUNS PROCESSED

1969 - 1972

— BATCH

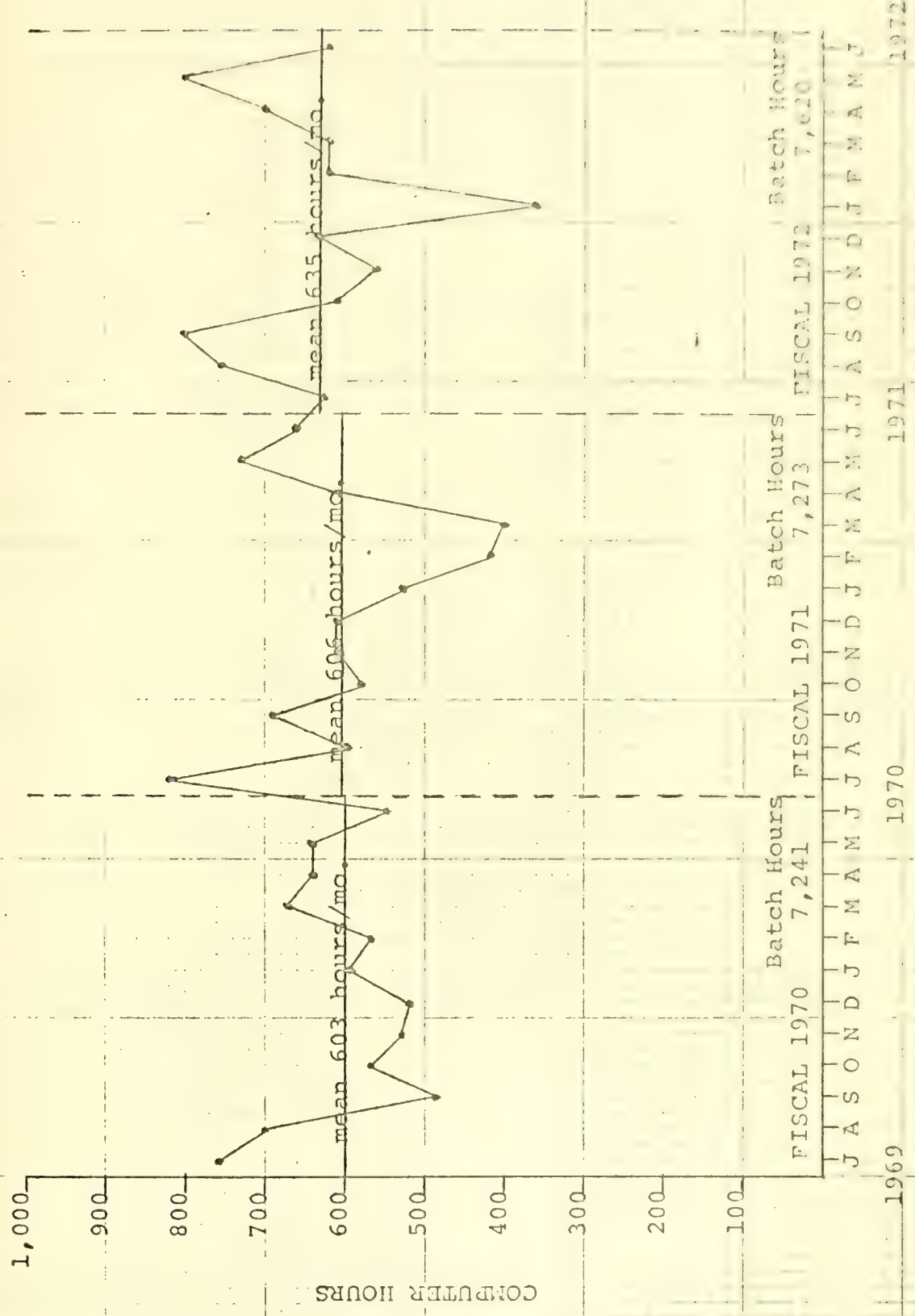
- - - TIME-SHARING







TOTAL COMPUTER HOURS  
FOR BATCH PROCESSING  
FISCAL 1970-1972





ALAN BLITZBLAU

Professional Activities

Final debugging was completed on the UMASS-3800 hardware relocation system, and on the UMASS peripheral tester

Addition of two new FORTRAN library subroutines to the system (ALFORD and LOCSEQ).

Assisted in the preparation of the initial version of the UMASS System services manual.

Final stages of debugging backgrounding facility (on-line reading, printing, punching and tape commands) for UMASS .

Back-up UMASS maintenance person for the Maintenance Supervisor. Has direct responsibility for the FORTRAN Sub system.



JAMES BURRILL

Professional Activities

Special Projects:

Developed a new communications system to increase the number of different terminals and character rates that UMASS can accept.

APL system was completely recoded to increase its speed.

Special consultant to Control Data Corporation.

Conference Attended:

Represented the University of Massachusetts at the annual APL Conference. Participated in discussion with Control Data at Minneapolis.



ROBERT CHEW

Professional Activities Report

Conferences Attended:

AFIPS Spring Joint Computer Conference, Atlantic City, New Jersey,  
May 16 - 18, 1972.

Courses Taken:

I.E. 761 "Data Processing Systems Analysis and Design".  
B.A. 862 "Management Information Problems".





KATHLEEN COWLES

Professional Activities Report

Conferences or Meetings Attended:

Mini-Marathon - University of Massachusetts, Boston  
5-College Computer Conference - University of Massachusetts, Amherst  
NERO - Hartford, Connecticut

Papers or Lectures Presented:

Walpole and Norfolk Programs  
High School - 5 day demonstration on terminal.

Paper Published:

"Bits and Bytes" - monthly University of Massachusetts  
"Context Analysis" - publication, Journal of Counseling Psychology,  
March, 1972. Co-authored with Dr. Jules Zimmer.

Membership on Committees:

Faculty Club  
Mini-Marathon - Univ. of Mass./Boston (Chairman)  
5-College Computer Conference - Univ. of Mass./Amherst (Chairman)



ROBERT GONTER

Professional Activities Report

Conferences Attended:

7th International Congress on Acoustics, Budapest, August 18 - 21, 1971  
International Federation for Information Processing 1971, Ljubljana,  
August 23 - 27, 1971  
Conference on Statistical Methods for the Evaluation of Computer System  
Performance, Brown University, November 22 - 23, 1971  
University of Massachusetts, Boston Computer Mini-Marathon, October 28,  
1971.  
Five-College Computer Conference, Amherst, April 11 - 12, 1972

Courses, Papers and Lectures Presented:

Introduction to UMASS FORTRAN, July 1971.  
Introduction to Data Processing, History Department, April 1972.  
"Description of UMASS Program Library", a lecture at University  
of Massachusetts/Boston Computer Mini-Marathon, October 28, 1971.  
"University Computing Center", a lecture at Five-College Computer  
Conference, Amherst, April 12, 1972.  
"Spectral Analysis of Intensity Fluctuations of Aircraft Flyover  
Noise:", paper presented at Seminar in Quantative Economics,  
Department of Economics, Univ. of Mass., April 11, 1972.

Papers Published:

"Intensity Fluctuations of Aircraft Flyover Noise". A report to  
the Research Council, Univ. of Massachusetts, August 13, 1971,  
for research conducted under Faculty Research Grant No. S13-71(1).

Membership on Committees:

Five-College Computer Assisted Instruction Committee  
User Services Sub-Committee



GERALD HRIPAK

Professional Activities

Courses Taken:

Attended Control Data Corporation 3600 school for 4 weeks in  
April, 1972 in Waltham, Massachusetts



CHARLES LYMAN

Professional Activities Report

Conferences Attended:

FOCUS 6 - Portland, Oregon, October, 1971

FOCUS 7 - Duluth, Minnesota, May, 1972

Papers Presented:

"University of Massachusetts Computer Center Accounting System",  
FOCUS 6 - Portland, Oregon, October, 1971.

Papers Published:

"Chairman's Guide to Conference Planning".

"University of Massachusetts, Batch System Operator's Guide."





DAVE MUSANTE

Professional Activities

Committee Membership:

Management Collective Bargining Team for Administrative Section on Campus.

Special Projects:

The computerizing of the 01-02 payroll and supplies inventory.

Studying our present method of keeping statistics, investigating alternative methods of computer I/O and documenting administrative standard operating procedures.

Proposing a computer registration fee system.



MELANIE OLINSKI

Professional Activities Report

Conferences Attended:

University of Massachusetts Computer Conference Lectures.  
Cybernetics seminars sponsored by the Computer Science Dept.

Papers Published:

Published a paper with Dr. Kilmer and Turner McLardy on a  
model of the hippocampus.  
Bits & Bytes - monthly University of Massachusetts

Membership on Committees:

Bits and Bytes editor

Courses Taken:

Computer Science course in Simulations.



EVERARD OSBOURNE

Professional Activities Report

Membership on Committees:

CCEBS - Responsible for evaluating students seeking readmission to CCEBS. Chairman

Special Projects:

Handling all daily audit procedures and the processing of 3000, 4000, and 5000 monthly billings.

Annual inventory on office equipment, furniture, data processing equipment, including all computer hardware.



KATHY PARANYA

Professional Activities Report

Conferences Attended:

Computer Conference, University of Massachusetts (Mini-marathon)

Papers Presented:

"Computerization of Behavioral Objectives". Evaluation Service Center Conference in Chicopee, Massachusetts.

Courses Taken:

Audited two courses - 1. Simulation Techniques - Sue Stidham  
2. Computers and Society - Caxton Foster





HUGH SCHULZ

Professional Activities Report

Membership on Committees:

University Computing Center Operations Committee

Special Projects:

Works closely with Control Data Corporation in maintaining the CDC Computers.



JUDITH SMITH

Professional Activities

Committee Membership:

ACM

Meeting Attended:

APL Meeting - April 22, 1971

Special Projects:

To improve system and machine up-time and reliability as well as general center operations.

To evaluate our present situation and future needs for computing.

Working with sales and systems people from the major computer companies and trips to Boston, Phoenix, Toronto and Minneapolis.



WALTER SMOLENSKI

Professional Activities Report

Conferences Attended:

University of Massachusetts/Boston, Northeastern  
Mini-Marathon, University of Massachusetts/Amherst

Lectures Given:

School of Business Administration - University of Massachusetts/  
Amherst (Fortran File Input/Output, Univ. of Mass.)  
Norfolk State Prison - UMASS Time-Sharing  
Smith College - UMASS Time-Sharing

Courses Taken:

Management Marketing  
Psychology



PETER THOMAS

Professional Activities Report

Conferences or Meetings Attended:

ACM National Convention - August 4-6, 1971, Chicago, Illinois  
University of Massachusetts/Boston Mini-Marathon  
University of Massachusetts/Amherst Mini-Marathon, April 12, 1972

Lectures Given:

UMass/Boston Conference - "A General Overview of the UMass Time-  
Sharing System".  
UMass/Amherst Conference - "Advanced Features on UMass Time-Sharing".





CLARK WIEDMANN

Professional Activities Report

Courses Taught:

Section 6 Accounting 110 School of Business Administration

Title: Computing for Business



CONRAD A. WOGGIN

Professional Activities Report

Membership on Committees:

Tenure & Grievance Committee - Chairman  
Faculty Senate - Senator  
University Computer Committee  
University System Planning Committee - Chairman  
Electrical Engineering Dept. Search Committee - Chairman  
COINS Personnel Committee

Special Projects:

Advisor to the Vice Chancellor of University of Singapore  
Administrator of Science & Technology on Computer Facilities  
and Computer Science Program in Singapore

Conferences Attended:

Information Science Associate Conference - Denver, Colorado  
FOCUS 7 Conference - Duluth, Minnesota



6. During the fiscal year 1972 the computing center was moved to its new quarters in the Graduate Research Center and enlarged the access to the computers through its time-sharing system.

The computers were moved from the Engineering Laboratory Building to the Graduate Research Center in January, 1972 during the intra-term recess. The computers were totally down for eight days and reestablishment of complete service took two weeks.

The time-sharing system was expanded from sixty-four to eighty dial-in ports. Five circuits to the Boston campus were also established.

7. The computing center staff participated or assisted in many projects which involved use of the computers. These projects were carried out in many departments of the university.
8. Future Plans. The University has undertaken a study for the long range development of computer service for all campuses of the University system. Conrad A. Wogrin has been put in charge of the planning and is chairing a committee made up from members from all campuses. The objectives are to present a plan which is to assure that in both the short and long range the university as a whole is provided with good cost effective computer services. At this time the state of planning is not sufficiently advanced to state the implications for staff and equipment requirements.



5. Faculty Publications, Research Grants, Research Projects and Other Professional Activities

III. A. COMPLETED PROFESSIONAL WORK

1. Books

- (1) DIELECTRIC PROPERTIES OF POLYMERS, Plenum Press, New York, February, 1972 (editor), 350 pp.

2. Journal Articles

- (1) "Low Temperature Properties of Polyurethane-Polyether Copolymers" Polymer Engineering and Science, 12, 25-30 (1972) (with J. Illinger and N. Schneider)
- (2) "Electrical Properties of Polymers" Dielectrics (National Academy of Sciences Publication), 14, 256-314 (1970) (published April, 1972) (with D. Klemperer)
- (3) "Isotope Effect on Poly- $\beta$ -Benzyl Aspartate Transitions in Aprotic Solvent" Biopolymers, 11, 1745-62 (1972) (with P. Dubin)
- (4) "Dielectric Studies in Polymers" J. Elastoplastics, 4, 180-210 (1972)

3. Work Completed and Accepted for Publication (In Press)

- (1) "Thermal Properties of Proteins," Thermochimica Acta.
- (2) "Quasi-Elastic Light Scattering," Advances in Chemistry.
- (3) "Helix-Coil Transition in Fluoroketone Solvents," J. Phys. Chem.
- (4) Book Review: "Modern Material Science" by A. Guy, Analytical Chemistry

etc., etc.





4. Abstracts

- (1) Bull. Am. Phys. Soc., 12, 1391 (1971) (with C. Beatty)  
"Glass Transition of Polyethylene"
- (2) Bull. Am. Phys. Soc., 12, 1391 (with G. Gajnos)  
"Conformational Transitions of Polypeptides in Hydroxyacetic Solvent"
- (3) Polymer Preprints, 13, 131-a (1972) (with A. Wall and G. Scott)  
"Translational Diffusion Coefficient of an Anisometric Molecule"
- (4) Polymer Preprints, 13, 171-a (1972) (with G. Gajnos)  
"High Pressure X-Ray Diffraction of Polymers"
- (5) Polymer Preprints, 13, 952-6 (with G. Gajnos)  
"Thermodynamics of Helix-Coil Transition"
- (6) Abstract 126, "Thermal Analysis of Protein Behavior"  
Pittsburgh Conference on Analytical Chemistry, Cleveland, March 6, 1972
- (7) Abstract III 028, "Calorimetric Studies of Polymers"  
IUPAC Symposium, Helsinki, July, 1972
- (8) Abstract: "Transition Phenomena in Polymers"  
Annual Calorimetry Conference, Park City, Utah, July, 1972
- (9) As Secretary of the Polymer Division, American Chemical Society, wrote  
Polymer Newsletter, Spring and Fall, 1972, editions (8 pages each)

5. Performances, Shows, Works Completed, Copyrights, etc.

Invited Seminars, Etc., October 1971 - October 1972

	<u>Place</u>	<u>Title</u>	<u>Date</u>
1.	Eastern Analytical Symposium New York City	Thermal Properties of Biological Materials	11/12/71
2.	Xerox Corporation Rochester, New York	Polymer Compatibility	12/9/71
3.	Army Materials and Mechanics Research Center Watertown, Massachusetts	Theory of Helix-Coil Transition in Polypeptides	2/15/72
4.	Tennessee Eastman Corporation Kingsport, Tennessee	Miscibility in Polymers	2/25/72
5.	Pittsburgh Conference Cleveland, Ohio	Thermal Transitions in Proteins	3/7/72
6.	Wilmington Section American Chemical Society	Polymer Compatibility	3/22/72



	<u>Place</u>	<u>Title</u>	<u>Date</u>
*7.	American Chemical Society National Meeting Boston, Massachusetts	Diffusion Constant (D) by Light Scattering	4/11/72
8.	Atlantic Richfield Research Center Philadelphia, Pennsylvania	Polymer Compatibility	5/1/72
9.	Eidgenosse Technische Hoch- schule (Swiss Federal Institute of Technology) Zurich, Switzerland		
	Six seminars between May 1 and June 30, 1972:	Effect of Pressure on Polymers	
10.	" "	Polymer-Polymer Interactions	
11.	" "	Helix-Coil Transition in Poly- peptides: Experimental	
12.	" "	Helix-Coil Transitions in Poly- peptides: Theory	
13.	" "	Heat Capacity Studies of Polymers	
14.	" "	Quasi-Elastic Light Scattering from Polymer Solutions	
15.	Freiburg University Germany	Theory of Helix-Coil Transition in Polypeptides	6/2/72
16.	Plastics Institute of America Conference Amherst, Massachusetts	Properties of Polypropylene (Also Meeting Director)	7/26/72
17.	Armstrong Cork Company Lancaster, Pennsylvania	Glass Transition Phenomena in	8/1/72
18.	American Chemical Society National Meeting New York City	High Pressure X-Ray Diffraction	8/30/72
19.	American Chemical Society National Meeting New York City	Helix-Coil Transition Theory	8/30/72



	<u>Place</u>	<u>Title</u>	<u>Date</u>
20.	Conference on Polymer Characterization Seattle, Washington	Chairman on Thermal Analysis Section	8/21/72
<u>Papers Presented by Associate Based on Research in which I was Principal Investigator</u>			
21.	American Physical Society Winter Meeting Cambridge, Massachusetts	Glass Transition of Polyethylene (Presented by C. Beatty)	12/28/72
22.	American Physical Society Winter Meeting Cambridge, Massachusetts	Helix-Coil Transition in Fluoro-ketones (Presented by G. Gajnos)	12/28/72
23.	IUPAC Symposium Helsinki, Finland	Calorimetric Studies of Polymers (Presented by C. Beatty)	7/5/72

6. Other Scholarly Activities

Editorial Board of "Polymer Science and Technology," Plenum Press, New York

III. B. Research activity summarized by list of funded research grants:

	<u>Title</u>	<u>Agency</u>	<u>Year of Issue</u>	<u>Amount</u>
1.	Conformation of Polypeptides	National Science Foundation	Third	\$25,000 in 1972
2.	Physical Properties of Polymers	Air Force Office of Scientific Research	Fifth	\$30,000 per year
3.	Laser Light Scattering (Co-Principal Investigator)	National Science Foundation	Third	\$15,000 per year
4.	Effect of Pressure on Polymers	Petroleum Research Fund	Third (Expired 3/72)	\$7,000 per year
5.	Thermodynamic Properties	National Science Foundation	Third (Expired 4/72)	\$25,000 per year



#### IV. SERVICE

##### Professionally Related Service Activities

- (1) Elected Secretary of the Polymer Division of the American Chemical Society - Three-Year Term
- (2) (Confidential) Member, American Chemical Society, "Honor Award" Committee
- (3) Member, Executive Committee of Polymer Division, A.C.S.

##### Other Professional Service Activities

- (1) Invited Visiting Professor, E.T.H. (Swiss Federal Institute), Zurich, May-June, 1972. Taught 15 hour credit course on Physical Properties of Polymers - 20 students. Concurrently Consultant on integration of Polymers into revised Materials Science Curriculum.
- (2) Professor-in-Charge, American Chemical Society Short Course: Polymer Engineering. (Three-day course.) Given twice: Cleveland, October 15-17, 1971, and Philadelphia, February 17-19, 1972.
- (3) Organized and directed Plastics Institute of America course, Polypropylene, Umass., August 26-28, 1972.
- (4) Organized Short Course, Introduction to Polymers, at Armstrong Cork Company, March-August, 1972.
- (5) Consultant work with: Armstrong Cork Company, Hercules Company, Simplex Company, Naval Ordnance Laboratory (U.S. Navy).





5. Faculty Publications, Research Grants, Research Projects and Other Professional Activities

III. COMPLETED PROFESSIONAL WORK

1. Books

- (1) Chapter on "Fractionation" with J. F. Johnson and H. J. R. Cantow, pp. 23-51 in CHARACTERIZATION OF POLYMERS, N. M. Bikales, editor, Wiley-Interscience, 1971, reprinted from Encyclopedia of Polymer Science and Technology 7, pp. 231-260, Wiley-Interscience, New York,
- (2) Chapter on "Polyethylene Crystallized Under the Orientation and Pressure of a Pressure Capillary Viscometer," republished from J. Macromol. Sci.-Phys. B4, 541 (1970) in PLASTIC DEFORMATION OF POLYMERS, A. Peterlin, editor, Marcel Dekker, 1971.

2. Journal Articles

- (1) Rheol. Acta 10, 412-417 (1971) (with A. Casale and R. C. Penwell)  
"The Influence of Pressure on the Capillary Flow of Poly(Methyl Methacrylate)."
- (2) J. Polymer Sci., Part C, 35, 189-200 (1971) (with K. P. Goetze)  
"Extrusion Degradation of a High Molecular Weight Polystyrene."
- (3) J. Polymer Sci. Part A-2, 9, 2255-2258 (1971) (with K. P. Goetze and J. F. Johnson)  
"Column Fractionation of Polymers. XXI. Gel Permeation Chromatography: The Effect of Sample Viscosity on Elution Characteristics."
- (4) J. Polymer Sci., Part C, 35, 189-200 (1971) (with K. P. Goetze)  
"Extrusion Degradation of a High Molecular Weight Polystyrene."
- (5) J. Polymer Sci., Part A-2, 10, 877-886 (1972) (with L. R. Whitlock)  
"Experimental Investigation of the Concept of Molecular Migration Within Sheared Polystyrene."
- (6) J. Polymer Sci., Part A-2, 10, 1135-1143 (1972) (with J. H. Southern and H. E. Bair)  
"Melting Behavior of Polyethylene Crystallized in a Pressure Capillary Viscometer."



- (7) J. Chromatographic Sci. 10, 437-443 (1972) (L. R. Whitlock and L. R. Whitlock)  
 "Gel Permeation Chromatography: The Effects of Column Configurations and Dimensions on Elution Characteristics."  
 (8) J. Polymer Sci., Part A-2, 10, 1637-1641 (1972) (L. R. Whitlock, Jr.)  
 "Rheological Properties of Poly(2,6-Dimethyl Phenylene Oxide)-Polystyrene Blends."

5. Performances, Shows, Exhibitions, Conferences

American Chemical Society National Meeting, Boston

- (1) Chaired a session for J. F. Jackson in Polymer Division
- (2) Attended Executive Committee Meeting of the Polymer Division
- (3) Presented the paper "Polymer Synthesis by Mechanochemical Synthesis" by C. Simionescu and C. V. Opera of Yassi, Romania

A renewal proposal has been written and submitted to NSF for possible sponsorship of a Summer Institute to instruct college teachers in Chemistry and Engineering in the field of polymer science.

Chaired a session at the Gordon Research Conference on Dielectrics, Andover, New Hampshire, July 26, 1972.

Participated in Executive Committee meeting for the Plastics Institute of America, March 16, 1972, in Hoboken, New Jersey.

As National Committee Chairman, helped host the National Colloid Symposium at UMass., Amherst, June 19-21, 1972.

III. B. Research or Scholarship now actually in progress.

FUNDED RESEARCH GRANTS

	<u>Agency</u>	<u>Year of Grant</u>	<u>Total Funds</u>
1. The Importance of Pressure on the Rheology of Amorphous Polymers	Petroleum Research Fund	First	\$20,000
2. Shear-Induced Changes in Polymer Molecular Weight Distribution	U.S. Army-Durham	Second	\$36,457
3. Viscosities and Morphologies Developed by Shear in Partially Crystalline Polymers (In 1971, \$5,000 supplement received for special research.)	National Science Foundation	Second	\$88,400



IV. Professionally Related Activities

Committees and Memberships:

American Chemical Society

1. Division of Polymer Chemistry
  - a. Alternate Councillor
2. Division of Colloid and Surface Chemistry
  - a. Committee on Bylaws
  - b. Committee on Graduate Student Activities
  - c. Chairman of National Colloid Symposium Committee

American Physical Society

1. Fellow
2. Program Chairman, Division of High-Polymer Physics
3. Chairman Elect, Division of High-Polymer Physics

National Committee for Heads of University Materials Science Programs

International Meetings on Liquid Crystals - Standing Committee on Organization

British Society of Rheology

National Science Foundation Advisory Panels for Chemistry and Polymer Science and Engineering (Chairman)

National Academy of Sciences Committee on the Survey of Materials

North American Thermal Analysis Society - Executive Committee

Consulting:

Monsanto Company - Hartford, Connecticut, and Springfield, Massachusetts  
Esso Research and Engineering, Linden, New Jersey  
S. C. Johnson Company, Racine, Wisconsin  
Hooker Chemical Company, Niagara Falls, New York  
Koppers Company, Monroeville, Pennsylvania

Total consulting time kept at less than 20 days per year.



Lectures:

<u>Place</u>	<u>Subject</u>	<u>Date</u>
University of Tennessee Knoxville Society of Rheology	1. The Effects of High Molecular Weight Components on the Viscoelastic Properties of Polystyrene	10/25/71
	2. Blending Laws for High Molecular Weight Polymer Melts (Given By W. Prest)	10/25/71
Tennessee-Eastman Company Kingsport, Tennessee	Special Polyethylene Morphologies	11/2/71
Lowell Technological Institute Lowell, Massachusetts	Development and Characterization of Unusual Crystalline Morphologies Under Shear	12/3/71
IBM Corporation San Jose, California	Recent Developments in the Physics of High Polymers	1/12/72
Shell Development Company Emeryville, California	The Viscoelasticity of Polymer Blends and Special Polymer Morphologies Produced by Shear	1/14/72
Akron Polymer Lecture Group Akron, Ohio	Flow Crystallization of Polymers	3/3/72
Pittsburgh Analytical Meeting Cleveland, Ohio	Determination of Phase Diagrams by Differential Scanning Calorimetry	3/7/72
North Carolina State University Raleigh, North Carolina	Special Polyethylene Morphologies Produced by Pressure and Shear	3/72
Polytechnic Institute of Brooklyn Brooklyn, New York	The Viscoelasticity of Polymer Blends	3/16/72
American Chemical Society Boston, Massachusetts	1. GPC Effect of Some Operational Variables on Efficiency (Given by J. F. Johnson)	4/10/72
	2. The Significance of Column Configuration on Elution Characteristics in Gel Permeation Chromatography (Given by L. R. Whitlock)	4/12/72





<u>Place</u>	<u>Subject</u>	<u>Date</u>
American Chemical Society Boston, Massachusetts	3. IR Dichroism Study of Polyethylene Crystallized Under the Shear and Pressure Effects of a Pressure Capillary Viscometer (Given by P. J. Miller)	4/13/72
Cleveland-Akron GPC/LC Discussion Group Cleveland, Ohio	The Effects of Column Configuration and Dimensions on Elution Characteristics	5/31/72
Allied Chemical Corporation Morristown, New Jersey	Rheology Near Phase Transitions in Polymer Systems	6/29/72
Olin Company New Haven, Connecticut	Polymer Rheology	7/11/72
Gordon Conference on Elastomers New London, New Hampshire	Mechanical Reactions of Polymers	7/19/72
Meeting on Physical Properties of Food Materials University of Massachusetts	Some Rheological Behavior of Proteins and Lipids	8/8/72
Monsanto Company Pensacola, Florida	Rheology Near Phase Transitions	8/11/72
Inter-American Conference on Materials Rio de Janeiro, Brazil	Rheological Properties of Polymer Blends	8/18/72
International Conference on Liquid Crystals Kent, Ohio	Thermodynamics and Flow Properties of Liquid Crystals	8/21/72
American Chemical Society New York, New York	1. Optimization of Resolution in Gel Permeation Chromatography (Given by J. F. Johnson) 2. An Improved High Shear Rate Capillary Viscometer (Given by L. Manrique)	8/72 8/72
International Congress on Rheology Lyon, France	1. Molecular Mechanisms in Polymer Flow 2. The Rheology of Mesophases Formed by Pure Esters of Cholesterol and Their Blends	9/7/72



<u>Place</u>	<u>Subject</u>	<u>Date</u>
International Congress on Rheology	3. Rheological Properties of Poly(2,6-Dimethyl Phenylene Oxide)-Polystyrene Blends (Given by W. E. Weeks, Jr.)	9/7/72
Royal Institute of Technology Stockholm, Sweden	Recent Developments in Polymer Processing	9/18/72
Regional American Chemical Society Meeting Hartford, Connecticut	Morphology and Mechanical Properties of High Orientation Polyethylene (Given by N. E. Weeks)	10/72

Editorial Work:

- Advisory Boards
1. Journal of Polymer Science A-2, Polymer Physics
  2. Molecular Crystals and Liquid Crystals
  3. Polymer News

Editor Polymer Engineering and Science



JOURNAL ARTICLES

- F. P. Price and J. H. Wendorff, J. Phys. Chem., 76, 276-280 (1972).  
F. P. Price and J. H. Wendorff, J. Phys. Chem., 76, 2605-2607 (1972).

WORK COMPLETED AND ACCEPTED FOR PUBLICATION

- "Kinetics of Spherulite Growth in Cholesteryl Esters"  
F. P. Price and A. K. Fritzsche, J. Phys. Chem. (in press).

ABSTRACTS

- Abstracts of Fourth Central Region ACS Meeting, Pittsburgh, Pennsylvania,  
May, 1972, p. 35.  
Abstracts of March 1972 Meeting of Division of High Polymer Physics, with  
R. D. Ulrich, p. 272; with A. K. Fritzsche, p. 273.

OTHER SCHOLARLY ACTIVITIES

Member, Advisory Board, "Journal of Polymer Science, A2"

Recipient of Grants from:

NSF, "Crystallization of Polymers under Extreme Conditions",  
\$23,600/year

NIH, "Transformation Kinetics in Mesophases",  
\$15,600/year

RESEARCH OR SCHOLARSHIP NOW ACTUALLY IN PROGRESS

- Studies of polymer crystallization under shear.  
Studies of polymer crystallization at high supercoolings.  
Studies of phase separations in polymer blends.  
Studies of nucleation in polymer crystallization.  
Studies of transformation in mesophase-forming systems.



## PROFESSIONALLY RELATED SERVICE ACTIVITIES

### Consulting

American Cyanamid, Stamford, Connecticut.

Xerox Corporation, Webster, New York.

Hooker Chemical Company, Niagara Falls, New York.

Armstrong Cork Company, Lancaster, Pennsylvania.

### Extracurricular teaching in course

"Introduction to Polymers", Hooker Chemical Company, Armstrong Cork Company.

## OTHER PROFESSIONAL ACTIVITIES

### At Gordon Research Conferences

Invited Speaker at Conference on Liquid Crystals  
(Santa Barbara) January, 1972.

Participant in Evaluation of Program  
Conference on Polymer Physics.

Elected Vice-Chairman  
Conference on Polymer Physics.

Organized and Presided at Symposium on "Microphase Separated Systems"  
as part of the National Colloid Symposium, UMass., June, 1972.

Session Chairman at International Conference on Liquid Crystals, Kent State  
University, August, 1972.

Member of Program Committee and Session Chairman at Sagamore Conference  
on "Block Copolymers" sponsored by the U. S. Army Material Command,  
September, 1972.

### Gave Invited Talks at:

University of Buffalo

Xerox Corporation

University of Pittsburgh, Fourth Central Regional Meeting of ACS,  
Pittsburgh, Pennsylvania, May, 1972.

Participant in program of Polymer Research Institute Annual Review.

Chairman, Canvassing Committee for Witco Award, ACS.





BOOKS

POLYMERIZATION OF HETEROCYCLICS

Marcel Dekker, Inc., New York, 1973.

INTERNATIONAL COLLOQUIUM ON SYNTHETIC POLYMER CHEMISTRY

J. Macromol. Sci., Chem., A6, Volume 5 (1972).

Book Chapter, "Kinetics of Aldehyde Polymerization" in  
POLYMERIZATION KINETICS, C. H. Bamford, ed., in press.

"International and Interdisciplinary Cooperation in Polymer Science"  
(in English)

An introduction to Volume 5, POLYMER REACTION SERIES (1972) (in  
Japanese), T. Saegusa, T. Otsu and T. Higashimura, eds.

JOURNAL ARTICLES

51. C&E News, March 10, 1972 (with H. C. Miller and W. H. Sharkey)  
"Polychloral by Monomer Casting".
52. Macromol. 5 (1972) in press (with H. C. Miller and W. H. Sharkey)  
"Monomer Cast Chloral Polymers".

PATENT

U. S. Patent 3,668,184 (1972) Chloral Copolymers

REVIEWS

Polyacetals by S. J. Barker and M. S. Price, American Elsevier Publishing  
Co., Inc., New York, 1971.

In J. Polymer Science (Polymer Letters) B10, 313 (1972).

ACTIVITIES

Associate Editor: Journal of Macromolecular Science (Chemistry).

Journal Advisory Board: Macromolecules, Journal of Macromolecular Science  
(Reviews).

Research Grant Reviewer: ACS Petroleum Research Fund, NSF, NAS.



## RESEARCH OR SCHOLARSHIP NOW ACTUALLY IN PROGRESS

"Membranes for Reverse Osmosis". Department of the Interior, Office of Saline Water. \$50,000/2 years.

Research Contribution for Mr. Sicree: "New Ionomers". Wright Patterson Air Force Base. \$3,000.

"Metastable Polymers". Xerox Corporation. \$5,000.

"Reactive Polymers - Polymeric Sunscreens" (in cooperation with Harvard Medical School). Army, Life Sciences. \$14,000.

## SERVICE

### Off-Campus Service: Committees and Memberships

American Chemical Society

Division of Polymer Chemistry

Treasurer

Nominee for Chairman

Executive Committee

Connecticut Valley Section

Executive Committee

Planning Committee, Northeast Regional Meeting, Hartford, 1972

U.S.-Japan Cooperation on Synthetic Polymer Chemistry:

Co-Chairman (U.S.) and Co-Chairman for proposed U.S.-Japan Seminar on Synthetic Polymer Chemistry, Hakone, Japan, 1974.

Gordon Conference on Polymers, June 1972, New London, New Hampshire, Discussion Leader.

Membership: ACS, AAAS, American Institute of Chemists (Fellow), Austrian Chemical Society, Society of High Polymers - Japan.

Consulting: Tennessee Eastman Company, Kingsport, Tennessee eight days/year.

## PROFESSIONAL ACTIVITIES AND ACCOMPLISHMENTS

### Lectures

Royal Institute of Technology, Stockholm, Sweden, "Polymerization at High Pressures", September 25, 1971.

Royal Institute of Technology, Stockholm, Sweden, "Cryotachemistic Polymerization", October 14, 1971.

Free University of Berlin, Germany, "Preparation of Linear Infusible Polymers", October 15, 1971.



Farbwerke, HOECHST, Germany, "Preparation of Linear Infusible Polymers", October 19, 1971.

Tennessee Eastman Company, Kingsport, Tennessee, "Regular Polyamides", November 15, 1971.

Eastman Kodak Company, Rochester, New York, "Polymerization at High Pressures", November 19, 1971.

University of Arizona, Tucson, Arizona, "Chloral Polymers", January 19, 1972.

Philco-Ford Corporation, Newport Beach, California, "Regular Polyamides", January 21, 1972.

Winter Gordon Conference on Polymers, Santa Barbara, California, "New Aspects of Chloral Polymerization", January 28, 1972.

IBM Corporation, San Jose, California, "Preparation of Linear Infusible Polymers", January 31, 1972.

ACS, Western New York Section, "Preparation of Linear Infusible Polymers", February 24, 1972.

Hooker Chemical Company, Buffalo, New York, "Synthetic Polymer Chemistry. I.", February 25, 1972.

University of Florida, Gainesville, Florida, "Polymerization of Chlorinated Aldehydes", February 27, 1972.

University of Tennessee, Knoxville, Tennessee, "Preparation of Linear Infusible Polymers", February 28, 1972.

Tennessee Eastman Company, Kingsport, Tennessee, "Preparation of Linear Infusible Polymers", February 29, 1972.

North Carolina State University, Raleigh, North Carolina, "Chloral Polymerization", February 29, 1972.

Union Carbide Corporation, Charleston, West Virginia, "Preparation of Linear Infusible Polymers", April 18, 1972.

Hooker Chemical Company, Buffalo, New York, "Synthetic Polymer Chemistry. II.", May 15, 1972.

U. S. Army Watertown Arsenal, Watertown, Massachusetts, "Polymerization at Extreme Pressures", May 18, 1972.

Biennial Symposium of ACS Division of Polymer Chemistry, Ann Arbor, Michigan, "New Aspects of Chloral Polymerization", June 13, 1972.

National ACS Meeting, New York, New York, "Graduate Teaching of Polymer Engineering", August 29, 1972.

Case Western Reserve University, Cleveland, Ohio, "Preparation of Linear Infusible Polymers", September 20, 1972.

Annual Meeting of Society of Paint Technology, Cleveland, Ohio, "New Aspects of Polymer Synthesis", September 21, 1972.





# UNIVERSITY OF MASSACHUSETTS

MARINE STATION  
HODGKINS COVE  
BOX 128, LANESVILLE STATION  
GLOUCESTER, MASSACHUSETTS 01930  
(617) 281-1930



**ANNUAL REPORT - JUNE 1972**

S T A F F

Director:

Charles S. Yentsch

Research Scientists:

Edward Gilfillan  
Christopher Martin  
James R. Sears  
Clarice M. Yentsch

Pre-doctoral fellow:

Jerry Topinka

Visiting Scientists:

Dr. Ian Morris  
University College of London, England  
April - September, 1971; July - August, 1972

Dr. Navin Shah  
University of Cochin, India; June, 1972 - June, 1973

Research Associates in Oceanography:

John C. Laird  
William Owen  
Lois Strube

Research Assistants in Oceanography:

William Murphy  
Cynthia Owen  
Peter Prybot

Clerical:

Nicole Daley  
Judith Van Deusen

Janitorial Service:

Arthur Pelletier

Security:

Lionel Thurston

B U D G E T

The total budget of the laboratory is now at \$200,000 per year. Research monies are obtained from the National Science Foundation, Atomic Energy Commission, U.S. Coast Guard, National Aeronautics and Space Administration and



## ANNUAL REPORT

**INTRODUCTION:** The major concern of this laboratory lies in obtaining information on the bio-chemical activities of the first members of the marine food web, the so-called primary producers. The research activities of the members of the staff involve measurements of photosynthesis, respiration and chemical measurements of bio-chemical substances such as phosphate and nitrogen, as well as certain organic compounds. Philosophically our main goal is to attempt to arrive at a situation whereby prediction coupled with understanding will provide us a means of quantitative analysis of growth in the marine environment.

Much of our research activities spill over into the more applied aspects of environmental quality and aqua-culture. The ultimate concern of all of these studies is how to predict and induce events in the marine environment which are beneficial; and to identify and control those that are harmful.

**RESEARCH ACTIVITIES:** One of the goals is to understand the time sequence and the magnitude of the outburst of phytoplankton during the spring throughout the gulf of Maine. Siglow's earlier studies indicated that this outburst of phytoplankton is a function of a number of variables. We are attempting to sort these variables out in terms of their importance. Of primary concern is the influence of temperature. This research involves both studies in the laboratory as well as observations at sea. In conjunction with this, Clarice Yentsch and Lois Strube have been measuring the weekly changes in chlorophyll, cell number, nitrogen phosphorus, as well as temperature, salinity and transparency of the local waters. The observational program has been going on for a period of 18 months. In both years (1971, 1972) sizable spring outbursts occurred in April. The difference in timing between the two years was within a few days. The spring outburst is accompanied by a mammoth decrease in the amount of nitrate in the waters which has suggested that the declining populations are nitrogen deficient. Our lab has employed the technique termed ammonium enhancement. In brief, the addition of the ammonium ion to a nitrogen deficient population enhances the dark fixation rate. Hence, one obtains an index of whether or not the population is deficient. In 1971 the ammonium enhancement measurements showed no or little effect after the decline of the spring bloom. However, in 1972 a marked ammonium enhancement was observed. The difference between the two years appears to be due to the fact that a greater amount of the fixed form of nitrogen was removed in the second year than in the first. In collaboration with these studies, Ian Morris, Barney Balch, Lois Strube, and Charles Yentsch have investigated the influence of different temperatures on populations sampled throughout the year in our local waters. The choice of temperatures covers the range of approximately 5° to 25°. We have been especially interested in seeing whether or not populations sampled at higher temperatures have the facility to adapt to lower temperatures or, conversely, whether populations residing at lower temperatures show increased growth activities when placed at higher temperatures. To date our observations indicate that if adaptation to new temperature does occur, this adaptation is very minor



Shipboard activity -- preparing to drop the BT -- bathythermograph

compared to the overall changes one sees merely due to differences in growth rate as function of temperature. Of course, most of this is true merely for total population measurement. We are still in the process of sorting out individual species differences and how these species come and go with different temperature affects.

Studies of the manner in which light is transmitted or fluoresced by the particulate matter in natural ocean waters has shown the presence of fluorescence emission which can be only assigned to the phycobilins, pigments of blue-green algae. This has raised the question of whether or not these organisms are abundant in coastal ocean waters in terms of their growth activities. Previously it has been thought not. The puzzling feature is that light microscopic examination of water samples have revealed no organisms characteristic of blue-green algae. Seasonal measurements of phycobilin pigments have shown that concentrations of these organisms are highest during the winter months and then decreased throughout the summer. Thus, whatever the organism is, it appears to favor colder water.

Edward Gilfillan has been examining the influence of specific environmental parameters on the rates of respiration, primarily of mussels, sea urchins, and clams, as well as certain planktonic organisms. He is particularly interested in establishing whether or not certain stresses (salinity, temperature, pollutants) upset the balance between respiration and feeding or both of these processes in terms of the amount of feed available to the organism. He has especially found that certain water soluble compounds from oils can stress the organisms by increasing the rate of respiration out of proportion to the amount of food available to the organism.

To date there has been a great deal of speculation concerning the productivity of attached seaweeds. Some of the estimates appear to be in error because they are beyond the theoretical yield for photosynthesis. Whereas adequate methods for

ensuring primary productivity of saline phytoplankton, similar methods do not exist for the larger algae. During the past year Jim Sears has been exploring the possibilities of measuring the productivity of the large algae and comparing conventional oxygen techniques with radiometric methods as well as attempting to derive correlations in terms of pond area. Jerry Sosinka has been examining the possibility of nitrogen uptake by some species of larger algae. He has developed an apparatus whereby he can continuously measure photosynthesis and simultaneously take samples for ammonia, nitrate and nitrite. The measurements show that the oxygen or nitrogen uptake follow Michaelis-Menton relationship. The relationship appears to be complicated by a spiral circulation around the algae.

DEVELOPMENT OF PHYSICAL FACILITIES: It is only natural for a facility as young as this one to brag a little about the development of its research capabilities in a short period of 18 months. Most of this credit has to be levied on Jack Laird, William Owen, and William Murphy. Not only have these gentlemen used a great deal of ingenuity, that is -- utilizing what we have, they have designed and projected the need in a manner which seems to be compatible not only with the desires of the research here, but the overall desires and needs of the university.

William Owen and Jack Laird have constructed a seawater system which utilizes the continuous flow principle alternating two pumping units for different periods of time. The seawater system is an all plastic unit. The waters are excellent for rearing both plants and animals in a marine environment.

Jack Laird and William Murphy have remodified the existing laboratory space in the attic of the building. We now have additional space for storage and an electronic work shop.

SPECIAL STAFF ACTIVITIES: James Sears has been elected as a member of the Gloucester Shellfish Commission. His activities were influential in obtaining a full-time shellfish warden as well as implimenting new laws regulating the harvesting of shellfish. Jim Sears and the new shellfish warden have developed a clam seeding that will utilize the city shellfish beds for the experiment.

Ed Gilfillan attended an annual conference for the Northwest development of an artificial lobster reef. This reef is constructed of automobile tires and concrete. They have monitored the activities of marine life around the reef throughout the year.

Ed Gilfillan attended an annual conference for the Northwest Atlantic Fisheries Biologists and discussed the use of this reef as far as developing a lobster fishery. He also took part in an oceanographic cruise out of Woods Hole. The cruise, sponsored by the National Fisheries Service, was concerned with the evaluation efficiency of different types of plankton sampling devices.

Charles and Clarice Yentsch attended and gave papers at the Society of Limnology and Oceanography meeting held in Tallahassee, Florida. Charles Yentsch took part in a symposium on "The Influence of Water Temperature On Marine Organisms". This was held by the Florida Academy of Science at Pollins College in Winter Park, Florida.

Charles Yentsch was nominated to the Gloucester Fisheries Commission as a fish commissioner. This commission is a standing committee under the guidance of the mayor of Gloucester.

Clarice Yentsch has initiated the program for education of grammar school children in marine sciences in Gloucester and Rockport. The two programs are now going on the second year and have approximately 150 students. In conjunction with the Division of Continuing Education, two courses (Introduction to Marine Botany 385/685 and Introduction to Physiological Ecology of Marine Invertebrates 285/810) at the upper level undergraduate and graduate level will be held at the laboratory this summer. Approximately 40 students are enrolled in both courses.



Laboratory activity -- chemical analysis for ammonium determination in seawater

Gilfillan

Gilfillan, Edward, (1971). Seasonal and latitudinal effects on the responses of Euphausia pacifica Hansen (Crustacea) to experimental changes of temperature and salinity. Bio. Oceanogr. of the Northern North Pacific Ocean, M. Anraku ed. (in press)

Gilfillan, Edward, (1972). Reactions of Euphausia pacifica Hansen (Crustacea) from Oceanic, Mixed Oceanic-Coastal and Coastal Waters of British Columbia to Experimental Changes in Temperature and Salinity. Submitted to the Journal of Experimental Marine Biology and Ecology. (in press)

R. Sears

Sears, J.R. and R.T. Wilce, (1972). Sublittoral, benthic marine algae of southern Cape Cod and adjacent islands: Seasonal periodicity, associations, diversity and floristic composition. (in press)

Sears, J.R. Pseudolithoderma paradoxus sp. nov., a new brown crust in eastern North America. (in press)

Charles S. Yentsch

Yentsch, Charles S., (1970). "The state of chlorophyll in the aquatic environment" in Proceeding of the IBP/pp Technical Meeting, Trebon, 489-502.

Yentsch, Charles S., (1971). "The absorption and fluorescence characteristics of biochemical substances in natural waters." in Proceedings of the Symposium on Remote Sensing in Marine Biology and Fishery Resources, Texas A & M University, 75-97.

Yentsch, Charles S., (1971). "The Harvest -- Primary Production" in DEEP OCEANS edited by Peter J. Herring and Malcolm R. Clarke, Arthur Barker Ltd., London, 150-163.

Yentsch, Charles S. with Ian Morris and Clarice M. Yentsch, (1971). "Relationship between light carbon dioxide fixation and dark carbon dioxide fixation by marine algae", Limnol. Oceanogr. 16, 854-858.

Yentsch, Charles S. with Ian Morris and Clarice M. Yentsch, (1971). "The physiological state with respect to nitrogen of phytoplankton from low nutrient subtropical water as measured by the effect of ammonium ion on dark carbon dioxide fixation", Limnol. Oceanogr. 16, 859-868.

Yentsch, Charles S., (1972). "The influence of water temperature on marine organisms" in Proceedings Florida Academy of Science, Rollins College, Winter Park, Florida.

Yentsch, Charles S. with Ian Morris, (1972). "Non-destructive method for concentration of marine phytoplankton". Limnol. Oceanogr.

Yentsch, Charles S., (1972). "Some aspects of the environmental physiology of marine phytoplankton: A second look." (in press)

Yentsch, Charles S. with Clarice M. Yentsch and James P. Perras, (1972). "Alkaline phosphatase activity in the tropical marine blue-green alga, Oscillatoria erythraea (Trichodesmium)" Limnol. Oceanogr.

Yentsch, Charles S. with Clarice M. Yentsch and Lois R. Strube, (1972). "Ammonium ion enhancement of dark fixation in marine phytoplankton in relation to various growth parameters." (in press)

#### Clarice M. Yentsch

Yentsch, Clarice M. with Ian Morris and Charles S. Yentsch (1971). "Relationship between light carbon dioxide fixation and dark carbon dioxide fixation by marine algae" Limnol. Oceanogr. 16, 854-858.

Yentsch, Clarice M. with Ian Morris and Charles S. Yentsch (1971). "The physiological state with respect to nitrogen of phytoplankton from low nutrient subtropical water as measured by the effect of ammonium ion on dark carbon dioxide fixation", Limnol. Oceanogr. 16, 859-868.

Yentsch, Clarice M., Charles S. Yentsch and James P. Perras (1972). "Alkaline phosphatase activity in the tropical marine blue-green alga, Oscillatoria erythraea (Trichodesmium)" Limnol. Oceanogr.

Yentsch, Clarice M., Charles S. Yentsch and Lois R. Strube (1972). "Ammonium ion enhancement of dark fixation in marine phytoplankton in relation to various growth parameters". (in press)



Grammar school children aboard the R. V. BIGELOW







UNIVERSITY OF MASSACHUSETTS PRESS

ANNUAL REPORT 1971-72

Press Operating Budget 1971-72: \$157,000

Professional Personnel: 5; nonprofessional personnel: 4

Organizational Chart (attached)

Total publications in fiscal 1971-72: 15 books; 4 issues of  
Polity; 3 reprints

Number of books distributed: 25,000

See attached report for:

List of Publications

Accomplishments

Needs and Plans



Journal of American Studies, 6 (1972), 1. The Journal of American Studies, 6 (1972), 1.

1972. The following titles, published in 1972, are available for purchase: History of the United States: Part 1, 1789-1865, by Howard Chandler Christy, translated by J. M. G. Le Moine; History of the United States: Part 2, 1865-1945, by Howard Chandler Christy, translated by J. M. G. Le Moine; History of the United States: Part 3, 1945-1972, by Howard Chandler Christy, translated by J. M. G. Le Moine; Native Justice, by Norman E. Hays; The Southwestern 500, by J. M. G. Le Moine; A Compilation of Source Material, by Henry Irving Trade; American Sculptor in Rome, by Willard T. Rogers, Jr., Beowulf, translated by Burton Raffel and illustrated by Leonard Baskin; Journal of the Americas, by James Scully; Druid Craft: The Writing of the Iliad by Water, edited by Michael Sidnell, George Mayhew, and David Clark; The Prince & the Genie: A Study of Rimbaud's Influence on Claudel, by John MacCombie; The Sociology and Anthropology of Mental Illness, by Edwin D. Driver; The Voice of the Folk, by Gene Bluestein; Typology and Early American Literature, edited by Sacvan Bercovitch; Man-making Words, by Nicolás Guillén, translated by Robert Márquez and David McMurray; and Narrative of an Expedition against the Revolted Negroes of Surinam, by John Gabriel Stedman. During the year, the Press also became distributor of The Dunlaps and Their Furniture, by Charles S. Parsons, on behalf of the Currier Gallery of Art, and reprinted Press editions of Black and White in American Culture, edited by Jules Chametzky and Sidney Kaplan, Max Weber's Political Ideas in the Perspective of Our Time, by Karl Loewenstein, and The Book of the American Woodcock, by William Sheldon. Four issues of Polity: The Journal of the Northeastern Political Science Association were brought out.

Three University Press titles, reviewed during the year by Choice, the Publication of the Association of College and Research Libraries, were selected as among the Outstanding Academic Books for 1972: Horse, Bird & Man: The Origins of Greek Painting, by J. L. Benson; The Politics of Defeat: Campaigning for Congress, by Robert Huckshorn and Robert Spencer; and The Growing Tree, by B. F. Wilson. The Press edition of Beowulf captured four distinguished awards for design and production, from the Chicago Book Clinic, The New England Book Show, the American Institute of Graphic Arts 50 Books of the Year, and the New York Type Directors Show.

Prior to a leave of absence, Charles Page chaired the Committee. On December 10, Sidney Kaplan was elected his successor. The Committee included Alexander Chajes, Donald Fairbairn, Arthur Gentile, Sumner Greenfield, Mason Lowance, Howard Quint, T. O. Wilkinson, and three ex officio members, Dean of the Graduate School Mortimer H. Appley, University Editor Kenneth H. Walker, and Director Leone Stein. Of the numerous solicited and unsolicited manuscripts and projects screened by the Editorial department, and evaluated by scholars in the field, the Committee ultimately approved for publication the following: In Pursuit of Whales and Destiny, by Edouard A. Stackpole; God Save the Commonwealth, by A. T. Barbrook; A Metaphysics of Elementary Mathematics, by Jeffry Sicha; The Making of Antique Musical Wind Instruments, by Trevor Robinson, a reprinting of the Paris Commune issue of the Massachusetts Review; translation of Thorkild Hansen's Slavernes Øer; Pop Weiner: Naive Painter, by Joanne Bock; Frost Speaks: Conversations and Indiscretions, by Robert Francis; reprints of Survey Graphic's 1925 Regional Planning Issue and Herman Melville's Battle Pieces; U. S. editions of Oppression and Liberty







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... ..

Barring the improbable, both sales and receipts for the year will surpass \$100,000, and continue to go up next year. Sales representation during the year was broadened to include a Midwestern representative, William J. Whitaker Associates. Along with George Stewart, Eastern Representative; Feifer & Simons, Overseas; and CIA, Latin America, representation is good. Within the year the Press expects to make new arrangements for representation in Canada and on the West Coast.

During the year, Press titles continued to receive the predominantly favorable reviews which have characterized its history. Among the works commended:

Some Deaths in the Delta and Other Poems, by Rosellen Brown

"...wherever she is, in Jackson, back home in Brooklyn, or reading a poem about the Bedouin, [Rosellen Brown] is a recording instrument of great depth and sensitivity"--Commonweal.

The Supreme Court in Conflict, by Robert Steamer

"A notable feature of this book is that it should provide appealing reading to most any audience....Cases are examined with ease yet with subtle sophistication....the reader will come away armed with an added perspective and understanding of the Supreme Court"--Case Western Reserve Law Review.

Patriotism, Inc. Tales by Paul van Ostaijen, translated by E. M. Beekman

"Van Ostaijen's mind, at least in his fiction, tends to travel straight to the mark. His pages yield a harvest of acute if dispiriting epigrams....This volume of prose affords glimpses of a poetic genius...."--The New Yorker.





And Sande...

"The...

A Drunk Man's Book by John C. Weston

"In his... classic edition... literary...

"The beauty of MacDiarmid's verse is a rare and heady liquor indeed...John C. Weston...has respelled MacDiarmid's Scots orthography and has provided an excellent facing vocabulary, so there's no excuse for anyone to put off reading A Drunk Man any longer"--Saturday Review.

Beowulf, translated by Burton Raffel, illustrated by Leonard Baskin

"It's more than a translation; it's a recreation and splendid poetry in its own right...Excellent copy, elegant murky illustrations by Leonard Baskin, an excellent job of bookmaking"--CBS Radio.

The American Shakers: From Neo-Christianity to Presocialism, by Henri Desroche, translated & edited by John K. Savacool

"Altogether, it is a work that will prove enlightening for U.S.A. religious history, for the sociology of religions, and for commune living. The volume has been produced by the University of Massachusetts Press with the simple elegance and beauty that characterized the best of the Shaker art traditions"--Review for Religions.

Race Relations in Virginia & Miscegenation in the South 1776-1860 by James Hugo Johnston

"Measured in his judgments, and continually aware that he is dealing with human beings, who will give evidence of the widest variety of responses, Johnston is more convincing in his portrayal of social relations than many less cautious writers. The sheer weight of the support he brings to his conclusions is overwhelming in its impact...scholars of slavery will be appreciative of the tremendous research effort that went into this volume. It will be used by other scholars for a long time"--The American Journal of Legal History.

Ely: Too Black, Too White, by Ely Green, edited by Elizabeth N. Chitty & Arthur Ben Chitty

"One should go through the book itself: let the warm, courageous, gentle, human, vain, stubborn, shrewd, commanding Ely himself take over"--The Nebraska Churchman.







In carrying out its publishing activities, the Press staff depends heavily on student assistance. For the third year, an undergraduate intern in the Leadership Program of the School of Education has worked with the Press. Work Study students are employed both in Sales and Accounting. The budget has not permitted retention of a full-time Editorial Assistant to handle galleys and page proofs and to copy-edit manuscripts, but a graduate student has been employed on a part-time basis to relieve some of the burden on the Editorial and Production and Design departments. Budget limitations have also prohibited employment of a full-time secretary to assist the editorial and sales departments.

Since publication of its first title in September of 1964, the Press has depended upon trust fund support and income from sales to sustain its program. Administered through the Graduate School, that support, especially during the last several years, has enabled the Press to develop a strong publishing program which is respected both in the publishing world and in academe. However, budgetary problems which the University is facing will possibly result in a budget cut for the Press next year. Since there are certain fixed costs and inevitably increasing ones--among them staff, office expenses, distribution and warehousing services, royalties, commissions, honoraria, etc.--the Press, with a budget cut, would have to reduce the expenditures for manufacturing, promotion, and advertising. Therefore, books scheduled for probable publication by next summer would have to be spaced out over subsequent seasons, and further manuscript consideration and acceptance would have to be limited, to prevent backlogging. The Press accountant is currently reviewing the financial history of the Press, with a view to projecting the long-range effects of reduced subsidy and providing an estimate of a realistic minimum subsidy on which the Press could continue to operate with any degree of effectiveness, should the recession be prolonged. With a basic subsidy, the Press would hope to sustain an active publishing program, depending on increased sales income to absorb those costs which inevitably increase. The goal would be to achieve a dynamic equilibrium.

At a meeting on February 7, 1972, the Committee, after a presentation by Dean Appley of his and Chancellor Bromery's views, expressed its strong interest in exploring the possibility of the Press's becoming an all-University operation. This interest was communicated by the Dean to the Chancellor in a letter of December 8, 1971. On March 22, after lengthy discussion, the Committee voted unanimously to authorize the Chairman and the Director to consult with the appropriate committee of the Faculty Senate concerning procedures for changing the Press Committee membership from the present Amherst campus representatives to include two from the Boston campus and one from the Worcester campus.

Sometime during July, the Press offices will be moved from Munson Hall to 505 East Pleasant Street, which is currently being renovated for occupancy.



From: Director, Water Resources Research Center Date: June 6, 1972

To: Mrs. Patricia Lemon, Assistant to Dean Appley

Subject: Annual Report July 1, 1971 - June 30, 1972.

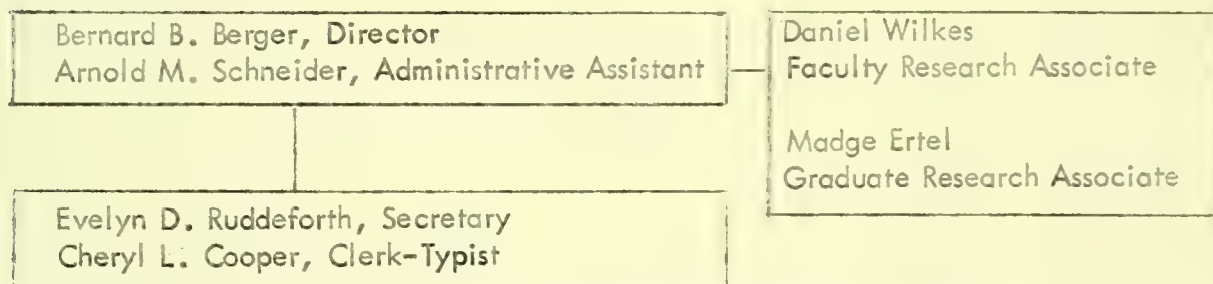
We are forwarding herewith the information you requested for the Annual Report:

1. Water Resources Research Center operating budget fiscal year 1972: \$128,847.
2. Personnel:

Bernard B. Berger, Director (also Professor of Civil Engineering and  
Professor of Public Health)

Arnold M. Schneider, Administrative Assistant  
Daniel Wilkes, Faculty Research Associate  
Madge Ertel, Graduate Research Associate  
Evelyn D. Ruddeforth, Secretary  
Cheryl L. Cooper, Clerk-Typist

3. Organizational Chart:



4. Number of Faculty Members Working on Water Resources Research Center Projects; Number of Publications:

Thirty-two faculty members are working on Water Resources Research Center projects. There were 26 publications from July 1, 1971 - June 30, 1972. See the attached list of publications.









D. Public Service, Cont.

Consultant, Smithsonian Institution on Chesapeake Bay Study

Consultant, United Nations on Water Resources, State of Israel

Consultant, National Council on Research and Development, State of Israel, on Environmental Quality Control

Consultant, Commonwealth of Puerto Rico on Water Quality Problems

E. Professional Organization Activities

Chairman, Committee on Environmental Quality Management, American Society of Civil Engineers

Member, Committee on Engineering Education, American Academy of Environmental Engineers

Chairman, United States of America National Committee for the International Association on Water Pollution Research

Vice-President, International Association on Water Pollution Research

Member, Research and Program Committees, Water Pollution Control Federation

F. University Committees

Chairman, Advisory Committee, Institute For Man and His Environment

6. Major Accomplishments:

A. New Projects Funded

Of 15 research projects supported by Allotment Grant funds (Section 100, Water Resources Research Act, 1964) 11 were new projects. Each of these satisfied criteria of research merit and relevancy to regional and national problems. Of 6 research projects supported by Matching Grant funds (Section 101, Water Resources Research Act, 1964) 2 were new projects.



b. Major Accomplishments, Cont.

Completion Reports:

Eleven completion reports on Center supported projects were published. These were distributed to special regional or national lists of professional workers, universities and public agencies.

Multi-Departmental Research:

Twelve University Departments were engaged in Water Resources Research Center supported research. Thirty-two faculty members, representing 12 disciplines were so engaged. This multi-departmental, multi-disciplinary involvement offers a sound base for expanded interdisciplinary research of the future.

Student Support:

Thirty graduate students were given financial assistance through employment on Water Resources Research Center-supported projects.

- B. The Water Resources Research Center co-sponsored with the Department of Civil Engineering a short course on Monitoring and Analysis Techniques in Environmental Quality Control. Approximately 50 individuals from public agencies, consulting engineering firms, and industry participated.
- C. The Water Resources Research Center co-sponsored with the League of Women Voters a Conference on Decision Making on Connecticut River Diversion. Approximately 50 individuals from public agencies, industry, planning organizations and citizen groups participated.
- D. The Water Resources Research Center sponsored a special Symposium on Research Needs to Protect the Lakes of New England. This was held as the first step in the development of a regional research program by the New England Council of Water Center Directors. This project anticipates a trend toward increasing multi-university cooperation in attacking common problems of the environment.

7. Future Plans and Needs:

- A. The recent amendments to the Water Resources Research Act, 1964 authorize an increase in Allotment Grant funds from \$100,000 to \$250,000 per year and emphasize two activities: technology transfer and collaboration with public agencies. While both activities are currently being carried on, an increased appropriation, if it materializes, will call for a major step up and formalization of these programs.



7. Future Plans and Needs, Cont.

- B. For several years, the Water Resources Research Center has planned the development of a formal program of instruction leading to a Master's degree in Water Resources Planning and Management. Initial measures, including a survey of job opportunities, have been taken. The University Committee on the Water Resources Research Center supports the development of the program. A major reason for delay in carrying forward this proposal has been the lack of an Associate Director for the Water Resources Research Center, whose participation is considered essential. An increased appropriation under the amended Water Resources Research Act would make it feasible to activate this effort.





Conceptual Framework of Water Quality Assessment  
Presented in the Proceedings of the 1980 National  
Conference.

Implications of Stream and River Quality  
in an Urban Watershed in Florida.

Effects of Water Diversion on Estuarine Waters  
in Merrimack River, Massachusetts.

The Effect of Land Use on the Chemical and  
Physical Quality of Surface and Ground Waters  
in Small Watersheds.

A Probabilistic Approach to Stream Sampling.

Impact of the Cranberry Industry on the Quality  
of Ground-Water in the Cape Cod Area.

Cultural Eutrophication, A Paleolimnologic  
Approach.

Evaluation of Tracers and Tracer Techniques  
to Depict the Movement of Water and Pollutants  
in Porous Media.

Development of Multiple Objective Economic  
Planning Models for Allocation of Estuarine  
Resources.

The Integration of Water and Related Land  
Values into a Metropolitan Landscape  
Planning Model.

Statistical Study of the Duckweed Rhizosphere  
as an Eco-Assay Tool.

Legal Issues in Economic Utilization of the  
Connecticut River Flood Plains.

Participatory Role of Citizen Advisory Groups  
in Decisions on Resource Allocation -- A Pre-  
liminary Study.

Prof. Richard E. Smalley  
Department of Environmental  
Systems, MIT

Prof. William M. Swinton,  
Dept. of Zoology

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Prof. Karl H. Deubert,  
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Prof. Stuart D. Ludlam,  
Zoology

Prof. Gordon L. Stewart,  
Plant and Soil Sciences

Prof. David A. Storey,  
Ag. and Food Economics

Prof. Julius Gy Fabos,  
Landscape Architecture

Prof. Robert A. Coler,  
Environmental Sciences

Daniel Wilkes, Institute  
for Man & His Environment

Prof. Gordon F. Sutton,  
Sociology



02

Ecological Studies of Marsh Vegetation in  
Disturbed Areas and Environmental Effects on  
Structure and Function of Wetland Ecosystems.

Dr. J. C. Jolley

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042

Ecological Studies of Marsh Vegetation in  
Disturbed Areas and Environmental Effects on  
Structure and Function of Wetland Ecosystems.

Dr. J. C. Jolley  
Department of Civil Engineering  
2000 N. 2nd St.

(operative project with the University of Pennsylvania)

MATCHING GRANT (SEC. 101) PROGRAM

011

A Methodology for Planning Optimal Regional  
Waste Management Systems.

Prof. Donald D. Adrian  
Civil Engineering

012

A Multi-Variate Model for Public Management of  
Freshwater Wetlands.

Prof. Joseph S. Larson  
Forestry & Wildlife Mgt.

017

Developing Methodology for Including Intangibles  
in Benefit-Cost Analysis of Water Resource  
Projects.

Prof. Jean B. Wyckoff,  
Ag. & Food Economics  
Oregon State University

018

Attitudes, Values and Perceptions in Water  
Resource Decision-Making within a Metropolitan  
Area.

Prof. Irving Howards,  
Government

021

Environmental Factors Affecting the Management  
of Reservoir Water Quality.

Prof. Joseph Colonell,  
Civil Engineering

023

A Multi-Variate Model for Public Management  
of Freshwater Wetlands (Final Phase).

Prof. Joseph S. Larson,  
Forestry & Wildlife Mgt.

TITLE II PROJECT

0169

Formation of Public Policy on Issue of Out-  
of-Basin Diversion of Connecticut River Flood  
Waters to Boston Metropolitan Area.

Prof. Bernard B. Berger,  
Director, Water Resources  
Research Center



CONTROL OF BENTHIC DEPOSITS IN LARVAE. E. G. Gunn. Water Resources Research Center Publication No. 16, Summer, 1971. 114 pages plus 4 Appendices. (Completion Report for WRB-005 Mass.).

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PUBLICATIONS: WRA-001 TO WRA-029  
WATER RESOURCES RESEARCH CENTER, UNIVERSITY OF MASSACHUSETTS, AMHERST, MASSACHUSETTS  
PUBLICATIONS: WRB-001 TO WRB-012

ENVIRONMENTAL ASPECTS OF WATER DIVERSION. Bernard B. Berger. Proceedings of the New England Conference on River Diversion, May 1971, at Durham, New Hampshire. Sponsored by the New England Council Center Directors and the New England Governors Conference. August, 1971.

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EIGHTH ANNUAL REPORT

PROGRAM ACTIVITIES

FISCAL YEAR 1972

WATER RESOURCES RESEARCH CENTER

UNIVERSITY OF MASSACHUSETTS

AMHERST, MASSACHUSETTS



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THE DIRECTOR'S STATEMENT



## THE DIRECTOR'S STATEMENT

Increasing stress on research directed toward regional problems represented a strong, central trend during 1971-72, and it continues. This is hardly surprising in view of the amendments to the Water Resources Research Act emphasizing technology transfer and the improvement of coordination and collaboration with public officials concerned with water resources.

This trend is reflected in new projects initiated during the year, or proposed for initiation as soon thereafter as possible. Thus A-041-MASS. seeks to answer the deceptively simple question "How do you sample the quality of a water body most dependably?" Factors justifying uncertainty in current procedure are multiple and complex; they must be understood if expensive, long-range sampling programs are to serve the purposes for which they are designed. Project A-043-MASS. is directed to protection of the groundwater resource in the Cape Cod area by determining the impact of the cranberry industry on groundwater quality. Project A-045-MASS. is likewise concerned with protection of the groundwater resource; it is specifically directed to the development of a much needed predictive technique to assist in evaluating the possible effect of wastewater spreading and of sanitary landfill seepage on the quality of groundwater. Project A-046-MASS. seeks to develop an improved basis for reaching rational decisions on estuarine land and water use by first expressing different social objectives in compatible economic form and second by recommending a procedure for selecting the set of objectives

of maximum economic benefit. Project A-048-MASS. is concerned with the development of a scheme for presenting quantitatively the impact of a proposed land development plan on the land and related water resource and to apply it specifically to estimate the impact of the intersection of two major metropolitan Boston express highways on the regional land and water resource. Project A-051-MASS. is directed to a task of growing interest: how may concerned citizen groups make constructive contributions to planning and policy development of public agencies responsible for water resources development?

Proposals for new projects developed during 1972 are concerned similarly with improving methodology for evaluating probable impacts of proposed developments on the water resource, and thereby to assist in planning and developmental programs. Such proposed projects include sharpening of techniques for predicting environmental impacts; definition of legal and economic issues associated with use of flood plains in a comprehensive flood control program; development of a procedure for determining economic justification for restoration of an anadromous fishery in a stream having dam barriers to free fish migration; and evaluation of the public health hazard resulting from movement of surface films in drinking water reservoirs proposed for recreational use.

A substantial number of projects were completed during this year. The Center's project A-037-MASS. demonstrated that turbidity is the single most important, and the most sensitive, parameter in determining the effect of urbanization on water quality of lakes in the metropolitan area; it suggested that this parameter may in fact be used as a composite

parameter, and further, that measures designed to minimize turbidity, would simultaneously improve water quality in respect to other significant conditions. Project B-011-MASS, which examined a number of complex and difficult questions concerned with planning regional waste management systems presents a realistic approach to this important task. Projects B-012-MASS, and B-023-MASS, provide a wealth of useful information on regional wetlands; but beyond that they present a procedure to assist decision makers concerned with wetlands proposed for alternative development. Project B-018-MASS, probed the nature of attitudes, perceptions and values of individuals concerning regional water resources planning and found that, in general, fragmentation of jurisdiction, lack of interest ("apathy"), and distorted perception of benefits significantly constrained the planning process but that, interestingly enough, conflict among groups concerned with water resources was not important in the case studied. Project C-2169 described a set of procedures bearing on a decision for out-of-basin water transfer. It demonstrated the weakness of the existing data base in answering specific questions on water quality changes. It showed also that strong feeling regarding impairment of water resources values and rights by the proposed diversion appeared to be limited to a small number of intensely interested, highly articulate, well-informed individuals, and not to any general surge of concern on the part of the affected public.

While current and proposed projects are directed to problems important to this region, it may not yet be said that such problems were developed in "close consultation and collaboration with leading water resources

officials within the state...." Officials are informed of our proposed projects and their comments are solicited. However, such communication falls far short of close consultation and collaboration. Two reasons may be cited. One barrier appears to be the fact that water resources officials are pre-occupied with their day-to-day responsibilities, and few can apparently find time to prepare themselves to contribute substantially to a desirable level of consultation and collaboration. A second is that this Center has not pushed this effort sufficiently vigorously to attain this desired input. A proposal for a practicable response to this requirement has been forwarded to the State Water Resources Commission, the State's key group of water resources officials, and it is hoped this will prove to be an effective basis for future consultation and collaboration. A task group of the Center's Advisory Committee has been appointed to assist the Director in developing this program.

Perhaps no phase of the Center's program is less developed, and inherently more frustrating than that concerned with technology transfer. Conventional means for transfer of new knowledge, for many developments, appears to be of limited usefulness. Newsletters, quarterly reports, completion reports, publication reprints, conferences and short courses are effective for many purposes and represent essential components of a technology transfer program, but even in total combination fall short of an optimum program of technology transfer. Too often conventional methods of information transfer represent specialist communicating with specialist, and not producer to ultimate user. Perhaps the most challenging situation occurs in the wastewater treatment field where a



number of influences encourage conservatism on the part of the practitioner, the community, and the State even in the face of exciting new technological developments reported in the literature. The natural conservatism of agencies and individuals responsible for ultimate decision on planning and development constitutes a major challenge to the designer of the program for technology transfer. An examination of this challenge would be justified. It should be based on specific cases carefully selected to clarify patterns of information flow, retardants and stimulants to such flow, relevant behavioral patterns and necessary time and energy investments on the part of information receptors. Such a study could have general application.

OWRR Project Number: A-027-MASS.

Annual Allotment Agreement Number: 14-31-0001-3521

FCST Research Category: VI-A

Project Title: SURFACE WATERS OF A SMALL CITY (SPRINGFIELD, MASSACHUSETTS).

Project Conducted at: Springfield College, Springfield, Massachusetts

Project Began: July, 1969

Scheduled Completion: June, 1972

Principal Investigator: John W. Brainerd, Ph.D., Biology and Conservation

Student Assistants: Colin Brigham, Environmental Studies  
Barbara Moger, Community Education  
Elizabeth Snyder, Community Education

Research Findings:

The major objective of this project is to determine how the surface waters of a small city may be optimally exploited in educational programs of community public schools and a small college. For a third year, environmentally interested Springfield College faculty and students have been experimenting with ways in which the local water resources can be made a meaningful part of learning in several disciplines, trying whenever possible and appropriate to cross over departmental boundaries.

Rather than giving priority to long-term graduate research, emphasis has been devoted to short-term projects by undergraduates, to take advantage of their current interests and courses (not always identical). The research has educational aims considering at least as much what happens to faculty and students as to what data are gathered, organized, and reported. Attention is also given to any possibly significant inter-relationships created between the college and the community by the carrying on of these studies.

Three students have had projects this past year. One, enrolled in Environmental Studies, continued an evaluation of quality of water flowing into a wetland obtained by the Conservation Commission, but under litigation prohibiting direct access into the area by court injunction.

Two students in the Community Education Department have been working under the Principal Investigator trying to increase the interest of inner-city children in water resources through experiences with water on their

NARRATIVE REPORTS

ANNUAL ALLOTMENT PROJECTS



Research Findings, Cont.

usually desert-like schoolgrounds. The surface waters in these sites are ephemeral but not insignificant as environmental factors influencing the human mind. One student worked with lower elementary children at a parochial school, relating the water to growth of the kinds of plants that can sometimes survive in paving cracks and peripheries of dirt parking lots - if they get enough water. Another student worked with a science club after school at a junior high, using as a focus an outdoor swimming pool, which of course was empty all spring.

Work Remaining:

Research findings for this year are being formulated. They will include some data from measurements of water, and these can be categorized as "scientific" in the sense of tabulated physical data adding to our store of knowledge about local surface waters. Perhaps as significant will be an evaluation of our efforts to utilize the local water resource in educational programs directed to providing an understanding of urban man's actual relationship to and interaction with this important natural resource.

Publications:

None

OWRR Project Number: A-032-MASS.

Annual Allotment Agreement Number: 14-31-0001-3521

FCST Research Category: VI-B

Project Title: OPTIMIZING STRATEGY FOR STATE WATER POLLUTION CONTROL  
IN THE POST "PLAN OF IMPLEMENTATION" PERIOD.

Project Conducted at: University of Massachusetts, Amherst, Mass. 01002

Project Began: July, 1970

Scheduled Completion: June, 1973

Principal Investigator: Bernard B. Berger, M.S., Sanitary Engineering

Student Assistant: Thomas DeLuca, M.A., Political Science

Research Findings:

Study was focussed on a set of five criteria selected for evaluation of performance of water resource agencies: organizational efficiency, responsiveness to public perceptions of need, comprehensiveness of geographical and functional jurisdiction, representation of legitimate interests, and decision capability. These criteria, accepted tentatively as initial probes for performance effectiveness, were refined to permit their application to several types of agencies of special importance and interest: the Ohio River Valley Sanitation Commission, Miami Conservancy District, Delaware River Basin Commission, the Maryland Environmental Service, and the Wisconsin Valley Improvement Company. The nature of the refinement to the evaluative procedure included considerations of specification of lines of authority, accountability, and information flow; citizen participation in planning and policy formation; logic of geographical area of jurisdiction; logic of the set of water resource elements of concern; logic of the set of agency functions; representation of interests affected in agency administration; and capability for decision in fulfillment of specific agency functions. While the study is demonstrating the utility of a relatively direct approach to performance evaluation, particularly for the concerned citizen and his elected representative, it appears that the five-pronged probe must be further examined and refined before its use may be properly recommended.

Because public interest in agency performance is often reflected in concern regarding the degree to which citizen groups participate constructively in planning and policy decisions, a related investigation was initiated

### Research Findings, Cont.

into the attitudes, perceptions and values of public officials and citizen groups with regard to institutionalization of public participation in water planning.

### Work Remaining

The set of criteria proposed for evaluating water quality management institutions will be refined and tested further, and will be presented in a form to be maximally useful to public officials and citizen groups concerned with water quality management particularly in the New England region.

### Publications

Publication pending: C. Vernon Gray and Irving Howards, "Institutional Reforms for Water Quality Management."

OWRR Project Number: A-037-MASS.

Annual Allotment Agreement Number: 14-31-0001-3521

FCST Research Category: IV-C

Project Title: THE ORIGIN, EFFECTS, AND CONTROL OF TURBIDITY IN AN URBAN RECREATIONAL LAKE.

Project Conducted at: University of Massachusetts, Amherst, Mass. 01002

Project Began: September, 1970

Scheduled Completion: June, 1972

Principal Investigator: Stanley M. Bemben, Ph.D., Civil Engineering

Student Assistants: Carlos Carranza, M.S., Civil Engineering

Research Findings:

The research plan involves field and laboratory investigations directed at the determination of the origin, the identity, and the significant effects of turbidity in an urban recreational lake. The main approach in the investigation has been to observe and analyze the physical, chemical and biological actions which create turbidity in an urban lake. Research to date, at Mt. Lake Resort, in Chicopee, Mass., has demonstrated that turbidity is the single most important and sensitive parameter in studying urban recreational water quality. Standard environmental parameters such as B.O.D. and D.O., etc., are of limited use in characterizing urban lake waters. Though difficult to define, and actually a composite parameter within appropriate boundary conditions, the time and spatial analysis of turbidity is an excellent way to characterize urban lakes.

Detailed data taken over a year of field study, demonstrate that turbidity is related to suspended solids, many dissolved solids such as iron or copper, etc., color, Secchi transparency, and general bacteriological quality. Comparison, on a limited basis with other urban waters in Springfield, Mass., suggest that data from Mt. Lake may be extrapolated to other areas.

Urbanization of the drainage basin above Mt. Lake can be demonstrated to be a major source of pollution to Mt. Lake, especially through stormwater runoff. Eutrophic conditions should exist, but have been avoided by annual draining and dredging. Summer phytoplankton blooms are related to storms, and are preceded by bacterial blooms.



Research Findings, Cont.

Proper land and water management techniques in the drainage basin above Mt. Lake, diversion of stormwaters, or the in-situ treatment of individual storm drains are some possible turbidity controls.

Much additional research is needed on the relationships of various land uses to turbidity, the organic contributions to turbidity, a study of conflicting land and water use of urban lakes, and an in-depth study of subdivision control laws and zoning practices.

Work Remaining:

Preparation of final report.

Publications:

None

OWRR Project Number: A-038-MASS.

Annual Allotment Agreement Number: 14-31-0001-3521

FCST Research Category: VI-G

Project Title: EFFECTS OF WATER DIVERSION ON ESTUARINE FAUNA IN  
MERRIMACK RIVER, MASSACHUSETTS.

Project Conducted at: University of Massachusetts, Amherst, Mass. 01002

Project Began: February, 1971

Scheduled Completion: June, 1972

Principal Investigator: Charles F. Cole, Ph.D., Fisheries Biology

Student Assistants: George Libey, B.S., Marine Sciences

Research Findings:

The objective of this study initiated in February 1971 was to determine the effect of proposed diversion of fresh water from the Merrimack River, Massachusetts, upon the estuarine organisms dependent upon fresh water to dilute water at the estuarine mouth. The work, summarized here, will be phased out on June 30, 1972, one year early, for the following reason. Subsequent to initiation of this project, large portions of our proposal were duplicated by an intensive and large study funded in May, 1971 by the U.S. Army Corps of Engineers that was completed in November, 1971. A copy of the first draft of this study is being revised for final agency approval and release to the public. When the Corps of Engineers awarded the study to a private firm, our project was informally restructured to provide additional information in areas not to be covered by the Corps of Engineers' program. Since our level of support dictated a limited project, we decided to concentrate on the benthic fish resources off the mouth of the Merrimack River that are now under the direct influence of the river discharge. A benthic fish trawl survey was initiated and data are now being analyzed by George Libey whose thesis should be completed by 31 August, 1972. A copy of this thesis will be included in the final report. We also conducted a limited review of the anadromous fish resources and the present state of the Merrimack River fish passage facilities; these areas will also be covered in the final report.

Work Remaining:

Preparation of project termination report.

OWRR Project Number: A-040-MASS.

Annual Allotment Agreement Number: 14-31-0001-3521

FCST Research Category: V-B

Project Title: THE EFFECT OF LAND USE ON THE CHEMICAL AND PHYSICAL  
QUALITY OF SURFACE AND GROUND WATERS IN SMALL WATERSHEDS.

Project Conducted at: University of Massachusetts, Amherst, Mass. 01003

Project Began: April, 1971

Scheduled Completion: June, 1973

Principal Investigator: Martin E. Weeks, Ph.D., Plant and Soil Sciences

Student Assistants: Lewis Horzempa, B.S., Soil Chemistry  
Alfred Blackmer, B.S., Animal Science

### Research Findings:

The project's objectives are to make initial estimates of the quality of surface and ground waters and other drainage entering a small watershed; determine to the extent feasible the influence of forestry, agriculture and small urban centers on these waters; and develop simplified procedures for monitoring surface and ground water quality at various levels. The focus of study, the South River watershed, comprises an area of approximately 25.7 square miles (16400 acres) in the southwestern portion of Franklin County, Massachusetts. Headwaters are about a mile above Ashfield and its mouth joins the Deerfield River in Conway, covering a distance of about 12 miles. Some over 360 houses of residence are in the watershed and there are a few small business enterprises.

There are sixteen active farms on about 3000 acres with approximately half the acreage cleared. Sixteen per cent of the cleared land is in cultivated crops, mostly corn. The rest is in hay and pasture. Cattle on farms number a little over 1100 head. This would give a general cattle density of 44 per square mile, though these are concentrated mostly along the streams. No estimate has yet been made of other domestic livestock or of wildlife but these would undoubtedly equal or exceed the cattle numbers.

Stream samples have been taken for analysis each month since October, 1971 from eight sites on the stream. Three of these were taken above or in Ashfield, runoff from forested lands in the Berkshire Hills. Three more were taken in the farm area below Ashfield and above Conway, and two were taken below Conway near the mouth of the river. All samples

### Research Findings, Cont.

were analyzed immediately for pH, specific conductance, chloride, phosphorus, nitrate, ammonium, potassium, calcium and magnesium, with some B.O.D. and C.O.D. determinations. Water samples were found to be quite low in salts and nutrients at all locations, though there was some fluctuation from month to month. Nitrate nitrogen was low in only a few instances, measuring more than one part per million. Phosphorus ranged from 0.002 to 0.21 ppm, chlorides from 2 to 34 ppm, calcium from 10 to 23 ppm.

Little relationship has so far been found with location, a fact due undoubtedly to dilution from side streams and possibly to rapid oxidation and purification caused by the rapid moving turbulent water.

### Work Remaining:

Work remaining includes measuring stream flow at different places in the river and perhaps from one or two side brooks, sampling and analysis of ground water in the location of one or two farms - all needed to work out the best system of monitoring salts and nutrients and their possible relation to biological activity and contamination in the water.

### Publications:

Heavy Manure Applications: Benefit or Waste? In Press. Cornell Agricultural Waste Management Conference. Syracuse, New York. Feb. 2, 1972.

OWRR Project Number: A-041-MASS.

Annual Allotment Agreement Number: 14-31-0001-3521

FCST Research Category: VII-A

Project Title: A PROBABILISTIC APPROACH TO STREAM SAMPLING

Project Conducted at: University of Massachusetts, Amherst, Mass. 01002

Project Began: April, 1971

Scheduled Completion: February, 1974

Principal Investigator: Donald Dean Adrian, Ph.D., Civil Engineering

Student Assistants: Robert Cleary, Ph.D., Chemical Engineering  
Thomas Sanders, M.S., Civil Engineering  
Donald Ray, M.S., Civil Engineering

Research Findings:

The objectives of this investigation are to:

1. Characterize the hydrodynamic mixing of a river so that the lateral, vertical and longitudinal locations of sampling points can be specified.
2. Determine the statistical significance of results obtained from samples collected for various sampling durations and frequencies at the above sampling points.

Characterization of the hydrodynamic mixing of a river has been accomplished by means of a model which is based upon the classical three dimensional dispersion and advection equation. The method of images principle was used in the development of the model to fulfill the no flux boundary conditions at the stream boundaries. Field tests were conducted with the model to determine values of the dispersion coefficients. The measured dispersion coefficients compare favorably with values measured by other researchers and indicates that the longitudinal dispersion coefficient is several orders of magnitude greater than the lateral and vertical dispersion coefficients. In addition, analytical solutions have been developed for the three dimensional dispersion and advection equation, thus allowing a comparison of results from two independent sources.

### Research Findings, Cont.

Associated with characterizing the hydrodynamic mixing of a river is a study of the hydrodynamic response of a river to varying upstream or downstream boundary conditions, i.e. surges due to hydroelectric power generation. This study will help to determine the role played by unsteady river flows on the diluting or dispersing characteristics of a river.

The optimal sampling frequencies for several parameters is being investigated utilizing a spectral analysis procedure. From the number of harmonics associated with a given parameter estimates of the percent variance associated with each harmonic can be made indicating a level of confidence for a given sampling regime. A similar procedure is being planned to evaluate sampling duration.

### Work Remaining

Approximately half of the work necessary to accomplish objectives 1 and 2 is incomplete. During the next fiscal year mixing models which have been developed will undergo additional field testing and modification, if necessary. Also statistical analysis of accumulated state and federal agency sampling data to determine optimal sampling frequencies and duration will be made.

### Publications

David R. Cochrane, "Application of Image Theory to Mixing in Streams," M.S. thesis in Environmental Engineering, May, 1972.

Robert G. Cleary and Donald Dean Adrian, "New Analytical Solutions for Dye Diffusion Models", submitted to ASCE Sanitary Engineering Division Journal.

OWRR Project Number: A-042-MASS.

Annual Allotment Agreement Number: 14-31-0001-3521

FCST Research Category: VI-G

Project Title: ECOLOGICAL STUDIES OF MARSH VEGETATION IN IMPROVED  
STREAM ENVIRONMENTS OF THE CONNECTICUT RIVER WATERSHED  
IN MASSACHUSETTS.

Project Conducted at: Smith College, Northampton, Massachusetts

Project Began: July, 1971

Scheduled Completion: June, 1973

Principal Investigator: C. John Burk, Ph.D., Biological Sciences

Student Assistants: Marie Chow, Mathematics  
Richard Brown, Biological Sciences  
Arthur Lawry, B.S., Botany  
Mary Lincoln, B.S., Biological Sciences  
Alexander Mesrobian, B.S., Biological Sciences

### Research Findings:

The research seeks to analyze the vegetation of marshes developed behind impoundments or elsewhere along selected streams within the Connecticut River watershed in Massachusetts and correlate the structure of that vegetation with disruptive factors, including improper land use, pollution, and manipulations of the water level of these streams. Data derived from the study will be used to establish parameters by which the structure of vascular plant communities or populations may be used as biological indicators of disturbance.

During the summer of 1971, studies were initiated on the Mill River in Amherst and North Hadley, Massachusetts, and on the Manhan River in Easthampton. The Mill River was found to be subject to extreme eutrophication in some areas as a result of agricultural pollution; tributaries of the Manhan are heavily polluted by surrounding industries. Vegetation was sampled by standard ecological procedures in all zones of marshes developed behind impoundments on these streams. Data from this work reinforce observations from a previous study (Robinton and Burk, 1971, Completion Report 72-4, Water Resources Research Center), showing clearly an inverse relationship between water quality and the diversity of marsh vegetation. Diversity was measured in terms of species richness, number of species per quadrat, and the Shannon-Weaver diversity formula. A computer program has been devised to simplify these calculations.

### Research Findings, Cont.

Within each river system, diversity as measured by these criteria was found to decrease in downstream, more disturbed marshes, while total coverage was found to decrease in areas of high industrial pollution and to increase in areas of eutrophication.

Sampling was repeated in those portions of the Northampton Mill River studied in the earlier project. Major sources of pollution and other disturbance on that stream have been eliminated since that project by the closing of a municipal dump bordering on the stream and by tighter restrictions on the release of industrial effluents. Two downstream marshes which in 1969 showed low diversity and coverage of vegetation exhibited a marked recovery in richness, number of species per quadrat, diversity as measured by the Shannon-Weaver formula, and total coverage within the two year period. Upstream marshes, relatively undisturbed in 1969, showed only slight change in vegetative structure. This is, to our knowledge, the only instance where concrete evidence of the response of marsh vegetation to pollution abatement has been obtained and a manuscript describing this is now in preparation.

### Work Remaining

It is unlikely that sources of disturbance on the Amherst-North Hadley Mill River or on the Manhan will be eliminated in the near future. Sampling in 1972 will establish the extent to which effects observed in 1971 are permanent aspects of the vegetation in these river ecosystems. In addition, detailed studies of the sources and nature of pollutants and other disturbance on these two streams will be conducted. Manuscripts describing the effect of disturbance on marsh structure will be prepared for publication in an appropriate journal.

### Publications

"Recovery of Vegetation in a Pollution-Damaged Marsh". In preparation.



OWRR Project Number: A-043-MASS.

Annual Allotment Agreement Number: 14-31-0001-3521

FCST Research Category: V-B

Project Title: IMPACT OF THE CRANBERRY INDUSTRY ON THE QUALITY OF  
GROUND WATER IN THE CAPE COD AREA.

Project Conducted at: Cranberry Experiment Station, East Wareham, Mass.

Project Began: July, 1971

Scheduled Completion: June, 1973

Principal Investigator: Karl H. Deubert, Ph.D., Biology

Student Assistants: Jayne Timmerman, M.S., Soil Science

#### Research Findings:

Work on this project started in 1971 with the analysis of 260 water samples taken from 88 ponds and streams in Barnstable and Plymouth Counties (Massachusetts). Plymouth County was selected because of extensive agricultural activities using considerable amounts of surface water for flooding (cranberry industry), whereas the economy of Barnstable County is characterized by construction industry and massive tourist industry. Lack of other industries in both counties facilitates the study of the impact of human activities on water quality in the area.

Agriculture in the area depends on the availability of fresh water for flooding. Flood water used in cranberry production is released into streams and ponds. It was assumed that effects, if any, of drained flood water on water quality should be detectable especially in ponds since flooding has been practiced for approximately 100 to 150 years. However, comparison of data on D.O., pH, conductance, hardness, Mn, Cu, Zn, Cd, Ni, Mg, Ca, Fe, phosphate, nitrate, dieldrin and DDT found in samples from 34 ponds containing bog drainage, with data obtained from samples taken from 39 ponds without drainage did not suggest any differences in water quality between the two groups of water bodies. Water samples taken from flooded bogs were somewhat lower in pH than in adjacent ponds.

Since only few and inconclusive groundwater quality data were available, the surface water study was extended for two more months to facilitate

### Research Findings, Cont.

the localization of areas with groundwater problems. Based on results of this study, the groundwater sampling program was restricted to the Cape Cod area.

While insufficient data are available to permit definite conclusions, it appears that second to saltwater intrusion, contamination of groundwater sources of private water supply with nitrate seems to be a problem of significance in residential areas.

### Work Remaining

The Boston Office of the U.S.G.S. has given permission to sample U.S.G.S. test wells. Sewage and Water Commissions of two towns and a military installation have offered their facilities for monitoring purposes. The Cape Cod Planning and Economic Development Commission is doing public relations work for our program through news media. The commission is also supplying demographic data on construction activities and traffic density.

With the assistance of these agencies we expect to analyze approximately 600 groundwater samples for hardness, Cu, Zn, Ni, Mn, Mg, Ca, Fe, Cd, nitrate, phosphate, pH, color, conductivity, dieldrin and p,p'-DDT. It is expected that results obtained next year can be correlated with demographic data, traffic density and construction activities. Data provided by this study will be used for planning work by local and county authorities. Because of the interest generated by this project, a compilation of preliminary data will be distributed soon among selectmen and water commissioners.

### Publications

None

OWRR Project Number: A-044-MASS.

Annual Allotment Agreement Number: 14-31-0001-3521

FCST Research Category: V-C

Project Title: CULTURAL EUTROPHICATION, A PALEOLIMNOLOGIC APPROACH.

Project Conducted at: University of Massachusetts, Amherst, Mass. 01002

Project Began: July, 1971

Scheduled Completion: May, 1972

Principal Investigator: Stuart D. Ludlam, Ph.D., Zoology

Student Assistants: Karen Hutchison, M.S., Zoology  
George Henderson, B.S., Zoology

#### Research Findings:

This project was initiated to elucidate the recent history of Stockbridge Bowl (Lake) in Stockbridge, Massachusetts. In order to do this a thorough survey of the present condition of the Lake has been undertaken and will be compared with historical information drawn from sediment studies, library resources and the personal recollections of the citizens of the area. To date, a year's data have been collected from the lake and the historical aspects of the study have begun. Because much of the data has yet to be analyzed, only a preliminary statement of findings is possible.

A major change has occurred in the phytoplankton community of the lake in the last half-century. Prior to that time, diatoms (Bacillariophyceae) formed a major, if not dominant, part of the phytoplankton. At present, however, the diatoms have been much reduced in their importance and the blue-green algae (Myxophyceae) have become dominant. This dominance is shared during the summer with Ceratium sp. (Dinophyceae), Fragillaria sp. (Bacillariophyceae) and Staurostrum sp. (Chlorophyceae). Factors which may have encouraged this change have been cultural eutrophication and herbicide treatment. It is hoped that continued sedimentary analyses supplemented with analyses of changes that occur this spring after herbicide treatment will differentiate between these two possibilities.

Stockbridge Bowl is presently eutrophic and as a result oxygen depletion of the hypolimnion occurs rapidly during the summer. Anoxia is reached in the lower half of the hypolimnion by mid-July and the entire hypo-

Research Findings, Cont.

limnion becomes anoxic by the end of August. During winter stratification only the lowermost layers of the hypolimnion become anoxic. Interestingly enough, calcium, magnesium and silica are apparently released from the sediments under oxidizing conditions and increase rapidly in the hypolimnion after stratification has become established. Values stabilize before the onset of anoxia. Because of the excess of these and other substances that accumulate in the hypolimnion, complete mixing is delayed and does not occur until November in the fall and for at least two weeks after ice-out in the spring.

Work Remaining

Final report under preparation.

Publications

None

OWRR Project Number: A-045-MASS.

Annual Allotment Agreement Number: 14-31-0001-3521

FCST Research Category: II-G

Project Title: EVALUATION OF TRACERS AND TRACER TECHNIQUE TO DEPICT THE MOVEMENT OF WATER AND POLLUTANTS IN POROUS MEDIA.

Project Conducted at: University of Massachusetts, Amherst, Mass. 01002

Project Began: July, 1971

Scheduled Completion: July, 1974

Principal Investigator: Gordon L. Stewart, Ph.D., Soil Physics

Student Assistants: Safa Jubboori, Ph.D., Soil Physics  
John Stetson, B.S., Environmental Engineering

### Research Findings:

The project's objective is to conduct tests to determine suitable tracers to depict the movement of water and pollutants in porous media. This involves studying the interaction of tracers and pollutants with soil materials and relating the results to thermodynamic, dispersion and adsorption phenomena, and the physical and chemical properties of the soil.

Column studies were conducted in the laboratory to investigate the interaction of tritium and deuterium with soils during unsaturated water flow. Preliminary data suggest that as these isotopes are transported through soils, isotopic interaction and exchange occurs with crystal lattice hydroxyls causing a depletion in isotopic concentration in the tracer solutions. The data show that diffusion into initially dry Davidson clays results in a decrease in isotopic concentration of pore water as the wetting front is approached. After the wetting front has advanced 50 cm into the dry soil, the pore water immediately back of the wetting front was found to have an isotopic concentration of only about 50% of that of the original tracer solution. The rate of decline in isotopic concentration with distance from the free water source appears to be a function of total diffusion distance (or amount of dry surface contacted by tracer solution) and not diffusion time.

Equilibrium investigations, employing different types of clay minerals and soils, are being conducted to determine if isotopic fractionation occurs between the tenaciously adsorbed water phase and the bulk pore

### Research Findings, Cont.

water phase, and to measure the degree of isotopic interaction with crystal lattice hydroxyls. The data suggest that very little isotopic fractionation occurs between tenaciously adsorbed water and bulk pore water. Therefore, it is unlikely that there is sufficient holdup of tritium and deuterium tracers in tenaciously adsorbed water to cause the observed retardation in tracer flow velocity compared to the flow velocity of bulk water (protium). The interaction between adsorbed water and crystal lattice hydroxyls was found to vary appreciably with type of clay mineral. Kaolinite shows that a maximum of about 2% of its hydroxyls are exchangeable with bulk pore water, whereas about 45% of the hydroxyls in Montmorillonite may be labile to isotopic exchange. Davidson clay, a Kaolinitic field soil employed in the diffusion tests, appears to have a maximum of about 15% exchangeable hydroxyls. Experimental procedures employed did not allow for the percent exchangeable hydroxyls in clay minerals to be distinguished from isotopic fractionation.

### Work Remaining

To determine if tritium and deuterium isotopes fractionate during exchange between tracer solution and hydroxyl groups and to compare their behavior as water tracers with the behavior of other potential tracers and/or pollutants such as non-interacting anions, radicals, cations, and other elements that exhibit high interaction with porous media. Elements such as chloride, sodium, forms of nitrogen, phosphates, and organic materials will be used and their diffusion properties will be examined and compared with bulk water flow and with tracer phenomena.

### Publications

None

OWRR Project Number: A-046-MASS.

Annual Allotment Agreement Number: 14-31-0001-3521

FCST Research Category: VI-C

Project Title: DEVELOPMENT OF MULTIPLE OBJECTIVE ECONOMIC PLANNING  
MODELS FOR ALLOCATION OF ESTUARINE POLICIES.

Project Conducted At: University of Massachusetts, Amherst, Mass. 01002

Project Began: July, 1971

Scheduled Completion: August, 1972

Principal Investigator: David A. Storey, Ph.D., Agricultural Economics

Student Assistants: Roger Allbee, B.S., Agricultural & Food Economics

### Research Findings:

The project's objective is to develop a decision framework which permits simultaneous consideration of multiple objectives in planning the use of estuarine land and water resources.

The basic problem is that different social objectives for the use of coastal zone land and water resources are expressed and measured in non-commensurable ways, and thus public decisions about resource allocation are difficult to make. Traditional methods offered by economists to circumvent the problem have, in our opinion, involved too many artificial and unrealistic measures or have been too oversimplified to be useful in the complex real-world decision making process.

Our exploratory study (first year stage) has developed, and is in the process of empirically applying, a decision framework which involves the use of so-called "goals-achievement matrices." Within a case study coastal community (Ipswich, Mass.), estuarine land and water resources and their existing and potential uses have been identified and categorized. Use impacts on each community objective have been stated. Impacts are measured in terms most appropriate to the individual objective being considered. Thus, different monetary and non-monetary measures will be considered simultaneously, and the effect of different weighting systems upon the overall decision process will be examined.

The incremental effects of selected changes in use patterns will be estimated and aggregated. The initial test of the decision framework

Research Findings, Cont.

will focus upon the usefulness of the framework to local decision makers in Ipswich.

Work Remaining

The work remaining on the first year study is to conduct an evaluation of the usefulness of the decision framework within the case study community. Then the results will be published.

The second year of the study will apply a modification of the decision framework to a coastal region of several communities, probably Cape Cod. A modified input-output approach will be used to generate impact coefficients for money-valued and non-money-valued objectives.

Publications

None



OWRR Project Number: A-048-MASS.

Annual Allotment Agreement Number: 14-31-0001-3521

FCST Research Category: VI-G

Project Title: THE INTEGRATION OF WATER AND RELATED LAND VALUES INTO  
A METROPOLITAN LANDSCAPE PLANNING MODEL.

Project Conducted at: University of Massachusetts, Amherst, Mass. 01002

Project Began: August, 1971

Scheduled Completion: September, 1972

Principal Investigator: Julius Gy Fabos, M.L.A., Regional Planning

Student Assistants: None

#### Research Findings:

The Metropolitan Landscape Planning Model (METLAND) study is involved in developing quantitative methods for measuring changes in water and related resource values in the metropolitan (i.e., suburban) landscape. The twelve (12) "resource variables" describing specific aspects of the physical environment (e.g. water supply (quantity)) have been identified and their values to society have been substantiated. (E.g., the water supply variable assumes that locally obtainable water has a greater social value than water which must be imported.) In addition, a quantitative metric has been developed for the measurement of each variable with the highest and lowest possible values for the study area Metropolitan Boston, Massachusetts being set equal to "100" and "0", respectively. (E.g., a water supply resource value of 100 means that water moves through the system with minimum losses from consumptive use and enters the system evenly over time; a value of 0 indicates maximum losses and most uneven distribution in time).

A preliminary computerized statistical model combining all twelve variables has been derived allowing for the determination of composite resource value change (given or loss) in a 20 year period (1951-1971) in each of the following towns in the Boston region: Burlington, Wilmington, Tewksbury. The model is based on a random sample of the total area of each town and includes a procedure for determining the size of the sample needed for a specified level of "representativeness".

Work Remaining

With work on this project now about two-thirds completed, the chief task remaining is the collection and analysis of data for each variable in the three towns, individually and collectively, in the effort to arrive at the overall change in water and related resources values for the period of the study.

Publications

None

OWRR Project Number: A-049-MASS.

Annual Allotment Agreement Number: 14-31-0001-3521

FCST Research Category: V-C

Project Title: STATISTICAL STUDY OF THE DUCKWEED RHIZOSPHERE AS AN ECO-ASSAY TOOL.

Project Conducted at: University of Massachusetts, Amherst, Mass. 01008

Project Began: November, 1971

Scheduled Completion: June, 1973

Principal Investigator: Robert A. Coler, Ph.D., Aquatic Biology

Student Assistant: None

Research Findings:

Because of unanticipated staffing problems, work on this project was held in abeyance for the larger part of the year.

Work Remaining:

To institute a statistical analysis of the duckweed rhizosphere community's capacity to function as an ecological assay. This will be done in two phases:

1. definition of baseline fluctuations of rhizosphere-dominant metazoan population densities and compositions sustained by duckweed (Lemna minor).
2. initiation of observations on stress-induced changes associated with exposure to various concentrations of pollutants including mercury, cadmium, diazinon (pesticide) and raw domestic sewage.

Publications

None.

OWRR Project Number: A-050-MASS.

Annual Allotment Agreement Number: 14-31-0001-3521

FCST Research Category: VI-E

Project Title: LEGAL ISSUES IN ECONOMIC UTILIZATION OF THE CONNECTICUT RIVER FLOOD PLAINS.

Project Conducted at: University of Massachusetts, Amherst, Mass. 01002

Project Began: January, 1972

Scheduled Completion: June, 1972

Principal Investigator: Daniel Wilkes, LL.M., Law

Student Assistants: None

Research Findings:

This project investigated legal issues which influence economists in determining what can be done to manage the Connecticut River Flood Plains and how much must be paid landowners in public costs as the price of such management. At mid-point, it has already been found that:

1. When the economist comes to build up his economic model for decisions on public management of the Connecticut River flood plains, he does not have precedents in federal or state decisions from which he can say: "If governments limit use of the flood plains to M, N, O & P they'll not have to pay compensation to landowners, but if they limit them only to O & P they will have to make such payments." Likewise, economists do not have clearcut precedents from which it can always be told what the formula will be for the value of the right taken away from the owner of flood plain lands even if it can be foretold that courts will consider restrictions as some kind of "taking" of the lands for public use.

2. As a result, economic studies will have to make explicit, and alternative, assumptions about the law itself in order to set the range within such costs might lie, when stated types of property, restrictions of use or managing authorities are involved.

Work Remaining

A listing of the variables for which each jurisdiction's precedents will

Work Remaining, Cont.

determine these ranges of public costs is being compiled; an analysis of possible losses from lack of management in terms of what the economist calls "social and opportunity costs" will be given; lastly, ways to gather the econometric data which will make possible application within economic models of these variables and opportunity costs will be made.

Publications

None

OWRR Project Number: A-051-MASS.

Annual Allotment Agreement Number: 14-31-0001-3521

FCST Research Category: VI-A

Project Title: PARTICIPATORY ROLE OF CITIZEN ADVISORY GROUPS IN  
DECISIONS ON RESOURCE ALLOCATION -- A PRELIMINARY STUDY.

Project Conducted at: University of Massachusetts, Amherst, Mass. 01002

Project Began: January, 1972

Scheduled Completion: June, 1972

Principal Investigators: Gordon F. Sutton, Ph.D., Sociology  
Madge O. Ertel, Ph.D., Political Science

Research Findings:

The current study, which it is hoped is only preliminary to a broad research effort, is concerned with a review of literature relevant to the role of citizen advisory groups in natural resource planning. What literature is available on the subject reveals that, while the utilization of advisory groups to governmental agencies is not a new concept by any means, what is new is a view of such groups as mechanisms seeking broader and more meaningful public participation in resource planning. This new approach has developed in the national context of increasing citizen demands for participatory roles in decision-making on vital social issues. Also contributing to this new approach has been the rising concern, by both citizens and resource planning agencies, with environmental protection. The increasing utilization of citizen advisory groups in resource planning appears to be a promising contribution toward public expression of, and agency response to, this concern.

A good deal of the time and effort on this project to date has involved identification of completed, existing, and proposed advisory group situations in the New England area, and particularly those involved in water resource planning under the auspices of the U.S. Army Corps of Engineers and the New England River Basins Commission. With some related additions, those groups already identified should provide a sufficient data base for the much more detailed observation planned as a further stage of this research.

These advisory groups share certain common issues and problems, such as method of membership selection, balance in representation of interests,

### Research Findings, Cont.

definition of goals, and development of operating procedures. Because of their innovative nature, however, there is as yet no body of literature or experience which can provide definitive guidance in the resolution of such problems. Observations from experience in other fields can help, but much more useful will be a systematic examination of ways these groups work out their problems in practice. Particularly valuable will be the opportunity to observe through time, certain groups (those associated with the Long Island Sound Study and the Connecticut River Basin Program of NERBC for example), which are presently at the initial stages of organization. This behaviorally-oriented observation, along with the development of a set of performance criteria for evaluating group's effectiveness as public participants in the decision-making process, can, however, provide guidance for the future. Such a contribution will be the goal of the next stages of this research.

### Work Remaining

A final report on this initial project is under preparation.

OWRR Project Number: A-055-MASS.

Annual Allotment Agreement Number: 14-31-0001-3521

FCST Research Category:

Project Title: HISTORICAL AND CURRENT DATA IN THE ANALYSIS OF POLLUTION OF THE CONNECTICUT RIVER.

Project Conducted at: University of Massachusetts, Amherst, Mass. 01002

Project Began: June, 1972

Scheduled Completion: August, 1972

Principal Investigator: Alan J. Gross, Ph.D., Mathematical Statistics

Student Assistant: Mary Jane Mitchell, B.S., Public Health

Research Findings:

This project which seeks to determine whether there are significant discontinuities in a supposedly uniform long term record of water quality in a major stream was initiated at the close of the year. All major sources of data have been identified and a base of relevant data has been established.

Work Remaining:

To attain the objectives of this project which are:

1. Evaluate historical data on pollution of the Connecticut River, to estimate the confidence assignable to its interpretation and use. In doing this a regression model will be developed to evaluate the common parameters to determine those which are most highly associated with water pollution under actual field conditions. Since water pollution is affected by such phenomena as snowfall and agricultural runoff, which have lag times that must be accounted for with respect to the measure of pollution, some consideration of time series methods will also be given.
2. Recommend an improved sampling program.

Publications:

None



NARRATIVE REPORTS

MATCHING GRANT PROJECTS



OWRR Project Number: B-077-MA55.

Matching Grant Agreement Number: 14-01-0001-1972

FCST Research Category: IV-A

Project Title: A METHODOLOGY FOR PLANNING OPTIMAL REGIONAL WASTEWATER  
MANAGEMENT SYSTEMS.

Project Conducted at: University of Massachusetts, Amherst, Mass, 01002

Project Began: July, 1968

Scheduled Completion: August, 1972

Principal Investigators: Donald D. Adrian, Ph.D., Civil Engineering  
Richard J. Giglio, Ph.D., Industrial Engineering  
Frank C. Kaminsky, Ph.D., Industrial Engineering  
Robert F. Ridders, Ph.D., Industrial Engineering

Student Assistant: Donald Ray, M.S., Civil Engineering

### Research Findings:

The research effort consisted of a number of interrelated activities; major efforts were directed in the following areas.

1. The development of a computerized algorithm to seek an optimal solution to the facilities location problem. The algorithm uses a logical, consistent set of rules (heuristics) to determine (a) those sites at which treatment facilities should be constructed and (b) which wastewater sources should be assigned to each of the sites over time.
2. The development of a methodology for projecting the distribution and quantity of wastewater generated within a region over time.
3. The development of a model and a computerized algorithm to seek the optimal configuration for discharging the effluent from a treatment facility. It was shown that compared to the one-outfall case the effluent from a plant discharging through several outfalls can be of lower quality and still not violate stream standards. Thus, the reduced cost of treatment may compensate for the added cost of a more elaborate transport system.

### Research Findings, Cont.

4. The development of a methodology for allocating the costs of a regional system in an equitable manner. A procedure has been developed for finding an allocation of costs which would make all participants "happy" in the sense that no party (or group) could find a means of getting a better price than the one allocated to it.

In addition, a number of other projects were undertaken to support the overall goals of the research effort. These included a study directed at the problem of seeking an optimal transport network for linking the wastewater sources and the treatment facilities and a study related to the problems associated with stormwater overflows. The latter project was primarily concerned with the feasibility of injecting combined sewer overflows into underground formations.

It is felt that the methodological approach and the techniques developed as a result of this research effort are logically sound and at a stage of development such that they can be implemented to yield rational, economic regional plans. Experience in the implementation of planning models to "real world" problems has clearly demonstrated that it is extremely important to have those who are developing the planning technology and those who will eventually use the methodology working in close cooperation in an actual planning situation.

### Work Remaining

The final report will be submitted in July, 1972.

### Publications

D. D. Adrian, R. J. Giglio, F. C. Kaminsky and R. F. Ridders, "A Systems Approach to Waste Management", Proceedings of the Fourth American Water Resources Association Conference, Nov., 1968.

The above article was reprinted in modified form under the title "Regional Waste Management Systems" with the consent of AWRA in the Proceedings of the Conference on Water Quality Research in Developing Countries, Tel-Aviv, Israel, June, 1969.

D. D. Adrian, F. C. Kaminsky and R. F. Ridders, "Planning Optimal Regional Wastewater Systems", presented at the American Society of Civil Engineers Conference, October, 1969.

Publications, Cont.

R. W. Deacon and R. J. Giglio, "A Methodology for Determining Optimal Longitudinal Spacing of Effluent Discharges into a River", Report #3-71-1, Department of Industrial Engineering and Operations Research, University of Massachusetts, Amherst.

R. W. Deacon and R. J. Giglio, "A Methodology for Determining Optimal Longitudinal Spacing of Effluent Discharges into a River", Proceedings of the 8th Annual Meeting, Society of Engineering Science, Nov. 1970, Washington, D.C.

H. S. Bhalla and R. F. Ridders, "Multi-Time Period, Facilities Location Problems: A Heuristic Algorithm with Applications to Waste Water Treatment Systems", Report #3-71-2, Department of Industrial Engineering and Operations Research, University of Massachusetts, Amherst.

H. S. Bhalla and R. F. Ridders, "Multi-Time Period Location, Distribution Problems: A Heuristic Algorithm", submitted to Management Science.

Peter Meier, "Stochastic Population Dynamics for Regional Water Supply and Waste Management Decision-Making", Report #EVE25-70-5, Environmental Engineering - Department of Civil Engineering, University of Massachusetts, Amherst.

P. Meier, "A Monte Carlo Simulation of the Rogers Model for Estimating Interregional Migration" submitted to Journal of Mathematical Sociology.

P. Meier, "A Search Algorithm for the Estimation of Interregional Migration Rate", submitted to Planning and Environment.

P. Meier, "Stochastic Population Projections for the Design of Pollution Control Facilities" submitted to J. Sanitary Engineering Division, ASCE.

P. Meier, "Möglichkeiten zur technischen und wirtschaftlichen Optimierung von Zweckverbänden" Wasser und Abwasser, Monograph Series No. 4, Schmidt-Verlag, Germany, 1972.

R. J. Giglio and R. Wrightington, "Techniques of Allocating Costs Among Participants in Regional Systems", presented at the 40th National ORSA Meeting, October 1971, Anaheim, California.

R. J. Giglio and R. Wrightington, "Methods of Apportioning Costs Among Participants in Regional Systems", to be published in Water Resources Research.

OWRR Project Numbers: B-012-MASS. and B-023-MASS.

Matching Grant Agreement Numbers: 14-31-0001-3090 and 14-31-0001-3596

FCST Research Categories: II-F and VI-B, G

Project Title: A MULTI-VARIATE MODEL FOR PUBLIC MANAGEMENT OF FRESH-WATER WETLANDS.

Project Conducted at: University of Massachusetts, Amherst, Mass. 01002

Project Began: July, 1969

Scheduled Completion: February, 1973

Principal Investigator: Joseph S. Larson, Ph.D., Wildlife Biology

Student Assistants: Tirath Gupta, Ph.D., Agricultural & Food Economics  
Richard Heeley, M.S., Geology  
Frank Golet, Ph.D., Wildlife Biology  
Richard Smardon, MLA, Regional Planning

Research Findings:

The wetlands research team has identified the characteristics which contribute to the ultimate values of freshwater wetlands, taking into consideration groundwater, wildlife and visual/cultural aspects. Specific variables which can be measured for each of these aspects have also been identified and given relative numerical scores.

In the area of groundwater and wetlands the three characteristics are the transmissivity of formations underlying wetlands, the water storage capacity of these formations and the quality of the water in the formations.

Several characteristics determine the visual/cultural value of a freshwater wetland: landform contrast, land-use contrast, textural contrast, wetland type diversity, landform type, wetland size, the size of the associated waterbody and the naturalness of the wetland.

With regard for wildlife values, the following are the key characteristics: wetland class diversity, dominant wetland classes, life form richness, life form interspersion, cover type, site type, size class, surrounding habitat types, juxtaposition, and water chemistry.

We have found that a three-part decision-making model can be constructed to incorporate these three areas of interest. The first step in the model identifies those wetlands which at all cost should be preserved for their

### Research Findings, Cont.

inherent values. The second part subjects the remaining wetlands to a review of their specific characteristics and assignment of relative values to each characteristic. The values are summed to obtain a total score for the wetland. Values which exceed the cut-off point indicate wetlands which should be preserved based on the sum of their values. The remaining wetlands are examined for cultural aspects which may raise their final score above the cut-off line. Wetlands which still retain low scores are available for alternative uses.

The scores generated by the model are being examined by our economists who, with data on economic aspects, are examining the economic consequences of the rating system.

### Work Remaining

1. Publication of a guide to characteristics and values of freshwater wetlands in the northeast.
2. Final testing of the model.
3. Incorporation of the economic features into the model.
4. Publication of the complete model.

The guide, and an accompanying map of all freshwater wetlands in Massachusetts, is in draft form and will soon go to the printer. Testing of the model is in progress as is work on a economics computer program.

### Publications

Gupta, Tirath R. 1972. Economic criteria for preservation and use of inland wetlands in Massachusetts. Proc. Northeast Agricultural Economics Council (in press).

Larson, Joseph S. 1971. Progress toward a decision-making model for public management of fresh-water wetlands. Trans. North American Wildlife and Natural Resources Conf. 36: 376-382.

OWRR Project Number: B-017-MASS.

Matching Grant Agreement Number: 14-31-0001-3290

FCST Research Category: VI-C

Project Title: DEVELOPING METHODOLOGY FOR INCLUDING INTANGIBLES IN  
BENEFIT-COST ANALYSIS OF WATER RESOURCE PROJECTS.

Project Conducted at: Oregon State University, Corvallis, Oregon and  
University of Massachusetts, Amherst, Mass.

Project Began: July, 1970

Scheduled Completion: June, 1973

Principal Investigators: J.B. Wyckoff, Ph.D., Agricultural Economics  
Robert L. Vertrees, Ph.D., Resource Economics

Student Assistants: George Child, M.S., Agricultural Economics  
Stephen Gauger, M.S., Agricultural Economics  
Dilip Pendse, Ph.D., Agricultural Economics

Research Findings:

Three major phases of the project have been carried out this year.

Phase I: Under the direction of the principal investigator, Mr. George W. Child conducted a study to determine sports fishermen motivation as an element in the explanation in the distribution of sports fishing effort and the projection of success of future fishing sites as an input into water project analysis. The hypothesis was that the sports fisherman is motivated primarily to catch fish; thus it followed that fishermen would frequent fishing sites where their average catch is highest.

The restraints of the site characteristics and the motivational hypothesis were related to travel distance, travel time, access to sites, acreage of sites, boating availability, etc. Multiple regression analysis was used to analyze these relationships. The usage information was collected from a sample of licensed fishermen in the area studied. The high degree of variability made the regression marginally useful in determining the site characteristics which could be used to project success of new sites.

Multiple discriminate analysis was used to distinguish between the successful and unsuccessful fishing sites in the study. The discriminate



### Research Findings, Cont.

analysis differentiated between successful and unsuccessful sites listed on certain site characteristics and trout stocking levels.

The weakness in the empirical analysis was due primarily to three factors: the inability to include (1) the attractiveness or aesthetic beauty in the analysis; (2) the geographic proximity of sites to each other; and (3) alternative recreational activities provided at each site in addition to fishing.

Although no conclusions were reached about fisherman motivation, the analytical techniques employed in this study should not be rejected. The problem seems to be in the nature of the data and the approach used in collecting it, not in the methodology.

Phase II: Mr. Stephen E. Gauger and the principal investigator conducted a study on the application of Q methodology in determining aesthetic preferences for water resource projects. The Water Resources Council has stated, "Society's preferences for a quality environment are reflected through the management, conservation, preservation, creation, restoration or improvement of the quality of certain natural and cultural resources and ecological systems." Thus the basic assumption underlying this phase of the research was that the landscape is a visual, physical entity and not a state of mind or an abstract emotional quality. Thus the model used was structured in terms of the following hypothesis. "If a photograph is one-half man dominated (evidence of man-induced change), and one-half nature dominated (elements of both natural characteristics and man-induced change), then people will not choose this case as a most preferred photo." It is thus hypothesized that people feel a need to recognize a dominant feature, either natural or man-made, or they will find it difficult to discriminate their preference.

A set of photographs depicting water resource projects were given to selected subjects to sort into groups according to a criterion. The O sort consisted of 44 photographs selected from a wide range of water resource project development. These range from completely natural to those with highly developed and man altered landscapes. The methodology used permitted a comprehensive description in contemporary psycho-dynamic terms of an individual's attitudes or preferences in a form suitable for quantitative comparison and analysis.

Factor analysis, a statistical technique which by analyzing the inter-correlations within a set of variables identifies fundamental and meaningful dimensions of a multi-variant domain, was used to test the hypotheses of the study. Two widely diverse groups, i.e., camera club members and Massachusetts town assessors, were tested by the O methodology. Two factors were identified. Factor 1 indicated a consistent response of

### Research Findings, Cont.

both groups toward photographs that depicted extremely natural dominant or extremely man dominant elements. Of the 11 photographs contributing to Factor 1, 7 of them were consistent between groups while 4 were not. The 3 photographs with the greatest factor loading in both groups were identical.

The second factor identified indicated that respondents had a negative preference for projects which were in varying stages of completion or appeared to be polluted. The respondents reacted negatively to oil tanks, eroded banks, trash, machinery and excavation, pollution and bareness. Again, 5 of the 7 photographs with heavy factor loadings for Factor 2 were consistent between groups.

It is encouraging to note that preferences between these widely varying groups tended to be consistent. The fact that people do not necessarily equate naturalness with aesthetic appeal, but will also accept development as aesthetic, provided that it is designed to fit in with a natural landscape, provides significant guidelines to the development of water resource projects.

Phase III: This phase attempts to build upon Phase II and generalize these principles on a broader scale. Dr. Dil Pendse, working with the principal investigator, has made a comprehensive review of other work done in this area and has come up with a proposed technique which is more general and perhaps more applicable for direct inclusion into project analysis. The technique called the "Priority Evaluator" relies on traditional indifference curve analysis and has been developed for determining trade-offs among environmental goods. An existing situation is described and the individual is asked to select among a range of alternative improvements. His selection automatically means that he has implicitly traded off certain aspects of the existing situation in order to gain some benefits from the new situation. The ranking of such trade-offs can be determined from different mixes of a number of factors giving him equal satisfaction. Since the "Priority Evaluator" device systematically checks the situation and compares it with the respondents' desired situation, it can provide insight on community values and preferences. Further, the economic value of environmental goods thus obtained may be appropriate for incorporation into the decision making model such as benefit-cost analysis.

### Work Remaining

Specific progress anticipated will be completion of work on the Priority Evaluator; a major piece of work on relating the intangibles relative to

### Work Remaining, Cont.

recreation into water project analysis; and finally, a summary report recommending how the results of the techniques tested in this research can be actually put to work in project analysis. A major statement of the underlying theoretical aspects of the inclusion of intangibles in project analysis may also be completed.

### Publications

George W. Child, "Angler Motivation in Fishing Site Selection", M.S. Thesis, Department of Agricultural and Food Economics, University of Massachusetts, August 1971, pp.85.

Stephen E. Gauger, "The Evaluation of Intangible Benefits of Water Resource Projects", M.S. Thesis, Department of Agricultural and Food Economics, University of Massachusetts, February 1972.

### Further Papers in Progress:

Stephen E. Gauger and J. B. Wyckoff, "Aesthetic Preference for Water Resource Projects--An Application of Q Methodology", paper to be presented at the American Water Resources Association annual conference in St. Louis, Missouri, on October 31, 1972.

Dilip Pendse and J. B. Wyckoff, "Determining Preference for Environmental Goods", paper to be delivered June 14, 1972, at the 53rd annual meeting of the Pacific Division of the American Association for the Advancement of Science at Eugene, Oregon.

Dilip Pendse and J. B. Wyckoff, "Measurement of Environmental Goods--A Suggested Approach", paper to be presented at the annual meeting of the American Agricultural Economics Association in Gainesville, Florida, on August 22, 1972.

OWRR Project Number: B-018-MASS.

Matching Grant Agreement Number: 14-31-0001-3291

FCST Research Category: VI-II

Project Title: ATTITUDES, VALUES AND PERCEPTIONS IN WATER RESOURCE  
DECISION-MAKING WITHIN A METROPOLITAN AREA.

Project Conducted at: University of Massachusetts, Amherst, Mass.

Project Began: October, 1970

Scheduled Completion: August, 1972

Principal Investigators: Irving Howards, Ph.D., Government  
Edward R. Kaynor, M.A., Sociology  
Robert Shanley, Ph.D., Political Science  
Lewis Mainzer, Ph.D., Political Science

Student Assistants: Paul Harris, M.A., Government  
Henry Wolf, M.A., Government  
Arnold Schneider, B.A., Government  
Steven Marcus, Government

Research Findings:

The research was aimed primarily at a test of four related hypotheses as follows: (1) that optimum water resource planning is severely constrained by the fragmentation of jurisdictional authority within the metropolitan area (the "fragmentation hypothesis"); (2) that optimum water resource planning is severely constrained by lack of interest in water resource planning by both local officials and their constituents (the "apathy hypothesis"); (3) that optimum water resources planning is severely constrained by the tendency of water resource interest groups to oppose rather than to support each other (the "conflict hypothesis"); and (4) that optimum water resource planning is severely constrained by lack of correspondence between what is objectively beneficial and what is perceived to be beneficial (the "distorted perception hypothesis").

In general, data derived from interviews in the Springfield-Chicopee-Holyoke standard metropolitan statistical area support the fragmentation, the apathy, and the distorted perception hypotheses, but not the conflict hypothesis. Following are samples of some of the most relevant findings.

1. Fragmentation: There was a clear tendency for both local citizens and officials to think locally. Respondents did not see regional solutions

### Research Findings, Cont.

to local problems increasing (2 to 1) even though they themselves would have preferred to see wider local territorial divisions (357 to 457), especially those respondents in the cities (3 to 1). When asked to specify water resource problems, most respondents referred to purely local issues such as drainage problems, wetlands preservation, and water use restrictions. When probed about wider, regional water resource problems, however, respondents were generally willing to admit that water quality, supply, flood control, recreational, and power generating problems could only be solved by some form of regional cooperation. Yet most respondents insisted that regional solutions are largely impossible both because local prerogatives are jealously guarded, and because there is too much uncertainty about local, regional, state, and federal authority to act efficiently or effectively, in any given case.

2. Apathy: Research entailed the use of interview respondents to name others who were interested and involved in water resource problems or programs. The fact that this procedure resulted in a heavy incidence of repeated names after interview of those suggested by those interviewed initially led to the conclusion that a relative few were truly interested and involved. The 117 finally interviewed constitute nearly all names of those classified as interested and involved in water resource programs and problems of major scope using this methodological criterion.

Other evidence of lack of interest on the part of both citizens and officials may be deduced from the following findings.

- (a) Respondents were generally reluctant (by ratio of 4 to 1) to place water resource issues on the same level of intensity as other public issues.
- (b) Among officials responding, 62.8% claimed either no contact or very infrequent contact with citizens on water resource matters, while 23.5% said "sometimes" and only 13.7% said "often".

3. Conflict: While there appears to be considerable conflict and widespread mistrust between officials and citizens on water resource matters (especially on matters of environmental quality), findings from this project produced practically no evidence that conflict between water resource interest groups occurs. Even in areas where "natural enemies" might be expected to contradict each other such as between recreational and power interests or water supply interests and between preservational and use interests generally, the expected confrontations seemed not to materialize. Of officials responding 71.0% thought that citizen vs. citizen water resources conflicts seldom or never occur.

### Research Findings, Cont.

4. Distorted Perception: Responses were tested against fact on many issues such as Connecticut River diversion, pumped storage, nuclear power, the Connecticut River comprehensive plan, the Historic Riverway program, (National Recreation plans) incidence of flood and drought, sewage disposal and water supply planning, wetlands acquisition, and flood plain zoning. Even among this carefully sought "interested and involved" constituency of citizens and officials, very little detailed knowledge was evident. Surprisingly, citizen respondents exhibited more knowledge than officials except on questions specific to an official's area of operation or expertise. In general, lack of accurate knowledge and distorted perception of plans and events appeared to be a major factor frustrating the water resource goals paid lip service by both citizens and officials.

In addition to material corroborating or invalidating portions of the study's four principal hypotheses, this investigation has yielded considerable information on types of local water resource problems, mechanisms of local decision-making, and the reliability of existing institutional arrangements as means for accomplishing water resource objectives. These and other findings will be detailed in the project's forthcoming completion report.

### Work Remaining

The completion report for this project is currently in preparation.

### Publications

"Measurement of the Institutionalization Process in Urban-Metropolitan Water Supply and Waste Water Treatment Programs" by Edward R. Kaynor. A chapter in a forthcoming volume edited by Professor Norman Wengert.

OWRR Project Number: B-021-MASS.

Matching Grant Agreement Number: 14-31-0001-3595

FCST Research Category: II-II

Project Title: ENVIRONMENTAL FACTORS AFFECTING THE MANAGEMENT OF RESERVOIR WATER QUALITY.

Project Conducted at: University of Massachusetts, Amherst, Mass. 01001

Project Began: July, 1971

Scheduled Completion: June, 1973

Principal Investigator: Joseph M. Colonell, Ph.D., Civil Engineering

Student Assistants: Walter D. Allen, B.S., Civil Engineering  
Peter N. Turbide, B.S., Civil Engineering

### Research Findings:

The ultimate objective of this research is to achieve a thorough comprehension of the physical processes which affect the dynamics of a lake or reservoir. Knowledge of the intimate relationship between water quality and water dynamics can then be employed to evolve useful systems of reservoir management.

The initial emphasis of the research is on the evaluation and improvement of available techniques for modeling (mathematically) the hydrodynamic and thermodynamic behavior of a large body of water. A major portion of the work is involved with experimental investigations of the complex response of a reservoir to hydrologic and meteorologic influences. Field measurements are being conducted at Quabbin Reservoir in western Massachusetts.

Research efforts in this project are proceeding on two fronts, one experimental and the other analytical. These efforts are complementary, as explained in the following paragraphs.

The experimental portion of this research has as its goal the establishment and operation of an automated data collection station at Quabbin Reservoir. Five hydrologic and meteorologic parameters (solar and atmospheric long wave radiation, mean wind speed, water surface and air temperatures) will be monitored continuously at a site near the northern end of Quabbin Reservoir. The data will be digitized at the site and punched on paper tape for subsequent computational analysis at the Univer-

### Research Findings, Cont.

sity Computing Center in Amherst. The five parameters selected for automatic monitoring are the most significant in determining the thermal behavior of the reservoir.

The analytical effort of this project is presently devoted to the evaluation of available theoretical techniques for prediction of the thermal response of a reservoir to climatic influences. The most promising mathematical model of this complex process was developed under the direction of Dr. D. R. F. Harleman of the Civil Engineering Department at Massachusetts Institute of Technology. Adaptation of the M.I.T. computer program for the above mentioned model has been completed and preliminary tests of the program indicate that it should function properly with the Quabbin Reservoir data. During its adaptation to the University Computer Center facilities, the computer program was modified to expand its capabilities for reservoir analysis and to provide greater flexibility of purpose to its future users.

### Work Remaining

As data from the Quabbin field station become available, a more precise evaluation of the model's effectiveness will be possible, as will additional modifications to improve its capabilities.

### Publications

None



NARRATIVE REPORT

TITLE II PROJECT



OWRR Project Number: C-2169

Grant Agreement Number: 14-31-0001-3377

FCST Research Category: VI-E

Project Title: FORMATION OF PUBLIC POLICY ON ISSUE OF OUT-OF-BASIN  
DIVERSION OF CONNECTICUT RIVER FLOOD WATERS TO BOSTON  
METROPOLITAN AREA.

Project Conducted at: University of Massachusetts, Amherst, Mass. 01002

Project Began: October, 1970

Scheduled Completion: September, 1972

Principal Investigator: Bernard B. Berger, M.S., Sanitary Engineering

Student Assistants: Channing Barksdale, M.S., Agricultural Engineering  
Michael Westerfield, M.S., Aquatic Biology  
Walter Pheeny, B.S., Civil Engineering  
Christopher Libbey, B.S., Public Health

### Research Findings:

The study undertook to answer two sets of questions related to the proposed diversion of Connecticut River water at Northfield Mountain to Quabbin Reservoir, metropolitan Boston's major water supply source.

1. What ecologic consequences in the Connecticut River Basin may reasonably be associated with diversions out-of-basin?
2. How does public policy evolve in respect to out-of-basin transfer of water?

Answers to the first set of questions were based on analysis of existing data, and on judgement of workers with relevant background of experience. It was concluded that for the proposed limited diversion at Northfield Mountain at times of flood flow in the Connecticut River

- a. while a reduction in flood flow produced by diversion could weaken the signal for upstream travel of anadromous fish species, too little is known of sensitivity factors to permit any precise description of behavioral response. However, in view of the small reduction in flood flow that would result from the proposed diversion, it is likely that this retardant factor would in this case be of low significance.

Research Findings, Cont.

- b. The proposed diversion would not significantly affect the concentration of nutrient chemicals particularly in view of the heavy contributions of nutrients from the Springfield metropolitan area, below the point of diversion.
- c. Information available indicates that the proposed diversion would have little significant affect on increasing sediment deposit in the Connecticut River main stem or on decreasing normal sediment scouring action.
- d. While a reduction of flood flow by diversion at Northfield Mountain would increase concentrations of human waste constituents in lower reaches of the main stem, the effect will be too small to be discernible.
- e. While information currently available does not present a basis for contending that the diversion would imperil valuable species of aquatic life in the estuary, one may not conclude the possibility is insignificant.
- f. It is highly unlikely the proposed diversion would significantly affect downstream water users; however, future water requirements of the Basin and the dependence of municipalities, industry and agriculture on the River and its tributaries should be considered in establishing policy on out-of-basin transfers.
- g. It is improbable that the proposed diversion would significantly affect the total quantity of groundwaters in the Basin; it is not yet possible to state what magnitude could produce measurable or significant reduction of this supply.

The analysis demonstrated (1) the extreme scantiness of existing desirable data on the Connecticut River related to prediction of ecologic effects, and (2) the inadequacy of predictive techniques.

The study of public policy evolution in respect to the proposed diversion provided evidence that (1) the public hearings on this issue were essentially ineffective as a mode of expression of the "voice of the community" and as a device for influencing the relevant decision, and (2) the individuals opposing the diversion were (a) relatively few in number and a minority among those who expressed views on this issue; (b) intensively motivated, well-informed, highly articulate, and effective in utilizing the public communications media.

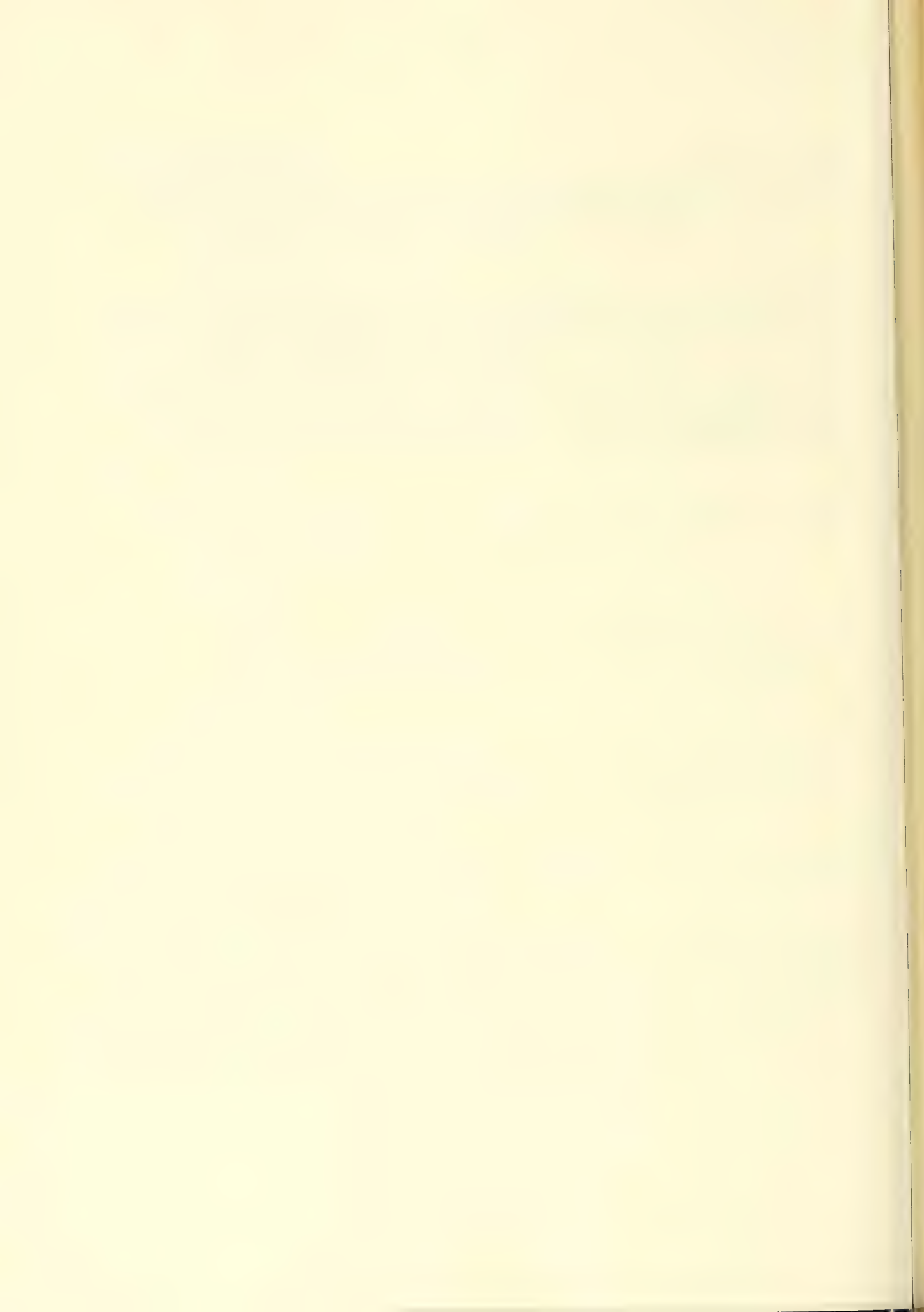
Work Remaining

The project has been completed and the final report is in preparation.

Publications

B. B. Berger, "Social and Ecologic Implication of Proposals for Out-of-Basin River Diversions", Engineering Issues - Journal of Professional Activities, ASCE, Vol. 97, Proc. paper 8481, October, 1971.

B. B. Berger, "Environmental Aspects of River Diversion", Proc. the New England Conference on River Diversions, University of New Hampshire, August, 1971.





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**A N N U A L     R E P O R T**

**School of Home Economics  
University of Massachusetts**

**July 1, 1971 - June 30, 1972**

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Submitted by: Bruce R. Morris  
Bruce R. Morris, Dean



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Report of the Department of Nutrition and Food

Report of the Department of Textiles, Clothing  
and Environmental Arts

Report of Cooperative Extension

Report of Recruitment Officer



## ACCOMPLISHMENTS OF THE SCHOOL

The major activity of the School of Home Economics was the reorganization of the undergraduate curriculum. The new program represents a greatly changed emphasis in the direction of the School. Beginning largely with a concern with the domestic arts, the programs of schools of home economics have evolved over the years to embrace a far wider concept of the function of the discipline. Instead of concern primarily with the individual and the rural family, the discipline is becoming concerned with the individual, all types of family situations, and the community both in suburban and, now especially, urban settings. Our School has adopted a program reflecting this changed emphasis, a move which puts us in advance of most schools. The new mission is to provide professional competence in those areas which have been traditionally associated with the home: human development, nutrition, clothing, shelter, family rearing, consumer problems in general, and, of course, preparing teachers to serve in the nation's schools. The emphasis is on education for professional service and not directly on home making, although it would be possible for a student to take a program to that end. In general, there are greatly increased prerequisites in the physical and/or social sciences, and a far wider use of courses from other disciplines.

In addition, joint programs have been developed with Business, Mass Communications, Journalism, and a program in Overseas Service. Greater emphasis will be placed on Field Study, with the suggestion that all students should include some field study experience in their program.

The major changes are as follows (using the new names which are to be given the departments).

In the Department of Clothing and Interior Design the Clothing sequence is expanded, some courses combined, and three new ones added. Teaching of elementary sewing is discontinued, with ability to sew made a prerequisite to the program. Interior Design is expanded into a major program with a view to ultimate certification.

The Community Services Department will combine the present Home Economics Education and Management and Family Economics departments. The most important additions are the expansion of work in





Consumer Economics and the introduction of programs in training students to work in related community agencies and in extension.

The Department of Human Development is changing relatively little but is adding additional courses. In time it seeks to widen its scope from an almost complete emphasis on childhood development to include programs on adolescents and the aged.

The Department of Nutrition and Food is decreasing its emphasis on food preparation and has, in fact, transferred most of the foods courses to the College of Agriculture. The new emphasis will be on human nutrition and will utilize large amounts of laboratory work. New programs have been developed in Community and Public Health Nutrition and Computerization in Nutrition and Food Service.

Each program consists of the University core requirements, a new School core of six hours, a major of a minimum of 24 hours of basic and theoretical work, and various professional options, plus electives.

The new program is already attracting a number of new students as our enrollment statistics indicate. From September 1969 the number of majors has grown from 507 to 918, although the number of faculty has kept virtually the same. The bulk of the growth, however, has been in one department, Human Development, although the others have also grown. Of considerable significance is the growth from September 1971 to May 1972, a total of 127 students, from 789 to 918, despite the loss of 27 during the year due to graduation. 74 of these were in Human Development, but Nutrition grew by 20, an increase of 35 per cent, and Textiles and Clothing grew by 33. Although this is perhaps not all due to the new program, a number of students have stated this as the reason for their changing into the program.

Recruiting of new faculty was successful with seven new additions:

Mr. Arnold Friedmann, as Professor and Head of the Department of Clothing and Interior Design. He is currently a department head at Pratt Institute, New York, and is a well known interior designer and author of books on interior design.

Miss Dorothy Miller, as Instructor in Clothing. She is currently a graduate student at Kansas State University.



Mr. George E. Forman, as Assistant Professor of Human Development. He is a Ph.D. from the University of Alabama, currently Curriculum Director, Early Childhood Education Project, State University of New York at Buffalo.

Mr. Alfred Karlson, as Assistant Professor Human Development. He is a Ph.D. from the University of Chicago, currently a Lecturer in Educational Psychology at the State University of New York at Buffalo.

Mr. Willard Weatherholtz, as Assistant Professor of Nutrition and Food. He is a Ph.D. from Virginia Polytechnic Institute, currently doing research for a private laboratory.

Ms. Georgina Moroney, as Assistant Professor of Extension, Department of Clothing and Interior Design. She is receiving her Ed.D. from the School of Education, University of Massachusetts. She has had extensive experience as a high school teacher and supervisor.

Ms. Carol Meeks, as Assistant Professor of Extension, Community Services Department. She is receiving her Ph.D. from Ohio State University.

Faculty who are leaving are:

Ms. Rosa Johnston, Associate Professor of Environmental Arts.

Ms. Catharine Porter, Assistant Professor of Clothing.

Ms. Audrey Isles, Instructor of Extension, Community Services Department.

Ms. Helen Harvey, Head Teacher, Nursery School.

Although indications were to the contrary, one of the outstanding features of the year has been the spirit of cooperation which prevailed among departments and between faculty and students. Occasional frictions occurred, of course, but this was at a very minimum. Members of the faculty have taken their committee roles seriously and all worked hard in devising our new program. Many students likewise participated in our discussions and contributed in other ways. Liaison committees were established in the various departments. Some meet more regularly than others but all contributed valuable ideas. Students spent many hours working on the

1. The first part of the document discusses the importance of maintaining accurate records of all transactions. It emphasizes that this is essential for the proper management of the organization's finances and for ensuring compliance with relevant laws and regulations.

2. The second part of the document outlines the various methods used to collect and analyze financial data. It describes how this information is used to identify trends, assess performance, and make informed decisions about the future of the organization.

3. The third part of the document focuses on the role of the accounting department in the overall business strategy. It highlights the department's responsibility for providing accurate and timely financial information to management and other stakeholders.

4. The fourth part of the document discusses the challenges faced by the accounting department in the current business environment. It identifies key areas such as technological change, regulatory updates, and the need for skilled personnel.

5. The fifth part of the document provides a summary of the key findings and recommendations. It stresses the need for continuous improvement and innovation in the accounting function to ensure the organization remains competitive and successful.

6. The sixth part of the document discusses the importance of transparency and ethical behavior in financial reporting. It emphasizes the need for the accounting department to adhere to the highest standards of integrity and to provide clear and honest information to all interested parties.

7. The seventh part of the document outlines the future outlook for the accounting profession. It predicts continued growth and evolution, driven by technological advancements and the increasing demand for data-driven insights.

8. The eighth part of the document discusses the role of the accounting department in supporting the organization's sustainability goals. It highlights the importance of integrating environmental, social, and governance (ESG) factors into financial reporting and decision-making.

9. The ninth part of the document provides a final summary and concludes the report. It reiterates the key points and expresses confidence in the organization's ability to overcome challenges and achieve its long-term vision.

Helen S. Mitchell Lounge (and Dean's Conference Room) in order to make it a pleasant place in which to spend a few quiet moments, hold small meetings, or hold receptions.

An outstanding event of the year was the refurbishing of the lounge and naming it after Dean Mitchell, a former dean who did much in building the School. A committee of faculty and students spent considerable time on this project. The result is probably the most attractive lounge in the University. The student members of the American Home Economics Association have contributed \$100 toward a fund for the maintenance of the lounge.

The courses in Foods, including institutional food preparation and administration were transferred to the Department of Hotel, Restaurant, and Travel, in the College of Agriculture, thus consolidating all the work of this nature.

As part of the Home Economics Study, which took place the last two years, a College of Human Resources and Health was proposed. This College would include the present Schools of Nursing and Home Economics, the Department of Public Health, and possibly other areas. A committee has met during the year and has reached enough of an agreement to proceed next year to draw up a formal proposal. This would then be acted on by each School. If approved by all, the proposal would be submitted to the Trustees for approval.

The School has applied for three major grants. The Department of Nutrition and Foods has proposed a study on the nutritional needs of the inhabitants of the area and has received partial financing. The Department of Home Economics Education has applied for a grant from the Commonwealth to study a new model of teacher education. Although preliminary assurances have been received, no firm commitments have as yet been made. The School as a whole is filing applications for a grant to study ways of improving the quality of living of the Belchertown residents. No replies have yet been received.

During the year the faculty voted to have a School Senate and a constitution has been drawn up and approved. The Senate will

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become effective September 1, 1972. One feature is that it provides for student representation in the Senate, on all appropriate committees, and a strong Student Affairs Committee, with a majority representation by students. This replaces the current system of occasional faculty meetings with little or no faculty participation.





## THE FUTURE OF THE SCHOOL.

The future of the School seems promising. The School has been reorganized and a new forward looking program adopted, which is felt will attract increasing numbers of students. Already a large number have transferred in this year in anticipation of the new program. Especially attractive areas for growth seem to be Nutrition, Interior Design, programs concerning the Adolescents and the Aged in the Department of Human Development, Consumer Economics, and Community Services and Extension. A proposal to incorporate pre-Social Work is both viable and appropriate. Large numbers of students would be attracted.

Accompanying the new program is a substantial improvement of the faculty, as detailed above. Continued progress in recruitment is essential to making the School one of the top schools of Home Economics.

There are good prospects for the graduate program, although it is quite undeveloped at the moment. Next year the graduate faculty will be strengthened, although not to the degree we aim at eventually. Moreover, happily, the prospects for placing our graduate students are excellent. Ph.D's are very scarce and are at a premium. This is likely to continue for some time until present M.S. faculty are replaced. Many unfilled positions for master's degree holders are currently reported. Positions are also plentiful in the Extension Service and to a lesser degree in government and business.

A promising proposal is that of a College of Human Resources in which would be located the School of Nursing, the School of Home Economics, the Department of Public Health, and perhaps other units. The close proximity of these schools could facilitate interdisciplinary work and should be of benefit to all schools.

## PROBLEMS

Nevertheless, the School faces a number of problems for next year and the years ahead.

It will be necessary to find a new Dean. This late in the year this seems unlikely so that it is probable there will be an

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APPENDIX

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acting dean next year. Every effort must be undertaken to recruit an outstanding leader for the School.

Physical space is a problem. We have placed faculty in every conceivable corner and there is no more room for additional faculty offices. Several are in substandard quarters. The head teachers of the Nursery School will have no office at all next year. Laboratory space is sadly lacking. We need a teaching laboratory for Nutrition, a second laboratory for Interior Design, a teaching laboratory and curriculum center for Home Economics Education, and expanded facilities for the Laboratory School.

The graduate program must be expanded and improved if we are to attract high grade faculty and graduate students. This year, while the undergraduate program was being changed, the graduate program has been neglected. Improving the program should be the first order of business next year.

The School suffers from a shortage of secretarial services. Faculty are required to do much of their own typing, thus reducing their efficiency.

After a series of bad budgets, the School suffers from financial anemia. The most pressing needs are in equipment and travel.

Research is weak and needs to be strengthened. This should be given high priority by the new dean.

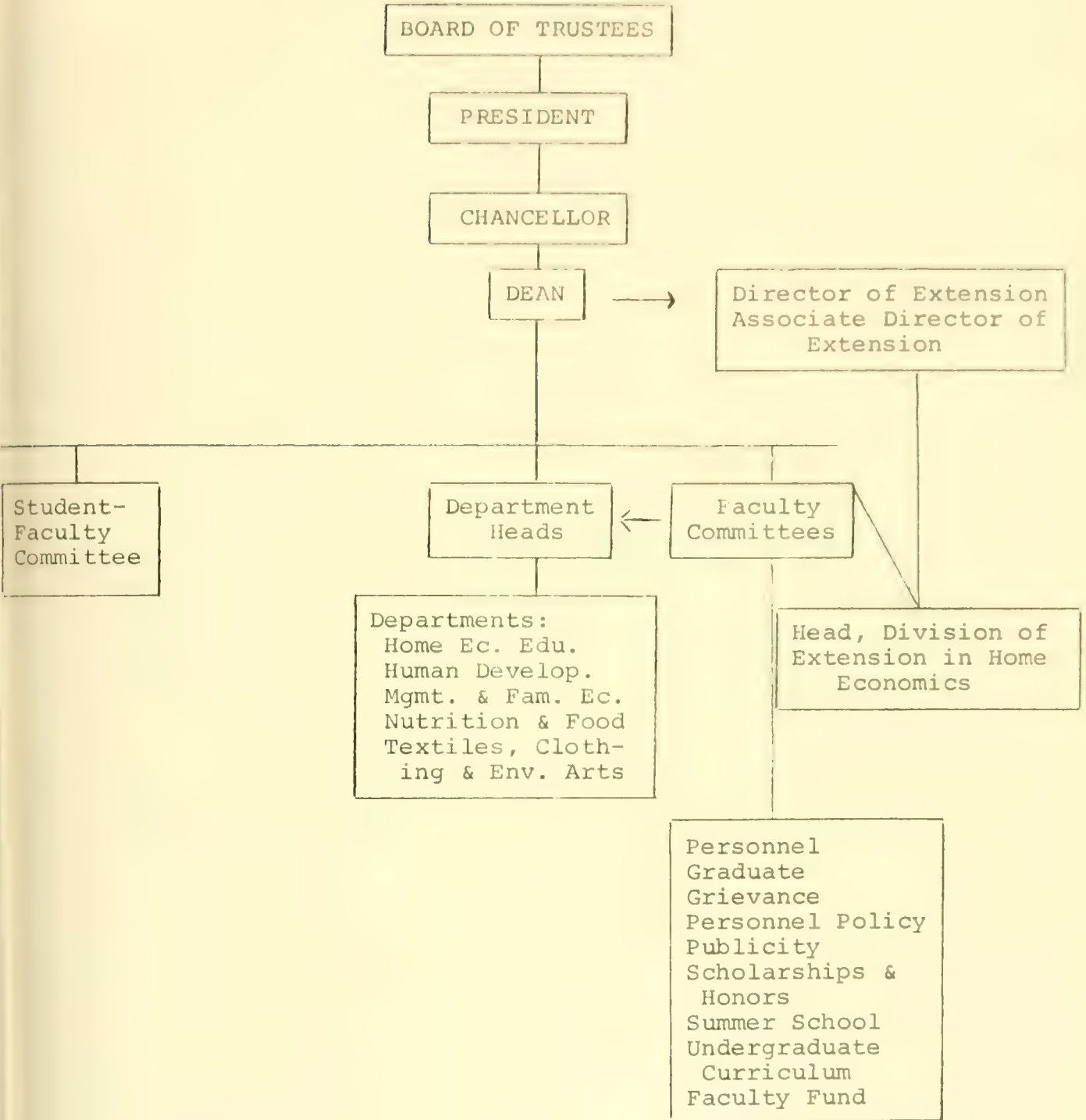
What may appear as a minor problem but which is really an important one is the matter of the name of the School. The present name has served for many years but carries the connotation of homemaking. This is not the major current objective and is a deterrent to getting many new majors, especially men. During the next year a new name must be sought which reflects better the program of the School.

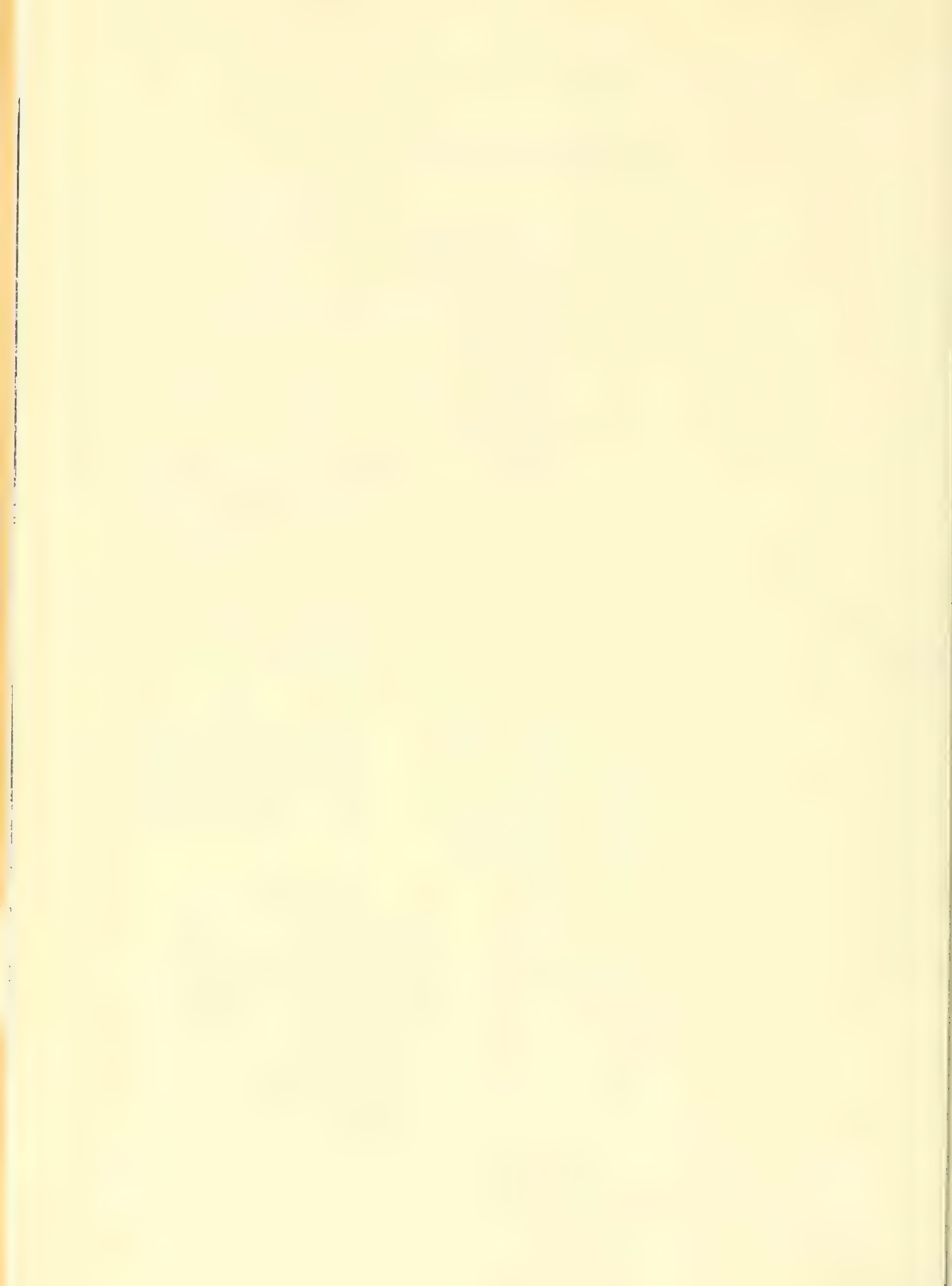
Very seriously, the School faces a shortage of faculty. Student growth has brought large sections and a poor student-faculty ratio. At present there are 18-1/2 faculty plus a contribution from the extension staff equal to one faculty member, or 47 students per faculty member. By September, however, there will be 22 faculty, plus an extension contribution of 1 faculty. The student-faculty ratio will still be around 40 - the exact figure depending on the number of entering freshmen.

1700 1800 1900 2000 2100 2200 2300 2400 2500 2600 2700 2800 2900 3000 3100 3200 3300 3400 3500 3600 3700 3800 3900 4000 4100 4200 4300 4400 4500 4600 4700 4800 4900 5000 5100 5200 5300 5400 5500 5600 5700 5800 5900 6000 6100 6200 6300 6400 6500 6600 6700 6800 6900 7000 7100 7200 7300 7400 7500 7600 7700 7800 7900 8000 8100 8200 8300 8400 8500 8600 8700 8800 8900 9000 9100 9200 9300 9400 9500 9600 9700 9800 9900 10000

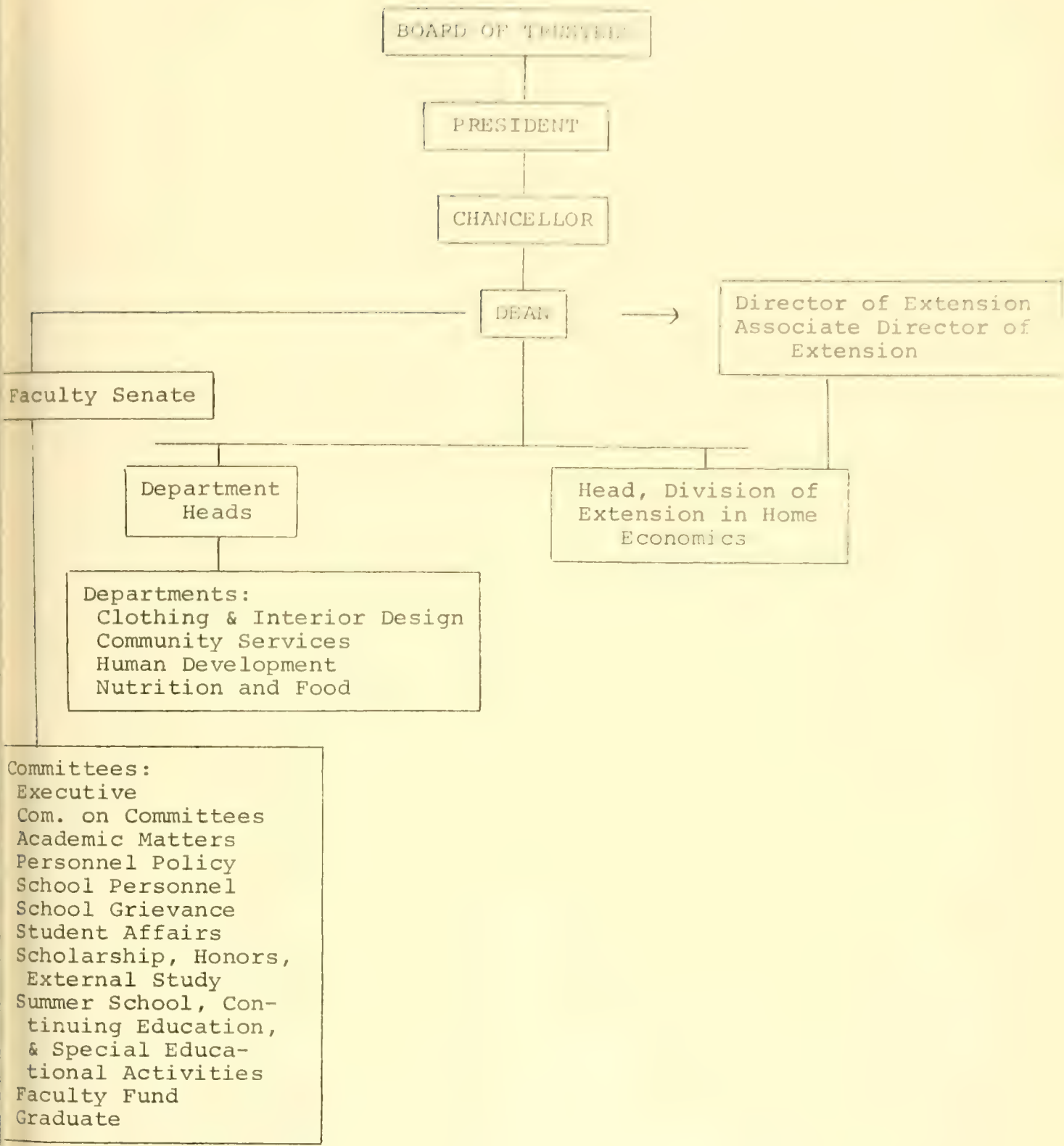
Statistical Report

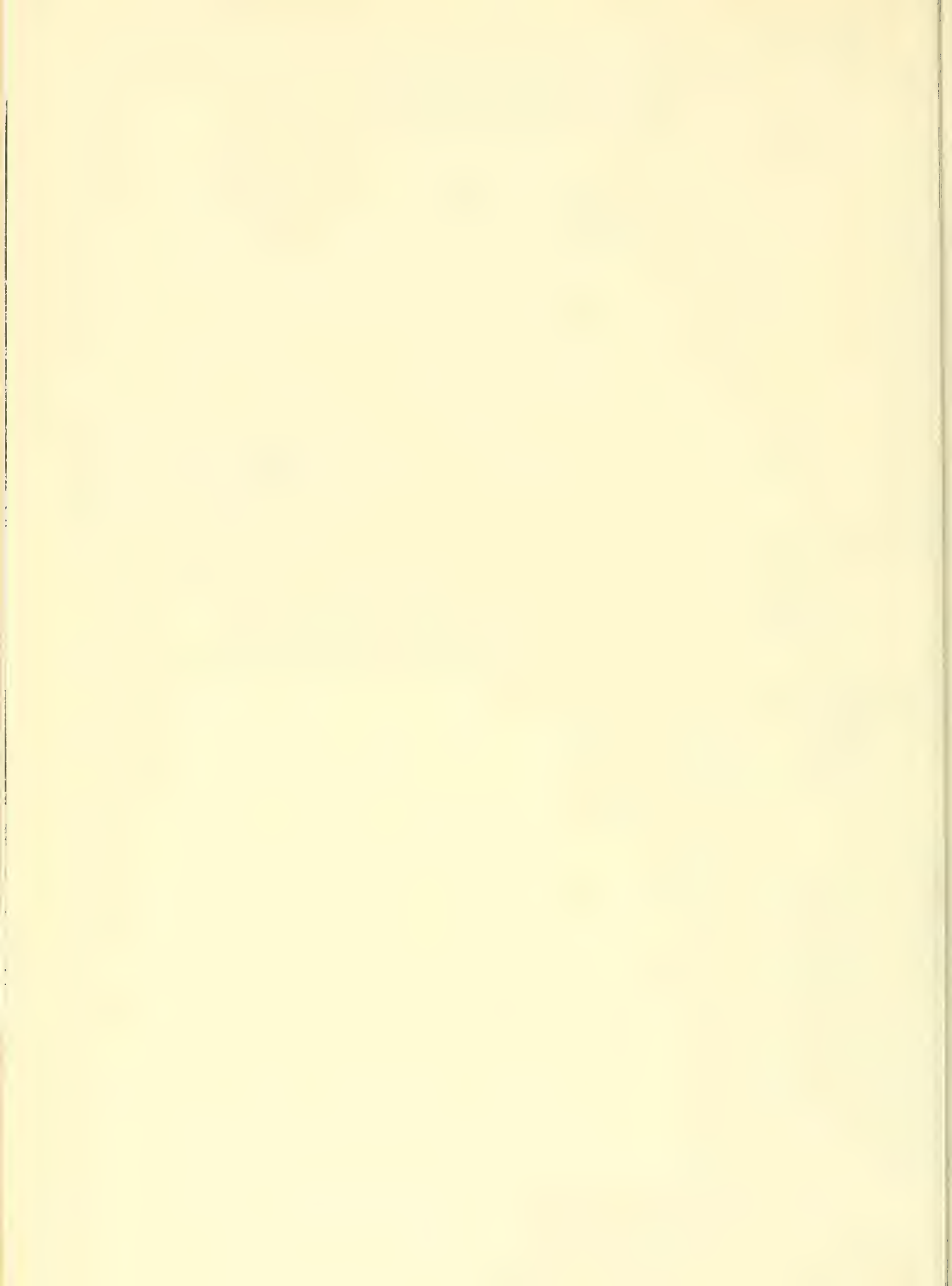
THE ORGANIZATIONAL CHART  
(present)





THE ORGANIZATIONAL CHART  
(revised for next year)

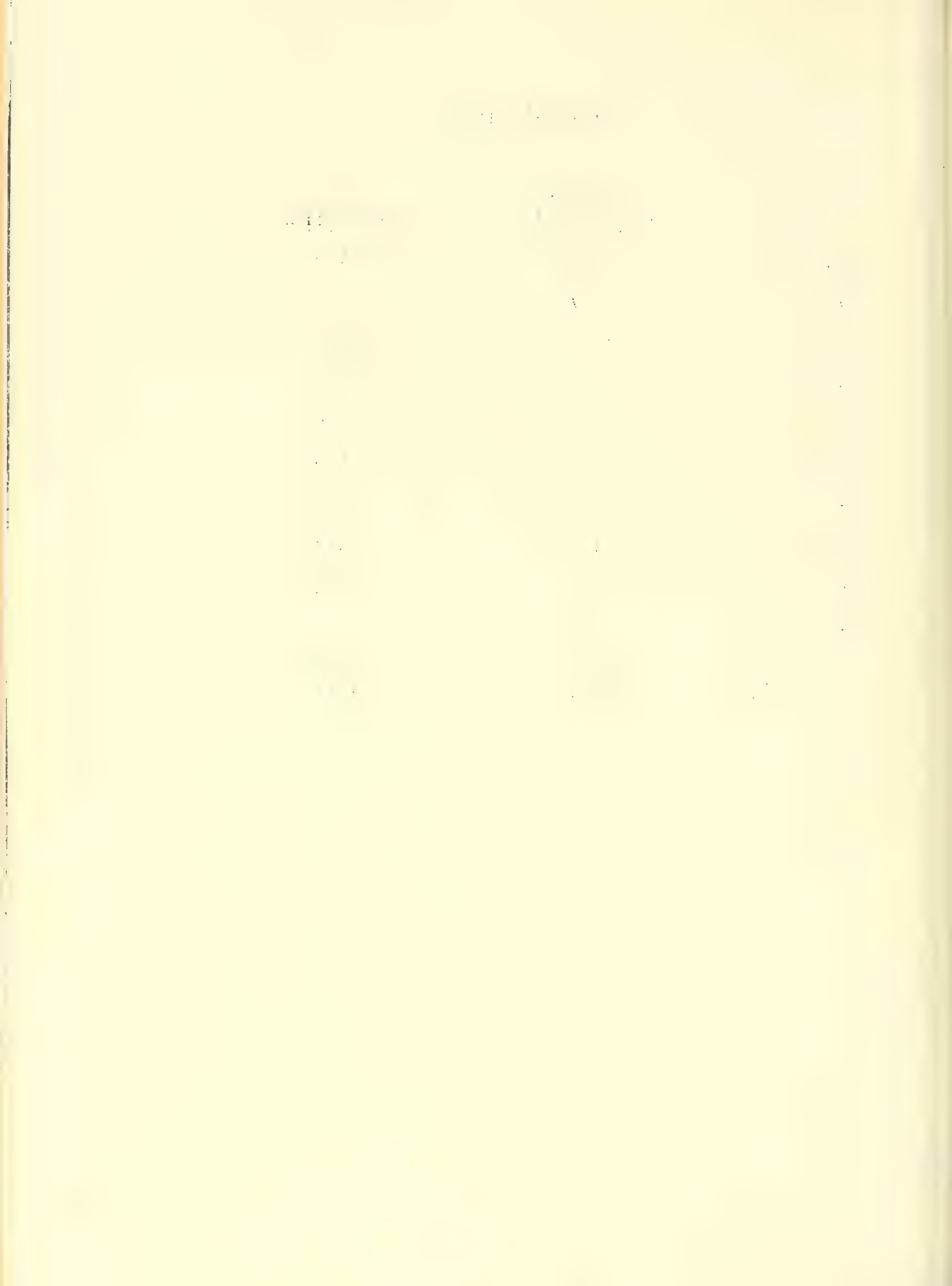






APPROPRIATION

	<u>Actual Fiscal 1971</u>	<u>1972 Projection</u>
01	483.0	554.3
02	.7	--
03	22.1	22.7
04	--	2.5
10	2.0	2.0
12	1.0	1.0
13	8.8	6.5
14	4.2	4.5
15	2.0	4.0
16	.1	--
	<hr/>	<hr/>
Total	523.9	597.5



PERSONNEL

<u>Rank</u>	<u>Sept. 1969</u>	<u>Sept. 1970</u>	<u>Sept. 1971</u>
Professors	1	1	2
Professors, A	5	6	4
Associate Professors	2	4	9
Associate Professors, A	6	4	3
Assistant Professors	9	9	5
Assistant Professors, A	1	0	1
Instructors	3	2	2
Instructors, A	0	0	1
Lecturers	7	6	5
	—	—	—
	34	32	32

Table 1

Year	Country	Value	Unit
1980	USA	100	1000
1981	USA	105	1000
1982	USA	110	1000
1983	USA	115	1000
1984	USA	120	1000
1985	USA	125	1000
1986	USA	130	1000
1987	USA	135	1000
1988	USA	140	1000
1989	USA	145	1000
1990	USA	150	1000
1991	USA	155	1000
1992	USA	160	1000
1993	USA	165	1000
1994	USA	170	1000
1995	USA	175	1000
1996	USA	180	1000
1997	USA	185	1000
1998	USA	190	1000
1999	USA	195	1000
2000	USA	200	1000
2001	USA	205	1000
2002	USA	210	1000
2003	USA	215	1000
2004	USA	220	1000
2005	USA	225	1000
2006	USA	230	1000
2007	USA	235	1000
2008	USA	240	1000
2009	USA	245	1000
2010	USA	250	1000
2011	USA	255	1000
2012	USA	260	1000
2013	USA	265	1000
2014	USA	270	1000
2015	USA	275	1000
2016	USA	280	1000
2017	USA	285	1000
2018	USA	290	1000
2019	USA	295	1000
2020	USA	300	1000

ENROLLMENT BY MAJORS

<u>Dept.</u>	<u>Sept. 1969</u>	<u>Sept. 1970</u>	<u>Sept. 1971</u>	<u>May 1972</u>
Home Ec. Education	97	114	124	126
Human Development	155	215	435	509
Nutrition & Food	48	46	57	77
Textiles, Clothing & Environ. Arts	207	180	173	206
	<hr/>	<hr/>	<hr/>	<hr/>
Total	507	555	789	918
Graduate	27	40	53	56

ENROLLMENT BY CLASS

Seniors	127	133	162	138
Juniors	135	166	301	314
Sophomores	139	142	214	301
Freshmen	100	111	111	162
Non-classified	6	3	1	3
	<hr/>	<hr/>	<hr/>	<hr/>
Total	507	555	789	918

Year	1911	1912	1913	1914	1915
Jan	100	100	100	100	100
Feb	100	100	100	100	100
Mar	100	100	100	100	100
Apr	100	100	100	100	100
May	100	100	100	100	100
Jun	100	100	100	100	100
Jul	100	100	100	100	100
Aug	100	100	100	100	100
Sep	100	100	100	100	100
Oct	100	100	100	100	100
Nov	100	100	100	100	100
Dec	100	100	100	100	100

NUMBER OF STUDENTS TAUGHT

	<u>1969-70</u>	<u>1970-71</u>	<u>1971-72</u>
Home Economics Education	193	528	357
Human Development	833	1696	2446
Management & Family Economics	289	296	276
Nutrition and Food	708	763	1053
Textiles, Clothing and Environmental Arts	1050	1407	1619
	—	—	—
Total	3073	4690	5751

NUMBER OF STUDENTS GRADUATING  
WITH A BACHELORS DEGREE

1969	112
1970	112
1971	124
1972	137





STUDENTS GRADUATING WITH HONORS

	<u>Magna</u>	<u>Cum Laude</u>
1969	4	12
1970	5	20
1971	9	21
1972*	13	36

\*Sept. 1971 and Feb. 1972 only

STUDENTS WITH A CUMULATIVE AVERAGE  
OF 3.0 OR BETTER AT END OF FALL SEMESTER 1971

Class of 1972	56
Class of 1973	103
Class of 1974	97
Class of 1975*	59

\*15 members of this class were initiated into  
Alpha Lambda Delta

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DEPARTMENT OF HOME ECONOMICS EDUCATION  
Annual Report, July 1, 1971 - June 30, 1972

Submitted by: Helen R. Vaznaian, Head

PROFESSIONAL ACTIVITIES

Memberships and Participation in Professional Associations and Meetings

A. Assistant Professor Marjorie F. Sullivan holds membership in the following professional organizations:

1. American Home Economics Association
2. Massachusetts Home Economics Association
3. Association for Supervision and Curriculum Development
4. Massachusetts Association for Supervision and Curriculum Development
5. National Council on Family Relations
6. Massachusetts Council on Family Relations
7. N.E.A. Dept. of Home Economics Education

In addition Assistant Professor Sullivan has participated in the following professional activities:

1. National Council on Family Relations Annual Conference at Estes Park, Colorado, August 25-28, 1971
2. Nutrition Education Conference, University of New Hampshire, October 29-30, 1971
3. Massachusetts Association for Supervision and Curriculum Development Conference on "Humanizing Instruction Through Curriculum Change," Auburn, Mass., November 2, 1971
4. Massachusetts Home Economics Association Annual Meeting: "Focus on the Family," May 20, 1972, Worcester, Mass.
5. Study Tour of Oriental Family Life, including Japan, Korea, Taiwan, Hong Kong, British Crown Colony (Summer 1972)

Within the School of Home Economics, Assistant Professor Sullivan was a member of the School Personnel Committee, the Personnel Policies Committee, the Scholarship and Awards Committee, the Undergraduate Curriculum Committee, and the Ad Hoc Faculty Evaluation Committee. In addition, she served on the University Foreign Student Affairs Committee, the COFASAP, and the A.A.U.P. Faculty Welfare Committee.

B. Professor Marjorie M. Merchant

1. Served as Director on the Executive Council of American Council on Consumer Interests at Annual Conference, Dallas, Texas; re-elected as Director for 1972-1973
2. Served as member of Research Awards Committee for American Council on Consumer Interest, 1971-1972



3. Served on Advisory Board to Association of Massachusetts Consumers, Inc.
4. Participated in the Legislative Workshop of the Massachusetts Home Economics Association
5. Served as Chairman, Connecticut Branch of the A.A.U.W.'s study group on Consumer Spending
6. Held membership in the New England Committee on Consumer Education, the American Home Economics Association and the Massachusetts Home Economics Association

In addition Professor Merchant served as

1. Chairman, Department of Home Economics Education Personnel Committee
2. Member of the School of Home Economics Search Committees:
  - a. For head of the Textiles, Clothing and Environmental Arts Dept.
  - b. For extension faculty in Management and Housing
3. Advisor for Alpha Pi Chapter of Omicron Nu, National Home Economics Honor Society

C. Assistant Professor Audrey Isles holds membership in the following:

1. American Home Economics Association
2. Massachusetts Home Economics Association
3. Western Massachusetts Home Economics Association
4. Canadian Home Economics Association
5. Association of Massachusetts Consumers
6. Western Massachusetts Consumers Association
7. Massachusetts Council on Food, Nutrition and Health

Within the School of Home Economics, Assistant Professor Isles served as a member of the Department Personnel Committee.

D. Associate Professor Helen R. Vaznaian is a member of the following professional organizations:

1. National Council on Family Relations
2. Massachusetts Council on Family Relations
3. Department of Home Economics (DHE), National Education Association
4. Association for Supervision and Curriculum Development (ASCD)
5. New England Association for Supervision and Curriculum Development
  - a. Pitkin Institute, "Open Education," University of New Hampshire, February 1972
6. Massachusetts Association for Supervision and Curriculum Development
  - a. Planning Committee, Summer Conference, Westfield State College, Westfield, Mass., July 1971.
7. American Home Economics Association
  - a. Agency Member Unit Representative, Accreditation Committee



- b. Annual Meeting, June 1972, Detroit, Michigan
- c. A.H.E.A. National Workshop: "Identifying Criteria for a Curriculum in Community, Health, Rehabilitation and Welfare Home Economics Programs," June 29 - July 1, 1972, Detroit, Michigan

The basic objectives of this workshop will be

1. To reach consensus among home economics educators, administrators of community health-rehabilitation and welfare agencies, and consumers of agency services, as to the role, function, and array of competencies needed by home economists in this arena of service to individuals and families
  2. To review existing curricula at the graduate and undergraduate levels in the light of competencies needed and criteria defined for accreditation of home economics programs
  3. To identify direction for further development and implementation
8. Board of Directors, National Association for Armenian Studies and Research
- a. Executive Board
  - b. Annual Assembly, Nomination Committee Chairman
  - c. Chairman, Academic Affairs Committee
9. Alpha Gamma Chapter, Pi Lambda Theta
10. National Board of Directors, Armenian General Benevolent Union Bilingual School Program, Detroit, Michigan
11. Educational Consultant, Watertown A.G.B.U. Bilingual School, Watertown, Mass.
12. Advisory Council, Home Economics Curriculum Center, State College, Framingham, Mass. (two year term)

Within the School of Home Economics, the following committee responsibilities were assumed:

1. Co-advisor, College Chapter, American Home Economics Association
2. Chairman, Ad Hoc Budget Committee, School of Home Economics
3. School of Home Economics Search Committee for a New Dean
4. The Undergraduate Academic Deans' Council
5. Committee for the Organization and Administration of the College of Human Resources, Dean Bruce R. Morris, Chairman

#### RESEARCH PROPOSALS AND PROJECTS

1. New Teacher Education Internship Model in Home Economics for Secondary Schools, submitted to Division of Occupational Education, State Department of Education, Boston, Mass., January 1972. Specifically the proposal takes into account the present and future competency needs of teachers charged with the responsibility of consumer, homemaking and career orientation programs for the secondary schools. In its design and implementation, the model reflects the outgrowth of recent research studies relative to teacher education, and it calls for the establishment of new mutually beneficial community-school-university arrangements with shared





responsibilities in the professional preparation of teachers of home economics, including occupational/career education, for the secondary schools. Provision is made for:

- A. Opportunities for reality-centered experiences for student interns during a more meaningful period of time, i.e., one full semester
- B. Opportunities for the development of new roles through differentiated staffing in the learning-teaching process
- C. Opportunities for upgrading present professional personnel in the Newton Public Schools (the pilot community and school system) through the application of the Career Ladder Concept to the teacher education model, whereby individuals may move either vertically or laterally, in a hierarchy of roles from entry level to the professional level and on to higher levels of professionalism through in-service, continuing education programs (H.R. Vaznaian).

## 2. Belchertown Proposal

The Department of Community Services has contributed to the School of Home Economics Proposal in assuming responsibility for the development of a Personal, Home and Family Life Program for those at Belchertown State Hospital. In addition, a transition-to-the-community program will be developed for those who seem ready for this experience. (H.R. Vaznaian).

3. Proposal for the Development and Evaluation of Improved Nutrition Education Programs for the Treatment of Hyperlipidemia, R.F.P. #NHL1-72-15, submitted by the Mirlin Corporation (Dr. Jean Mayer, Board of Directors). Miss Vaznaian serves as one of the key contributing personnel in an interdisciplinary team which includes, amongst others, social psychologists, taste physiology/psychologists, cardiologists, clinical nutritionists, nurse, biostatistician, educators, and distinguished physicians.
4. Cooperative Research Project with Worcester County Extension Service: A project to study the market environment of consumers in public housing for the elderly will be conducted this summer in Worcester. The study is designed to determine the economic impact of the market environment on the elderly and to help focus on some of the changes needed to increase the well-being of this segment of the population (Marjorie Merchant).

## PUBLIC SERVICE ACTIVITIES

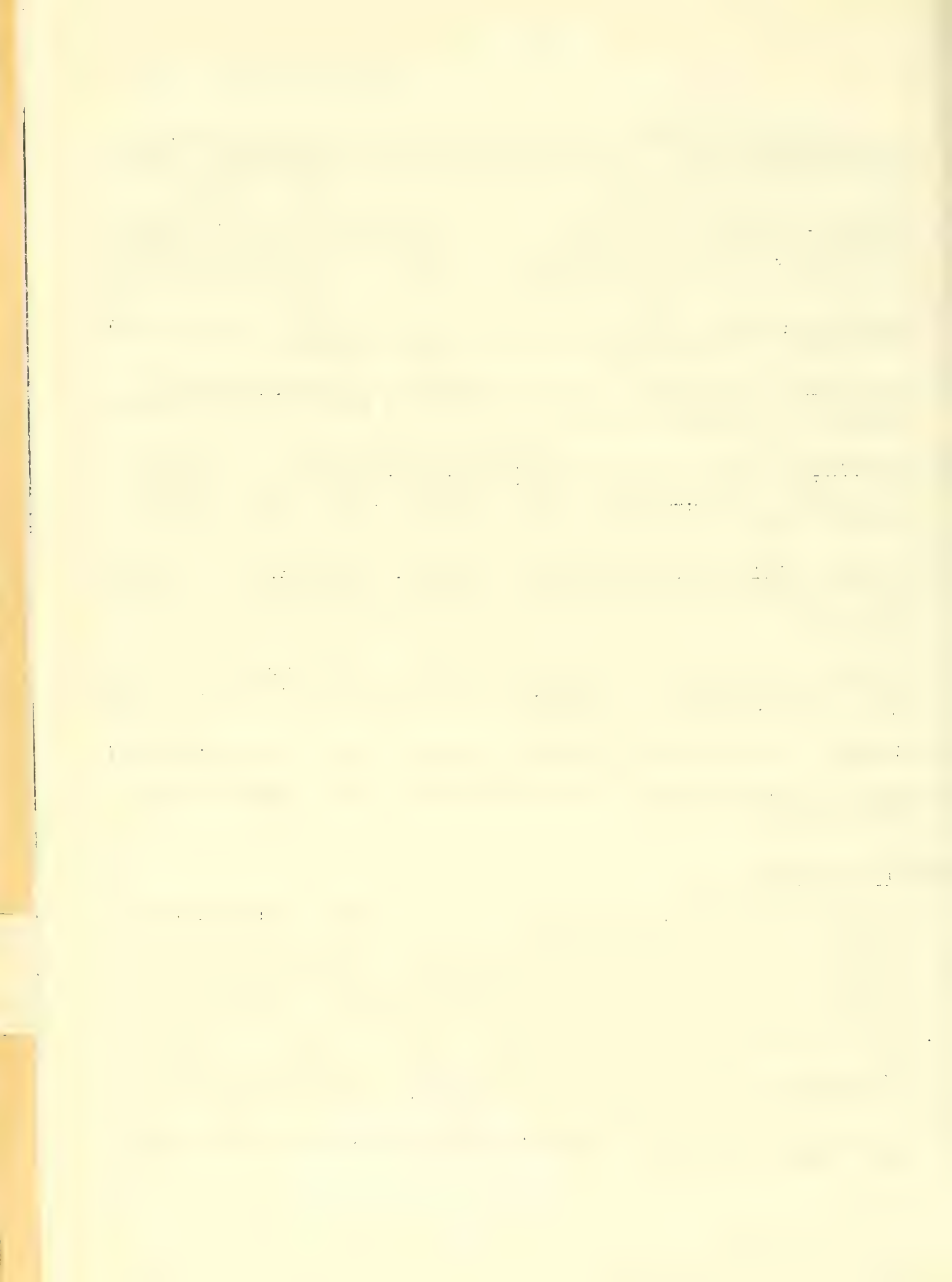
1. In-service Institute: "Developing Performance Objective Programs," December 15 and January 19, 1972, Campus Center and Amherst Junior High School respectively for Cooperating Teachers in Western Massachusetts (Marjorie F. Sullivan and Ruth M. Lauroesch).
2. State-wide Home Economics Teachers' Conference in cooperation with the Division of Occupational Education, State Department of Education. Focus: Trends in Family Life and Consumer Education, April 7, 1972, State College at Framingham, Mass. (Planning Committee and Workshop section leader - H. Vaznaian).



3. In-service Education: Home Economics 682, Curriculum and Methods presented at Brookline High School, Brookline, Mass., for teachers in Brookline, Boston, Needham, Westwood and Lexington. September - January 1972 (H. Vaznaian).
  4. In-service Education: Home Economics 710, Seminar presented at Parker Junior High School, Reading, Mass., for teachers in Reading, North Reading, Wilmington, Lynnfield, Lynn, Marblehead and Swampscott. A total of 40 participated with almost perfect attendance each week! (H. Vaznaian).
  5. In-service Education: Consumer Economics presented to teachers of home economics in the Saugus and Worcester Public Schools (Marjorie Merchant).
  6. Development of a full semester in-service workshop on Consumer Economics for an interdisciplinary group of teachers in the Quincy Public Schools commencing September 1972 (Marjorie Merchant).
  7. Development and testing of a non-credit correspondence course in Consumer Finances. The Franklin and Hampshire County Extension Services are cooperating in pretesting the instructional materials which focus upon credit, warranties, insurance, savings, retirement, and home ownership (Marjorie Merchant).
  8. Survey of Consumer Attitudes toward Unit Pricing in Massachusetts. The survey will help delineate the need for greater educational efforts on the part of industry as well as County Extension Programs to help consumers utilize to their advantage the recent unit pricing legislation.
- Preliminary data was presented at the recent Northeast Conference on Unit Pricing held at the University of Massachusetts for representatives of industry, government and education (Marjorie Merchant).
9. Seminar: "Money Management for Family Counseling," Essex County (Audrey Isles).
  10. Seminar: "Money Management for Low-Income Families," EFNE Program Assistants (Audrey Isles).

#### SPEAKING ENGAGEMENTS

1. "The High Cost of Dying," Open Meeting and a radio program similarly concerned with funeral costs. (Audrey Isles)
2. "Humanistic Education: Avenues of Communication in Home Economics," Middlesex County Teachers' Association, Reading, Mass., October 1971. (H. Vaznaian)
3. "Career Education: NOW in the Newton Public Schools," May 1972. (H. Vaznaian)
4. "Parent Education in Sexuality for the Young Child," Conway Parent Teachers' Association, April 10, 1972. (Marjorie Sullivan)
5. "Do You Think As Consumers?," New England Dietetic Association Annual Conference. (Marjorie Merchant)



6. "Your Dollar's Worth in Consumer Education," Annual Conference of Mass. Division of American Association of University Women, Wheaton College, May 1972. (Marjorie Merchant)
7. "The Quest for Identity," Watertown A.G.B.U., Watertown, Mass., April 1972. (H. Vaznaian)

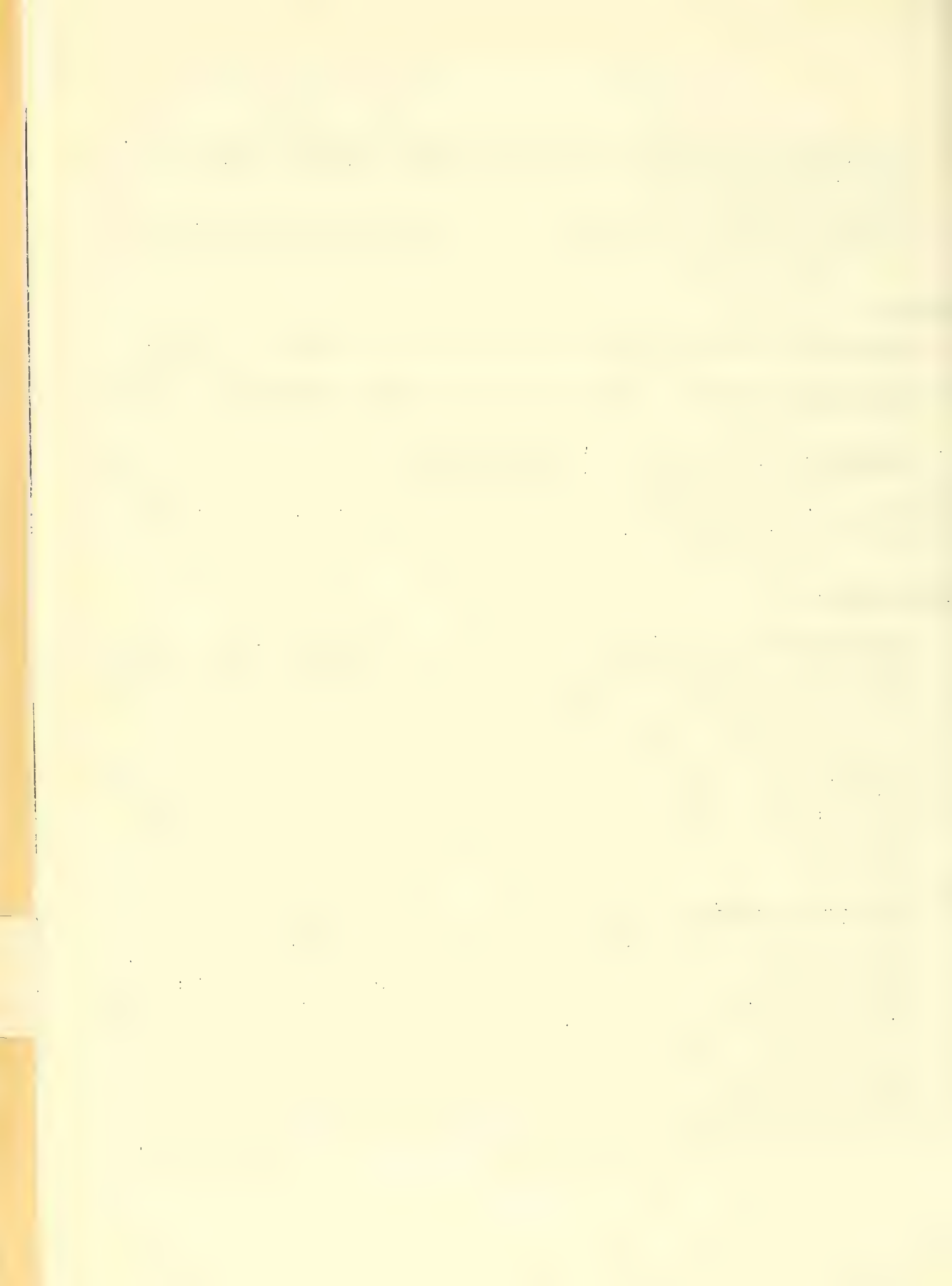
#### COLLOQUIA

1. Leech House (request): 1 credit colloquium in Consumer Affairs (M. Merchant)
2. Mortar Board (request): 1 credit colloquium on Financial Management for Women (Dean Bruce R. Morris)
3. Gorman House (request): 2 credit colloquium on Human Sexuality. Two groups of 20 students each participated. (Marjorie Sullivan)

In addition, Professors Merchant and Morris served as guest lecturers in programs concerned with consumer survival.

#### MAJOR ACCOMPLISHMENTS

1. The establishment of a new major. The new major, Community Services, offers three options for study at the present time: Community Services and Extension, Home Economics Education, and Consumer Economics. In the fall of 1971, the areas of Home Economics Education, Management and Family Economics and Consumer Economics were integrated into one department, Community Services.  
It is expected that this merger will facilitate training in community services occupations, namely for such roles as extension specialist, consumer consultant, mental health team member, family life educator, or certified teacher of home economics and/or career development specialist at the secondary school level. With the undergraduate curriculum ready for fall 1972, major attention will focus on the development of a viable graduate program and the possible introduction of some attractive alternatives in this new program.
2. Expansion of Continuing Education Programs. Consistent with our policy to meet specific needs within the state, we have expanded our continuing education program. In working with the professional development of teachers, we feel it is important that their development be seen in the context of a group process, of team relationships and of total staff development rather than just individual growth. Every effort is made to tailor their professional growth program to the situation that exists in the school system and does involve the teachers of home economics in the initiation and organization of the activities, thus enhancing the conditions for peer support, shared effort and eventual utilization of new insights and skills. In our professional growth programs, we are committed to aspiring "self-evolving" teachers toward sustained improvement; the extension of competence being an endless and a mutual goal. The response from those participating in our programs thus far has been enthusiastic and highly supportive.



3. Pilot Program in Consumer Finances. A pilot program in Consumer Finances incorporating a non-credit course framework - a program which reflects the needs in extension education in a period of complex technological and social change and unrest was initiated this year. With the density of the population in Mass. and limited extension staff to meet their needs, this educational method holds considerable potential and promise for the consumer population within the state. Presently, 84 are enrolled as a study group within the pilot program. Over 60% of the students continue to participate actively (returning lessons and demonstrating a learning experience).

4. Initiation of Major Projects.

The new teacher education model for the students in home economics education, the nutrition education program for the treatment of hyperlipidemia and the personal, home and family life programs for Belchertown State Hospital represent major and significant undertakings for the Department of Community Services. We welcome the challenge.

FUTURE PLANS AND NEEDS

We look forward to the fall baptismal of Community Services. We expect to expand certain aspects of the undergraduate alternatives, and to develop a viable graduate program at the Master's level.

We also look forward to becoming a significant part of the proposed College of Human Resources. We welcome and anticipate a series of meaningful dialogues with all who are currently housed under the umbrella of the School of Home Economics and with those who may eventually be housed under the umbrella: College of Human Resources. We look forward to the opportunities to interact with significant others in the creation and implementation of meaningful programs.

Regarding Specific Needs

1. Addition of Staff

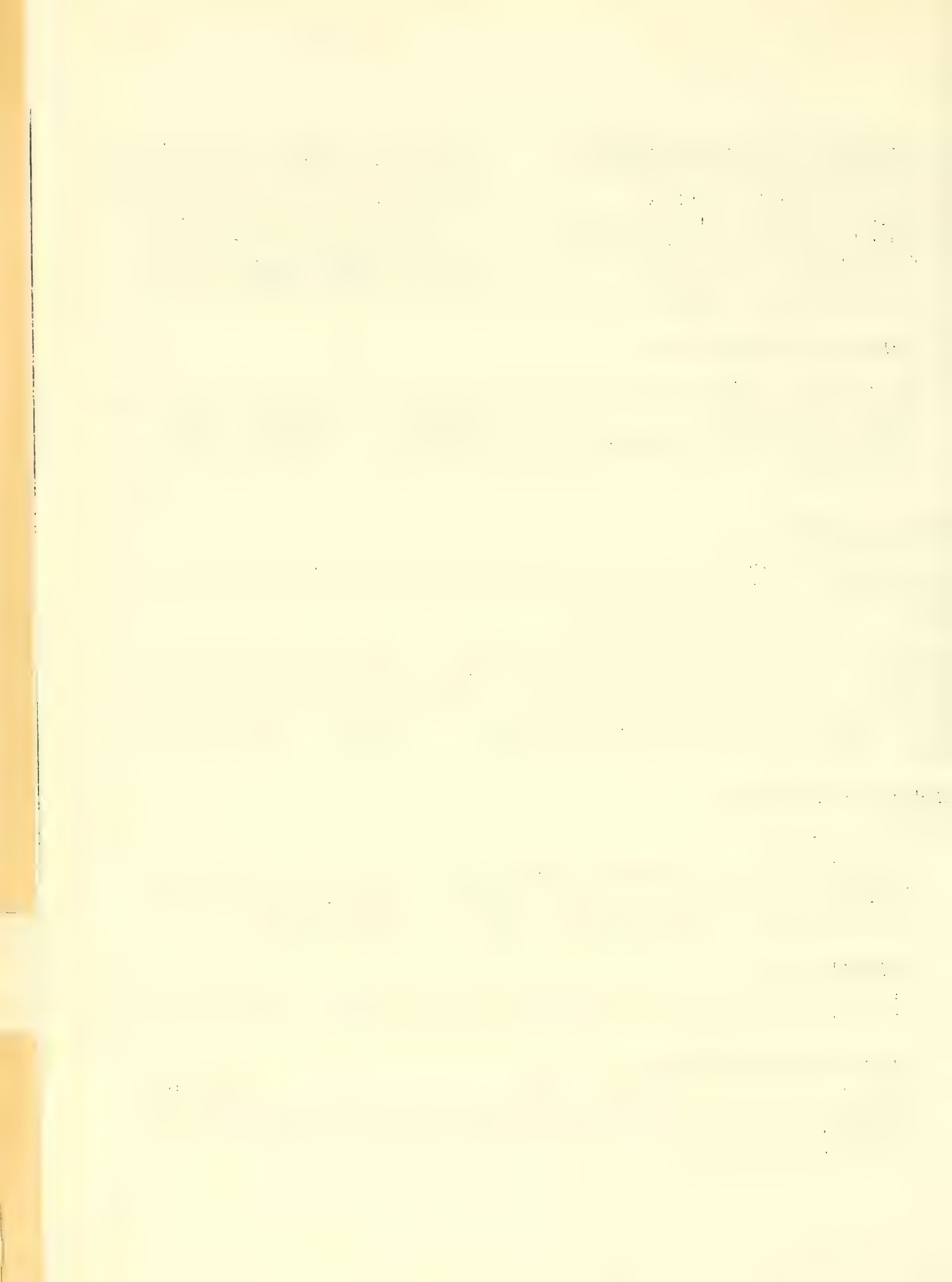
An immediate need is the addition of staff for the resident teaching program. Currently two staff members, one of whom serves as department head, teach and are responsible for 140 undergraduate majors, 15 regular graduate students at the Master's level, and 60 special or provisional graduate students.

2. Secretarial Staff

For seven consecutive years this department has consistently requested the need for a full-time responsible secretary. The imperative need continues.

3. Physical Facilities and Space

The limited classroom in Hampshire House is grossly inadequate and expensive. With one adequate sized room we could increase efficiency via cost-analysis by 100%, i.e., professor/student ratio. We request serious consideration of this overwhelming need.





Appreciation

In behalf of the newly formed Community Services Department, I would like to express our appreciation to Dean Bruce R. Morris who in the execution of his responsibilities brought personal and professional integrity, joy, harmony and humor, as well as inspiring leadership to the School of Home Economics. We shall truly miss him.



DEPARTMENT OF HUMAN DEVELOPMENT  
ANNUAL REPORT: JULY 1, 1971 - JUNE 30, 1972

FACULTY PUBLICATIONS, RESEARCH GRANTS, RESEARCH PROJECTS,  
AND OTHER PROFESSIONAL ACTIVITIES

Submitted by:  
Ellis G. Olim, Ph.D.

Publications

The following articles have been published (or are in press) since the last report:

Turner, B.F., Tobin, S.S., & Lieberman, M.A. Personality traits as predictors of institutional adaptation among the aged. Journal of Gerontology, 1972, 27 (1), 61-68.

Turner, B.F., Tobin, S.S., & Lieberman, M.A. Personality traits as predictors of institutional adaptation among the aged. Geriatrics Digest, in press.

Turner, C.B., & Turner, B.F. Perception of the occupational opportunity structure, socialization to achievement and career orientation as related to sex and race. Proceedings of the 79th Annual Convention of the American Psychological Association, 1971. 243-44.

Turner, B.F. Perception of the occupational opportunity structure and socialization to achievement as related to sex and race, Research in Education, July, 1972, in press.

Collard, R.R. Exploratory and play behaviors of infants reared in an institution and in lower-class and middle-class homes. Child Development, 1971, 42, 1003-1005.

Collard, R.R. The preschool attainment record. In O. Burros (Ed.), Seventh mental measurements yearbook, 1972, 759-760.

Collard, R.R. The Bayley Scales of Infant Development. In O. Burros (Ed.), Seventh mental measurements yearbook, 1972, 727-729.

Collard, R.R. Reprint of Social and play responses of first-born and later-born infants in an unfamiliar situation (Child Development, 1968) in J. F. Rosenblith, W. Allinsmith and J. P. Williams (Eds.), Readings in child development and educational psychology, Allyn and Bacon, in press.

Collard, R.R. Exploration and play in human infants. In B. Sutton-Smith (Ed.), Leisure (special issue on play), in press.

Olim, E.G. Reprint of The self-actualizing person in the fully functioning family (The Family Coordinator) in F. Cox (Ed.), American Marriage: A Changing Scene? Dubuque: Wm. C. Brown Co., 1972.

Reprint is also to appear in a book of readings on the individual and his family; Iowa State University.



Papers and Symposia

- Turner, B.F., & Turner, C.B. The political implications of social stereotyping of men and women by blacks and whites. To be delivered at the 1972 Annual Meeting of the National Council on Family Relations, Portland, Oregon, November, 1972.
- Turner, B.F. Socialization and career orientation among black and white college women. In SPSSI Symposium, Career development in women: methodological and social issues. 80th Annual Convention of the American Psychological Association, 1972.
- Turner, B.F. & Turner, C.B. Perception of the occupational opportunity structure and socialization to achievement, and career orientation as related to sex and race, presented at the 79th Annual Convention of the American Psychological Association, September 3, 1971.
- Collard, R.R. & Rydberg, J. Generalization of Habituation to Properties of objects in human infants. To be presented at the International Congress of Psychology in Tokyo, Japan, August, 1972.
- Niem, T.C. & Collard, R.R. Parental discipline of aggressive behaviors in four-year-old Chinese and American children. To be presented at the Annual Convention of the American Psychological Association in Honolulu, September, 1972.
- Collard, R.R. & Rydberg, J. Generalization of habituation to properties of objects in human infants. To be presented at the Annual Convention of the American Psychological Association in Honolulu, September, 1972.

Invited Talks and Guest Lectures

- Olim, E.G. Human Development. Guest Lecture, Economics 394/692 Human Resource Economics, March 7, 1972.

Research Completed, Research Grants Awarded, and Grant Applications in Process

- Dr. Collard Research completed under faculty research grant titled, "Generalization of habituation in infants."
- Dr. Turner Large-scale survey of housing needs of elderly residents in the Amherst area completed.
- Dr. Turner Faculty research grant received to complete analysis of elderly housing survey data.
- Dr. Turner and Dr. Olim. Grant application to NIMH in preparation titled, "Family stress and dislocation as a function of upward social mobility of college-attending children from blue-collar families."

Consultantships

Dr. Turner and Dr. Olim are consultants to the Amherst Housing Authority on housing for the elderly.



Other Professional Activities

a. Service

Faculty of the Department served on the following committees or performed other services :

- Burroughs - Chairman, ad hoc School Senate Committee; Dean of Nursing Search Committee; Dean of Home Economics Search Committee; Faculty Senate representative to the Board of Trustees; Senator
- Collard - Chairman, ad hoc Field Study Committee; Graduate Committee
- Dumas - Departmental Personnel Committee; School Personnel Committee
- Craig - School ad hoc Travel Allocation Committee; Departmental Personnel Committee; School Personnel Committee; President Wood's Academic Advisory Council; School Faculty Fund Committee; School Grievance Committee; Graduate Committee; Publicity Committee
- Olim - Ad hoc School Faculty Evaluation Standards; Chairman, School Personnel Policy Committee; Dean of Home Economics Search Committee; School of Nursing Self-Study Committee; Committee to Study College of Human Resources; Senator; Senate Committee on Committees; Advisory Board of University Day School; Dean's Executive Council; Graduate Committee.
- Turner - School Grievance Committee; Chairman, Departmental Personnel Committee; Graduate Committee; Personnel Policy Committee; Undergraduate Curriculum Committee; Director Graduate Studies.

b. Educational Innovative Programs

Mr. Dumas is on the board of the University Without Walls. Professor Burroughs taught a course in Project 10. Dr. Olim taught an Honors each semester and is preceptor for 10 Commonwealth Scholars. Dr. Collard is preceptor for one Commonwealth Scholar. Drs. Olim and Craig and Professors Burroughs and Dumas are sponsors of BDIC students.

c. New Courses

The faculty developed 5 new courses in Human Development.

d. Recruitment

Drs. Forman and Karlson were recruited and will join the faculty in the fall.

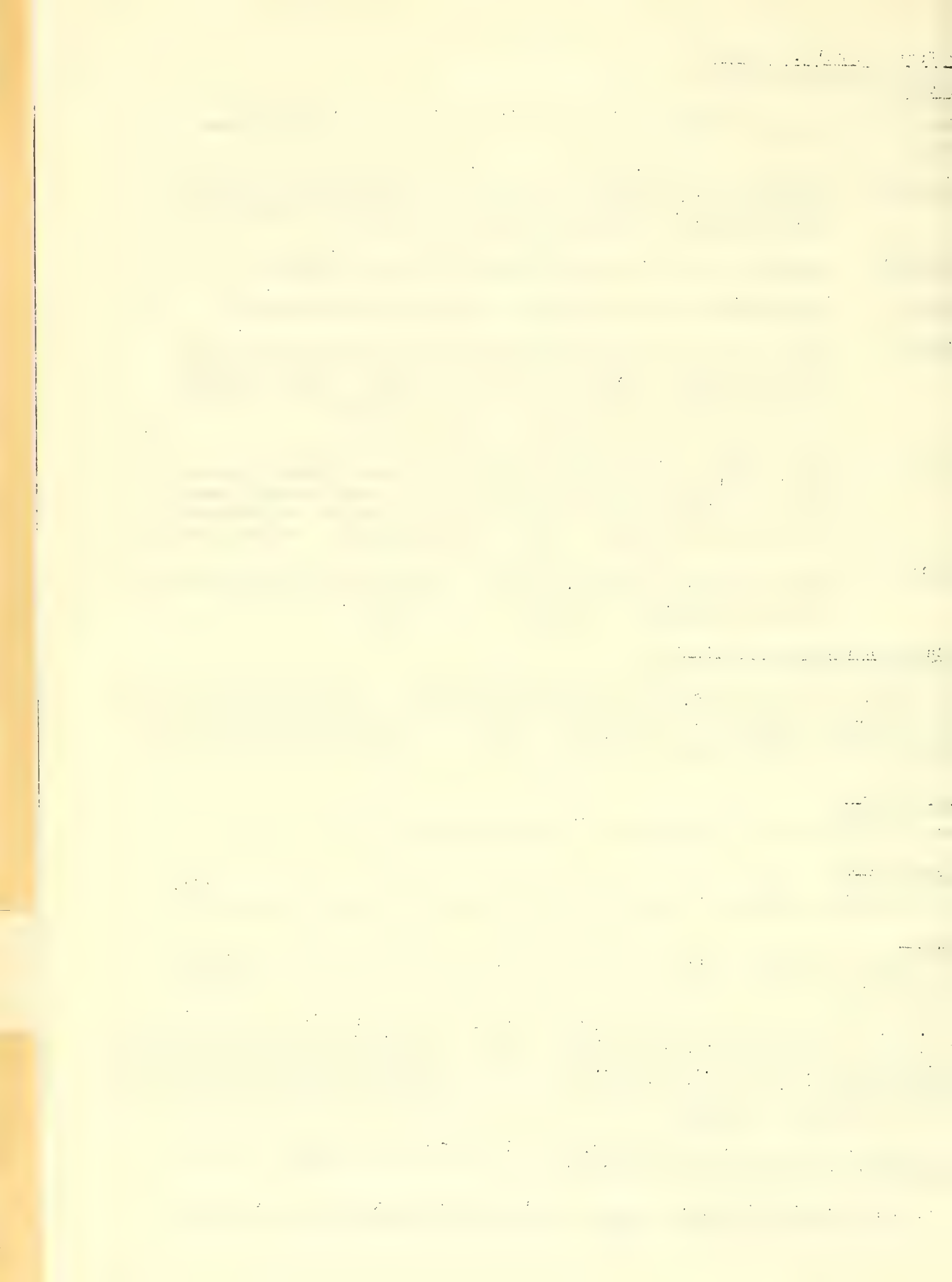
e. Other

Mr. Dumas is Acting President of the New England Association for the Education of Young Children.

Dr. Collard is advisor to the South City Tutorial Center in Holyoke, Massachusetts, and is a member of the board. Dr. Collard attended the following professional meetings: New England Psychological Association, a panel on psychological aspects of child care; and the Undergraduate Education Conference, U. Mass. She was also voted to full member status in the society of Sigma Xi.

Dr. Turner attended the annual meeting of the American Psychological Association and the Eastern Psychological Association.

Dr. Olim attended the annual meeting of the American Psychological Association.





Early Childhood Education Fair

On December 11, 1971, a successful fair was held in Skinner Hall to demonstrate early childhood learning materials and educational films. Early childhood educators from all over Massachusetts and a large number of faculty attended.

Growth of Major and Class Enrollment

The major and class enrollments continued to grow. From 403 majors a year ago the major grew to 485, at which number the major was closed for lack of staff and teacher-training facilities to handle more than that number. Because of the impending graduation of about 65 seniors and because of the addition next Fall of two Faculty members, the major was opened to students in the class of 1974 and some students from the class of 1975. Undergraduate class enrollments increased from 1,004 a year ago to 1,231 this Spring. (See Tables 1 and 2.)

Table 1. Undergraduate Majors in Human Development

	<u>May</u> <u>1969</u>	<u>May</u> <u>1970</u>	<u>May</u> <u>1971</u>	<u>May</u> <u>1972</u>
All classes	155	214	403	500*
Freshmen	37	59	96	
Sophomores	37	71	168	
Juniors	34	47	92	
Seniors	47	37	47	

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\* Estimated. A breakdown of the number of students by class was not available at the time of preparation of this report.

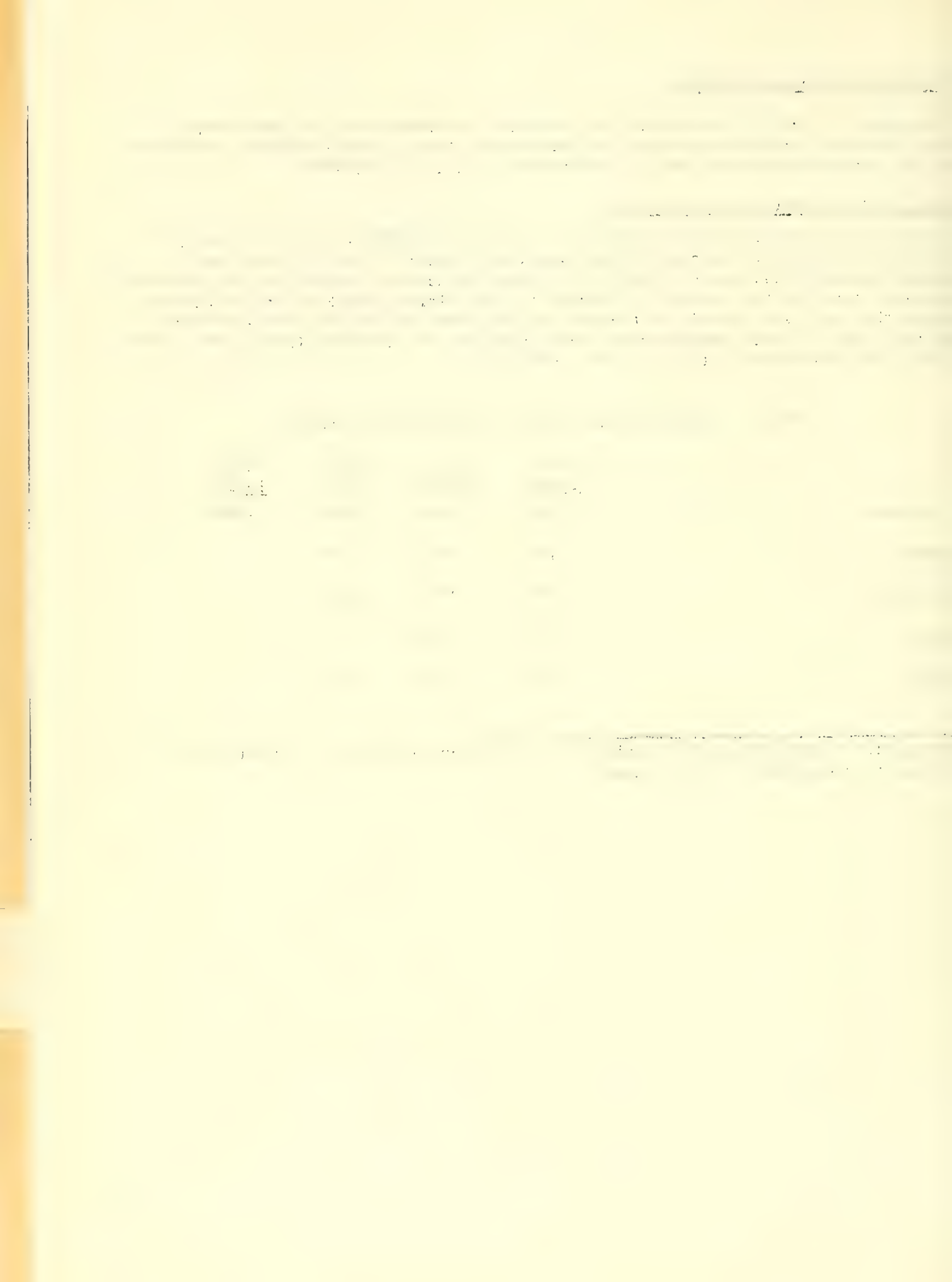


Table 2. Undergraduate Class Enrollment

<u>Course</u>	<u>Spring 1970</u>	<u>Spring 1971</u>	<u>Spring 1972</u>
HD 270	175	252	191
HD 272	--	--	70
HD 310	33	66	27
HD 350	21	6	8
ED 360	--	67	13
HD 380	58	133	184
HD 381	49	72	116
HD 382	34	81	158
HD 383	49	67	117
HD 384	14	29	60
HD 385-8, Special Problems	5	203	224
HD 389, Special Problems	7	7	32
HD 391, Seminar	23	21	31
	468	1,004	1,231*

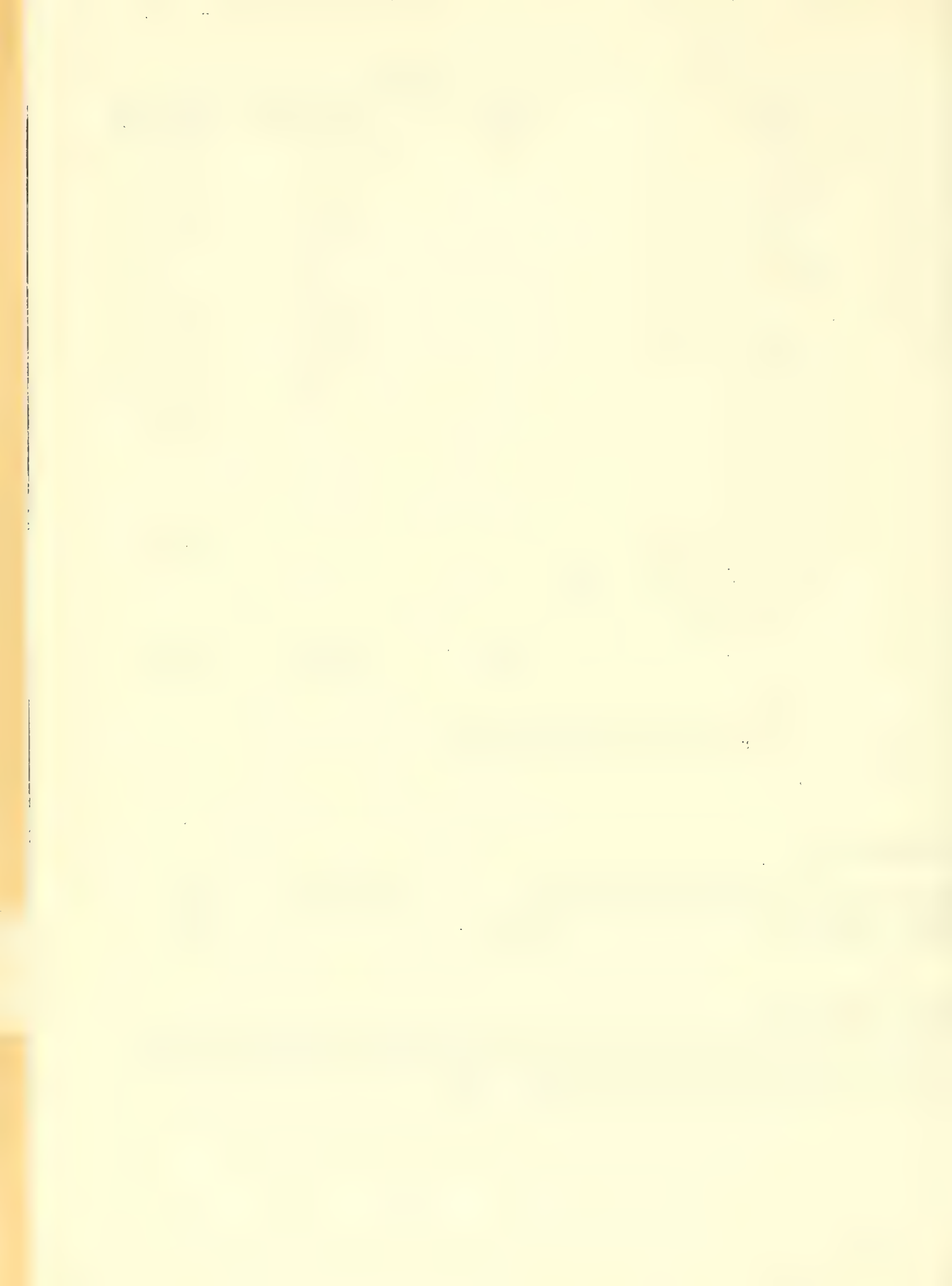
\* This total would have been considerably higher if limitations on course sizes had not been set.

Graduate Program

The quality of the graduate students admitted for next fall has improved over previous graduate students. With the addition of two graduate faculty members (Forman and Karlson), we are now in a position to strive for a doctoral program in Human Development.

University Day School

We have worked out an arrangement whereby the University Day School will become a teacher training and research facility for the Department. In addition, because of student enrollment, we are reinstating the practice of having some of our students do their teacher training in public schools.



DEPARTMENT OF HUMAN NUTRITION

ANNUAL REPORT JULY 1, 1971 - JUNE 30, 1972

SUBMITTED BY PETER L. PELLETT

FACULTY

Peter L. Pellett, Head and Associate Professor, Ph.D.  
Virginia A. Beal, Associate Professor, M.P.H.  
Mark H. Bert, Associate Professor, Ph.D.  
Dorothy Davis, Associate Professor, M.S.  
Jane F. McCullough, Associate Professor, M.S.  
Dorothy M. Travnicek, Visiting Lecturer, Ph.D.  
Harriet J. Wright, Professor, M.P.H.

TEACHING AND RESEARCH GRADUATE ASSISTANTS

Michele Bremer, Teaching  
Carrie Johnson, Teaching  
Boaz Mafarachisi, Research  
Kenneth Warner, Teaching

STAFF

Melvin Baukman, Laboratory Technician (Research)  
Kathie L. Framke, Laboratory Technician (Research)  
Linda Overing, Student Typist  
Arline Stoughton, Laboratory Assistant (Food Labs)  
Charlene B. Weaver, Secretary  
Julie Zellat, Student Typist

STATE OF TEXAS

COUNTY OF \_\_\_\_\_

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FACULTY PUBLICATIONS, RESEARCH GRANTS, RESEARCH PROJECTS AND OTHER PROFESSIONAL ACTIVITIES

Publications

- Asmar, J.,\* Pellett, P.L., Nur Hariri\* and M.D. Hariri\*. Quantitative and qualitative protein changes in the developing single comb white leghorn chicken embryo. J. Embry. and Expt. Morph. in press.
- Beal, Virginia A. 'Nutrition in Children': Chapter in Wallace, H.M., Gold, E.M. and Lis, E. (Editors), Maternal and Child Health Practice: Problems, Resources and Methods of Delivery. In press, Charles C Thomas Co.
- Hariri, D.M.,\* Dagher, N.J.\* and Pellett, P.L. 1971. Actual and predicted growth of chickens fed various diets. Proc. Vith Symposium on Health and Nutrition in the Near East. Beirut, Lebanon. Ed. D.S. McLaren and N.J. Dagher. Pg. 361-370.
- Kaba, H.\* and Pellett, P.L. 1971. The prediction of true limiting amino acids using available protein scoring systems. Proc. Vith Symposium on Health and Nutrition in the Near East. Beirut, Lebanon. Ed. D.S. McLaren and N.J. Dagher. Pag. 340-360.
- Pellett, P.L. and Huda Kaba\*. Carcass Amino Acids of the rat under conditions of determination of net protein utilization. J. Nutr. 1972, 102, 61-68.
- Pellett, P.L. and Saghir, A.R.\* Amino acid composition of wheat and barley protein after treatment with 2-4 D. Weed Research, 1971, 11, 182-189.
- Pellett, P.L. and McGregor, L.\* 1971. Food as a cause of childhood malnutrition. Proc. Vith Symposium on Health and Nutrition in the Near East, Beirut, Lebanon. Ed. D.S. McLaren and N.J. Dagher. Pg. 53-64.
- Pellett, P.L., McLaren, D.S.\* and Shadarevian, S.\* 1971. The prediction of nitrogen balance and growth from food intake data for malnourished and recovered children. Proc. Vith Symposium on Health and Nutrition in the Near East. Beirut, Lebanon. Ed. D.S. McLaren and N.J. Dagher. Pg. 289-304.
- Pellett, P.L., Pascoe, E.\* and Sha'afi, R.I.\* 1972. Amino acid composition of cat and human erythrocyte membranes. Comp. Biochem. Physiol., 1972, Vol. 41B, pp. 483-486, Pergamon Press.
- Pellett, P.L. Methods of protein evaluation with rats. Chapter in "The Chemistry, Biology and Physics of Protein Evaluation" to be published by Academic Press, New York and London.
- Raheja, K.L.\*, Reber, E.F.\*, M.H. Bert and J.G. Snedecor. Response of prothrombin rate to exogenous testosterone in rats fed dicumarol. Indian J. Physiol. & Pharmacol. 14 (1970) 253-258. (Evidence of this publication reached this department too late for inclusion in last year's Annual Report; this investigation was related to dietary control of atherosclerosis in men).

\*Not at the University of Massachusetts.

1. The purpose of this document is to provide a comprehensive overview of the current state of the project and to identify the key areas for improvement.

2. The project has been successful in many respects, particularly in terms of meeting the initial objectives and maintaining a high level of quality.

3. However, there are several areas where the project has fallen short, and these need to be addressed in the coming months.

4. The most significant areas of concern are the lack of communication between the different teams and the limited resources available for the project.

5. It is recommended that a regular communication schedule be established and that additional resources be allocated to the project.

6. The project manager should also consider the possibility of outsourcing certain tasks to external contractors.

7. Finally, it is important to ensure that the project remains on track and that any changes are implemented in a timely and effective manner.

8. The project team should be encouraged to take ownership of their respective areas and to work together to overcome any challenges that may arise.

9. The project is a complex and demanding one, but with the right approach and resources, it can be completed successfully.

10. The project manager should continue to monitor the progress of the project and to report on any issues that may arise.

11. The project is a critical part of the organization's strategy and it is essential that it be managed effectively.

12. The project team should be commended for their hard work and dedication to the project.



Umapathy, K.P. and M.H. Bert. Cholesterol and non-cholesterol lipid levels in plasma of chicks fed legume or animal proteins and legume carbohydrates, sucrose or starch. Accepted for publication in *Atherosclerosis*, an International Journal for Research and Investigation on Atherosclerosis and Related Diseases.

#### Manuscripts for publication

Beal, V.A. Iron Nutriture of Infants and Preschool Children, to be presented at American Public Health Association meeting in fall, 1972.

#### Contributions to National Scientific Meetings

Peter L. Pellett was invited contributor to the Symposium on the Chemistry, Biology and Physics of Protein Evaluation held at Reading University, England on March 20-24, 1972. The Symposium was held under the sponsorship of International Union of Nutritional Sciences and the NATO Advanced Studies Institute. The paper delivered was on methods of protein evaluation with rats in the section entitled Biological Evaluation Procedures.

#### Research Grants

Little funding has been available for research activities in the department. The year has been spent in obtaining supplies, materials and facilities for research. Much time and effort has been put into preparation of grant requests. Details are given below under three headings: a) on-going grants; b) newly received grants; and c) grant applications as yet unfunded.

##### A. On-Going Grants from 1970-71

1. Nawar, W.W. and Bert, M.H. Grant IU-00148, Health Significance of Radiolytic Products in Foods, from Consumer Protection and Environmental Health Service, Public Health Service. Dept. of Health, Education and Welfare, has been funded (\$18,000 award) until December 31, 1972. The research work has been shared as follows: Dr. W.W. Nawar of Food Sciences and Technology is the principal investigator and has supervised the preparation of the radiolytic products (arising from the breakdown of lipids in meat subjected to radiation sterilization), and Dr. M.H. Bert has been in charge of the nutrition experiments designed to measure the possible toxicity of these products in three successive generations of mice. This investigation of 25 radiolytic products is in its third year and has yielded results which are favorable to radiation sterilization of meat.
2. M.H. Bert. Grant NIH-AH-00589-05-B (Dietetics), "Allied Health Professions Education Improvement Program - Basic Grant" for Basic Improvement of Teaching of Dietetics, has been renewed; an award of \$11,283.00 covering the period from April 1, 1971 to March 31, 1972, was made. Audio-visual aids and equipment, books, expendable and non-expendable equipment for revised dietetics courses and for a new

THE UNIVERSITY OF CHICAGO  
DEPARTMENT OF CHEMISTRY  
5301 SOUTH CAMPUS DRIVE  
CHICAGO, ILLINOIS 60637

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SUBJECT: [Subject]

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course in Human Nutrition Methodology have been purchased. About one-half of the salary of a part-time lecturer, the stipends of two graduate teaching assistants and a part-time clerk for preparing classroom materials were charged to this grant. Travel expenses of faculty members who attended conventions or meetings relevant to the teaching of dietetics, were also covered.

#### B. Newley Received Grants

1. P.L. Pellett. \$1,000.00. Biomedical Sciences Support Grant. RR07048-06 for beginning studies on brain free amino acids in protein depleted rats mainly used for setting up amino acid analyser.
2. P.L. Pellett. \$700.00. Faculty Research Grant, No. FR N13-72 (1). Brain free amino acids in protein depleted rats.
3. P.L. Pellett and M. Bremer. \$200.00. Rodale Trust for initial studies (questionnaire) on food habits in relation to organic and natural foods.
4. V.A. Beal. \$700.00. Faculty Research Grant, No. FR N13-72 (1), for initial studies on the nutritional status of the preschool child in Western Massachusetts.

#### C. Grants Applied For

1. P.L. Pellett and V.A. Beal. Three year project entitled "The Nutritional Status of the Pre-School Child in Western Massachusetts." Applied to Massachusetts Agriculture Experimental Station and to the Nutrition Foundation. Requested budget, \$100,000.00 for three years. We have received provisional notice from Massachusetts Agriculture Experimental Station that they can fund \$10,000 - \$15,000 as seed money for the first year. This investigation will be associated with the North East Regional Nutrition Project.
2. P.L. Pellett and M. Bremer. One year project to Soil and Health Foundation for studies on organic/natural foods. Mr. Rodale of the Foundation has promised verbally that they will do everything they can to assist the program and that a grant of between \$10,000 - \$15,000 will almost certainly be forthcoming. A visit was made to the Rodale Trust in May to discuss the plan and also to discuss arrangements for the collection of food samples (organic/natural) from the Fitness House cafeteria in Emmaus, Pennsylvania.
3. S. Balagura\*, P.L. Pellett and K. Warner. "The Influence of Environmental-related feeding cues on some Psychological and Physiological Mechanisms on Obese Subjects." Application made to National Live Stock and Meat Board for one year support of \$10,000.
4. S. Balagura\* and P.L. Pellett. "Alterations of Biochemical and Feeding Behavior Associated with Malnutrition and Hypothalamic Lesions." Application to be made to National Institute of Health for \$50,000.00 for five years support.

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5. Bert, M.H. and Darity, W.H.\*\* "Allied Health Professions, special improvement grant" (Dietitian Program) - Applied for \$30,630 to replace the current grant.
6. Balintfy, J.L.\*\*\*, Pellett, P.L. and Bert, M.H. et al. "Mathematical models for diet constraints in hospitals."
7. P.L. Pellett. A grant request was proposed on behalf of the Department of Human Nutrition as part of a general project involving the whole School of Home Economics, for studies at Belchertown State School of the nutritional status of selected residents.

\*Department of Psychology, University of Massachusetts.

\*\*Department of Public Health, University of Massachusetts.

\*\*\*Department of Business Administration, University of Massachusetts.

#### Faculty and Staff Changes

1. P.L. Pellett. Ph.D., joined the department on September 1, 1971 as Department Head. He had previously been Department Head in the Department of Food Technology and Nutrition, American University of Beirut, Beirut, Lebanon.
2. J.F. McCullough. The Administration approved the transfer of Mrs. McCullough to the Department of Hotel, Restaurant and Travel Administration. The transfer will take effect in September 1972.
3. D.M. Travnicek. Ph.D., was appointed visiting lecturer on a half-time basis for the academic year 1971-72.
4. K.P. Umapathy has been on unpaid leave of absence from September 1, 1971. She has not been reappointed.
5. W.M. Weatherholtz. Ph.D. has accepted the position of Assistant Professor to start duties in September 1972.
6. K.L. Framke. M.S. was appointed as a Laboratory Technician, grade 8 from the 23rd of January. This is a permanent University position which was unfrozen.
7. Melvin Baukman was appointed as Assistant Laboratory Technician from the 28th of February. The position was created for us under the "New Career Program for the Underprivileged."
8. M. Bremer, M.S.; K. Warner, M.S. and Carrie Johnson, M.S. were appointed as Graduate Teaching Assistants, and Boaz Mafarachisi was appointed as a Graduate Research Assistant. These positions were partially funded from the University and partially from grants.

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## Other Professional Activities

### P.L. Pellett

#### Meetings and Lectures

1. Attended conference on Physics, Chemistry and Biology of Protein Quality evaluation in Reading, England and presented paper on biological evaluation of protein quality. March 1972.
2. Attended International Conference at M.I.T., Cambridge, Mass. on Nutrition, National Development and Planning. October 1971.
3. Attended Federation Proceedings in Atlantic City. April 1972.
4. Lectures given to Western Massachusetts Dietetic Association and to the Massachusetts Dietetic Association.
5. Seminars given in Department of Exercise Science and in the Department of Food Science and Technology, UMass., and in the Science Department, Hampshire College.
6. Many visits to the Department of Nutrition and Food Science, M.I.T., for discussions on joint research activities and on long term loan of scientific equipment. Discussions also held jointly with the Department of Nutritional Sciences at University of Connecticut and M.I.T. for cooperative ventures in the region.
7. Evaluation committee for grant request on the relation of dietary caloric intake to protein utilization in man to A.I.D. at Washington, D.C., May 31, 1972

#### University and School Activities

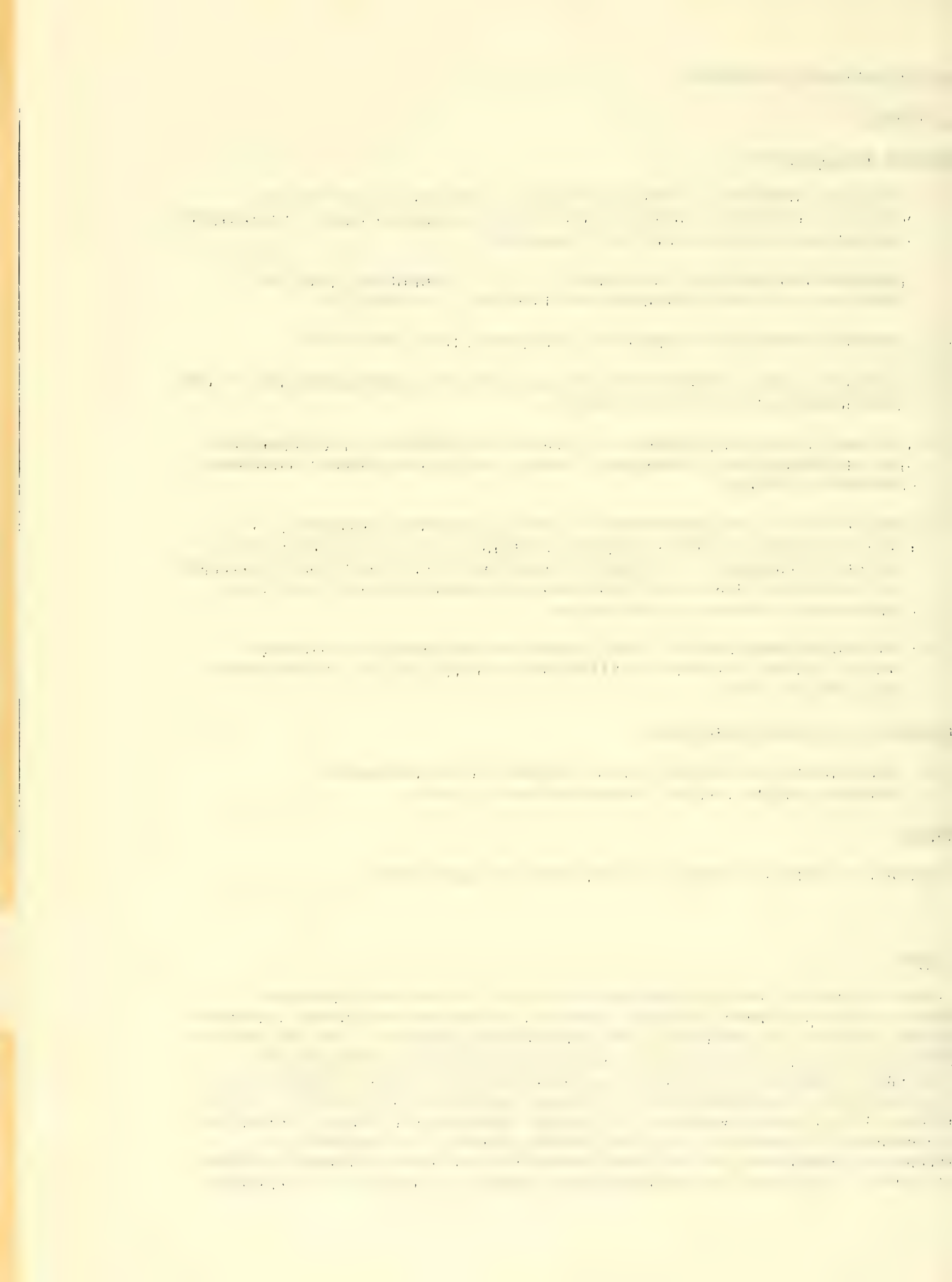
1. Search Committee for New Dean of School of Home Economics
2. Chairman, School of Home Economics Faculty Senate

#### Honors

Elected to American Institute of Nutrition in April 1972.

### V.A. Beal

Miss Virginia A. Beal has been very active in counseling of graduate students in the Department of Human Nutrition in projects and papers involving nutrition surveys; and advising of 34 undergraduate students. She has been an active participant in meetings for departmental committees which include: (1) Personnel Committee; (2) Chairman, Student-Faculty Liaison Committee, as well as on School Committees: (1) Core Course Committee; (2) Personnel Policy Committee; (3) Graduate Committee; (4) Ad hoc Committee on Faculty Evaluation and Standards; (5) Secretary of School Faculty Senate; (6) Secretary of Committee on Committees; and (7) Panel member of Challenge of Change Workshop, June 1, 1972. Miss Beal has presented many papers and talks at (1) Illinois





State Medical and Nutrition Societies, Conference on Nutrition in Medicine, Peoria, Ill., Oct. 22, 1971; (2) New England Dairy and Food Council, Chicopee, Nov. 30, 1971 and Worcester, May 3, 1972; (3) Cooperative Extension Program, Oct. 28, 1971, April 4, 1972 and June 8, 1972; (4) Seminar on Dietary Methodology in Maternal and Child Health, Harvard School of Public Health, June 2, 1972; (5) National Dairy Council: Conference on Nutrition Education, Port Ludlow, Washington, April 23-25, 1972, and Conference for Food Editors, Newport, R.I., May 17-19, 1972; (6) Massachusetts Dietetic Association, May 11, 1972; (7) Massachusetts Home Economics Association, May 20, 1972; (8) Consultant and co-instructor, Conferences on Nutrition in Maternity and Infant Nursing Care, Jan. 17-19 and April 19-22, 1972; (9) University of Maine: Workshop on Maternal and Infant Nutrition, June 21-22, 1972; (10) Seminar on Growth and Development, Albert Einstein College of Medicine, Dec. 17, 1971; and (11) Seminar Hampshire College, Feb. 24, 1972. She also attended the Western Hemisphere Nutrition Congress III in Miami in August, 1971. Other honors or positions held by Miss Beal include (1) election to Council of Food and Nutrition Section, American Public Health Assoc.; (2) member of Martha May Eliot Award Committee, American Public Health Assoc.; (3) election to membership in Sigma Xi - UMass. Chapter and to New York Academy of Sciences.

#### M.H. Bert

Dr. Mark H. Bert designed two new courses: NF 241 Methods of Nutrition Research, and NF 385/685 Human Nutrition Methodology (to be offered in summer 1972). He served as advisor to 3 undergraduate students, and shared the advising of 16 other undergraduate students. He served as advisor to 14 M.S. degree candidates, and as chairman of Dissertation Committees for 3 Ph.D. candidates in this department. He also served on the Dissertation Committee of one Ph.D. candidate in Physical Education. He was a reviewer of two manuscripts considered for publication in the Journal of Food Science. He served on the Personnel Committee and the Student-Faculty Liaison Committee of this department. He served on the following committees of the School of Home Economics: Graduate Committee, Personnel Policy Committee (Secretary), Summer School Committee (Chairman), Ad Hoc Faculty Senate Committee, Faculty Senate Committee on Committees and Search Committee for Food and Nutrition Specialist (Cooperative Extension Service). He served on the following University committees: Computer Committee and Human Subjects Review Committee. In addition he served on the Advisory Committee of the Center for International Agricultural Studies, the Nominating Committee of the Massachusetts Chapter of the Society of the Sigma Xi, and the Statistical Analysis Committee of the Animal Nutrition Research Council (National). He was elected into Fellowship in the American Institute of Chemists. On this campus, he delivered a 2-hr. lecture on "A balanced diet, with reference to weight control and food fads" in a Nutrition Education Course for members of Women's Auxilliary to Massachusetts Medical Society, and lectured on "Exercise, nutrition and dietary sources of energy" in course PE 621 Physiological Basis of Human Performance. He was on a 2-member panel who discussed "Recent trends in American diet" on a WFCR Radio program. At Westfield State College he delivered a 2-hr. lecture on "The athlete and diet" in graduate course HE 886521 Nutrition Education in Action, sponsored in part by the New England Dairy and Food Council. He attended the Undergraduate Education Conference held on this campus last November, and the 163rd National Meeting of the American Chemical Society held in Boston, which featured a Symposium on Nutrition and Public Policy in the U.S., a Forum on Improvement of Nutritional Status in Developing Countries



and several nutrition reports. He was granted a sabbatical leave in the Department of Nutrition and Food Science, Massachusetts Institute of Technology, for the spring semester of the academic year 1972-1973.

#### D. Davis

Miss Dorothy Davis attended (1) Massachusetts Dietetic Association Meeting, Waltham, Mass., (2) Forum, New York City, N.Y., (3) Annual Meeting of American Dietetic Association, Philadelphia, Pa., (4) Western Massachusetts Home Economics Association Meeting, Northampton, Mass., (5) Pioneer-Berkshire Extension Service, Northampton, Mass., (6) Journal Club, Western Branch of Massachusetts Dietetic Association, 4 meetings, (?) and the American Association of University Women, meeting, Northampton, Mass. Miss Davis has also been an active participant as member and secretary of the Department of Human Nutrition's Personnel Committee, departmental representative to Placement Service and departmental representative for course schedules, Undergraduate Curriculum Committee, School of Home Economics, Honors Committee, School of Home Economics, and other University committees which include: Scholarship Committee, Financial Aid Committee, Placement and Study Abroad Committee. Miss Davis was engaged in revision of Foods in Business option and wrote a new course description for HF 210 for University approval in the new program. She assisted Dr. Pellett drafting a request to 24 food industries for a grant and/or contract for research in developing package directions of new convenience food products for use with the microwave oven. She was recommended to be involved in a future cooperative dietary study among college students utilizing the subject matter and resources of the Department of Human Nutrition. A study of this nature would add academic prestige to the department and the experiences would also encourage many students to search further into the field of nutrition and food and given them an appreciation of the close relationship between nutrition and food.

#### J.F. McCullough

Mrs. Jane F. McCullough attended (1) The Annual Meeting of the American Dietetic Association, Philadelphia, Pa., (2) The Fall Conference of the Society for the Advancement of Food Service Research, Sugarbush, Vermont (also in charge of local arrangements for the conference), (3) The 19th Annual Food Management Seminar, Wakefield, Mass., (4) The Spring Conference of the Society for the Advancement of Food Service Research, Dallas, Texas, (5) The Eastern Territorial Conference of Food Service Executives Association, Plattsburgh, N.Y. In addition, Mrs. McCullough has attended numerous other seminars, planning committee meetings and monthly meetings of the various professional food service organizations of which she is a member and which were held both in Massachusetts and other parts of the country. In the summer of 1971 she served as visiting lecturer at the University of South Dakota. Honors or positions presently held by Mrs. McCullough: (1) For the Society for the Advancement of Food Service Research - (a) member of the Board of Directors, (b) co-chairman of Fall Conference 1972, (c) member of the Research Activities Committee; (2) Member of Massachusetts Food Service Educational Council; (3) Planning Committee for 20th Annual Food Management Seminar; (4) Board of Directors (Treasurer), also Scholarship Chairman of Western Massachusetts Branch, Food Service Executives Association; (5) Chairman, Scholarship Committee of the School of Home Economics; (6) Member and Secretary of the Grievance Committee, School of Home Economics,

REPORT ON THE  
RESULTS OF THE  
COMPARISON OF THE  
METRIC AND ENGLISH  
SYSTEMS OF WEIGHTS  
AND MEASURES  
MADE AT THE  
BUREAU OF STANDARDS  
IN 1906

BY  
J. H. VAN DYKE  
AND  
W. A. BENTLEY

WASHINGTON  
GOVERNMENT PRINTING OFFICE  
1907

(7) Cooperated on preparation and grading of five separate State Civil Service Examinations for the State of Massachusetts (all in the area of food distribution and food service for the Bureau of Nutrition Education and School Food Service, State Department of Education. During the year she has assisted in the planning for the proposed move of food courses from the School of Home Economics, Department of Human Nutrition to the College of Agriculture, Department of Hotel, Restaurant and Travel Administration.

Harriet J. Wright

Miss Harriet J. Wright has been involved in projects in Extension - Community Nutrition in the Commonwealth. Major effort was expended in giving leadership to, and support of the Expanded Nutrition Education Program. There are 20 units in the state located in low-income areas. There are approximately 200 para-professionals and 26 professionals employed in the program on a full or part time basis. This effort involved in-service education for staff, preparation, evaluation and provision of printed and non-printed materials for use in the program and the continuous review of program efforts in light of our designated responsibility and program objectives. The program is funded by U.S. Congress annually. Massachusetts funds for FY 1972 represented approximately \$700,000. Subject matter support for the total Home Economics Extension program in the area of Nutrition, Food and Health was provided in terms of the development of new programs, program leadership responsibilities, teaching and the development of resources. The Program Guide for 1971-1972 can be referred to for specific emphases.

Several new programs might be cited:

1. The development and provision of four eight-week nutrition courses in four areas of the state in collaboration with the Harvard School of Public Health Department of Nutrition, Staff of the Human Nutrition Department of the University, State Agencies (Health, Education & Welfare) and the New England Dairy & Food Council, for members of the Women's Auxiliary to the Massachusetts Medical Society (at their request). Seventy women participated in the courses, some of whom are presently serving as volunteer or advocates for nutrition education within their communities, in programs with children and the elderly.
2. Program on Current Issues in Nutrition and Food presented in four areas in Western Massachusetts. Panel representatives were staff of the University (Agricultural Economics, Food Science & Technology, Home Economics) and the State Department of Public Health.

Miss Wright was responsible for teaching of the course Nutrition in Disease, NF 375/675 to 18 undergraduate and 12 graduate students. She also served as advisor to eight undergraduates. She participated in the following committees: University Day Committee, member; University Health Council and Chairman of Personnel Committee, Human Nutrition Department. Miss Wright has other assignments which include: Executive Board Member, Massachusetts Council on Food, Nutrition and Health, advisory Council to Governor of State.



## 2. MAJOR ACCOMPLISHMENTS DURING FISCAL YEAR 1971-1972

### General

The year has been one of transition as will be described in more detail below. Changes are being attempted in several directions at once, these include the upgrading of the general level of instruction at both the undergraduate and graduate levels and an increase in research activity especially that related to the community. These changes are part also of a change in emphasis of the department as a whole and has been reflected by the change of name to the Department of Human Nutrition from that of Nutrition and Food. Human Nutrition will become our main concern and food preparation, administration and service will be deemphasized.

There has been increasing contact and cooperation not only with other departments on campus, especially, Food Science and Technology, Dr. Balagura in the Department of Psychology and Dr. Balintfy in the Department of Business Administration, but also with other institutions such as Massachusetts Institute of Technology and the Department of Nutritional Sciences at the University of Connecticut. M.I.T. has been most generous in giving us the long term loan of the major components of an Amino Acid Analyser worth some \$10,000, which is now functional and also a Parr Bomb Calorimeter worth nearly \$1000. Research cooperation is underway between V.R. Young of M.I.T. and P.L. Pellett in the mathematical prediction of nitrogen balance in young men. Further cooperative ventures are in the planning stage.

In all, while our total accomplishments in the year have not been great there is a feeling within the department of increased confidence in that when the changes already begun take effect the department will be in a strong position to meet its commitments both to the University and to the community at large.

### Undergraduate Instruction

In the fall of 1971 there were 57 undergraduates enrolled as majors in the department and 20 more enrolled as majors at the beginning of the second semester. To meet the professional requirements for these majors a total of 23 courses were taught in the period covering the fall and spring semesters (1971-72); these include both Problems courses and service courses for students majoring in other departments. A total of 904 students, - majors or others were enrolled in the courses during the year.

Four members of the graduating class (1972), one holdover from 1971, were granted American Dietetic Internship appointments for a fifth year of advanced training in ADA approved internship programs in hospitals. Mrs. McCullough was responsible for advising all senior students who applied and for maintaining ADA files in the department.

A new undergraduate curriculum was devised during the year and was submitted to the Faculty Senate for approval. The courses were approved by the Faculty Senate in May 1972. In the new curriculum for the department, the basic requirements were upgraded in that a full year of chemistry followed by organic chemistry and biochemistry were required for a major in the Department of Human Nutrition. The new program allows specialization in six areas which are:

THE UNIVERSITY OF CHICAGO  
DEPARTMENT OF CHEMISTRY  
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a) Human Nutrition; b) Community and Public Health Nutrition; c) Dietetics; d) Not-For-Profit Food Service Administration; e) Foods in Business and f) Computerization in Nutrition and Food Service. The new curriculum contains seven completely new courses in nutrition and several course changes. All courses within the department have been renumbered according to a rational system and so planned that progressive courses in nutrition will be available from the sophomore to the senior year, an elementary survey course in Man and Nutrition will also be offered at a lower level but this will not be available for departmental majors.

### Graduate Instruction

Improvements are underway. New courses have been designed which will increase the scope of Nutrition being taught. The proposed new courses listed were submitted for approval to the University Faculty Senate: NF 640 Nutrition in the Life Cycle, NF 642 Community Nutrition, NF 643 Nutritional Problems of the United States, NF 644 Nutritional Problems of Developing Nations, and NF 660 Advanced Methods of Computerization in Nutrition and Food Service (in association with School of Business).

The courses at present offered are often too shallow in their approach. Facts are being taught at the graduate level which should normally be covered in undergraduate courses. Most students at present are thus insufficiently "stretched", it is to be hoped that the planned upgrading will remedy this state of affairs. A future hope, impossible at present with our present faculty numbers, will be the reduction in the numbers of 300/600 courses and their importance in some graduate programs. Such mixed courses frequently are unable to do justice to either the undergraduates or graduates present in them. The present course descriptions (700+ courses) are such that adequate depth can be given without designing new courses, the contents are being revised and upgraded. The seminar course has been changed in character during this year and has been required for all graduate students whether registered or not. Drs. Vernon Young and George Wolf from M.I.T. gave seminars to the group during the spring semester. In addition, P.L. Pellett gave two seminars on his research activities in Beirut and on the Protein Quality meeting in England.

A total of 11 graduate lecture courses were taught in this department in the period covering the 1971 summer session, 1971 fall semester and 1972 spring semester. A total of 90 students were enrolled in these courses. In addition, 14 students registered for Special Problems, 1 student for M.S. Thesis, and 3 students for Doctoral Dissertations. The following numbers of students were enrolled in the graduate program of the department: 15 M.S. candidates, 4 Ph.D. candidates, and 5 Special students.

### M.S. Reports on Special Problems

Cheung, Joseph W.S. A review of concurrent aspects of food irradiation.

Cheung, Joseph W.S. A review of chemical functional and nutritional properties of soybean proteins.

Moser, Ruth M. Formulation, acceptance and nutritional efficiencies of diets for diabetic, renal and cardiac patients.

The graduation period for these students was May, 1972.



### 3. FUTURE PLANS AND NEEDS

The main problems of the department are clearcut as are the directions needed for their solution. Elevation of standards are required throughout i.e., in the selection of students, the courses offered, research facilities available and finally but no means least, in the challenge offered to those working for degrees in this department both at the Graduate and Undergraduate level.

With regard to research, some small activity is beginning and the research laboratories are now functioning again. Planned improvements are mostly dependent on research support. Research activities will be centered around the Graduate Faculty in several areas of interest; for example, protein and energy relationships, diet and anemia, mineral metabolism and others, with each faculty member responsible for funding to some degree the research activities of his group, either from outside grants or from University funds. It is proposed that research be the rule rather than the exception at the M.S. level and that most students should complete a thesis rather than a special problems. This in itself will have a therapeutic effect on the life of the department in that graduate students will be here rather than merely attending for classes and the place may seem more alive. Gradually, I feel, the program should move more towards the Ph.D. level and within five years I would hope that 75% of the graduate students would be at the Ph.D. level.

Since it is planned that research will be the rule rather than the exception, the maximum number of students on a full-time basis should not exceed five per Graduate Faculty member. With a new faculty member who will have a Ph.D. and research experience, we will have four Graduate Faculty. Thus 20 should be our approximate maximum number of students at any time. This number could only increase with an increase in our Graduate Faculty. At present it is planned that research be financed out of grant requests. This, however, is frequently self-defeating as an economy measure especially when no, or very little, funding is available for thesis problem research. Activities which are good and worthwhile for M.S. problems lose their gloss when they have to be formalized individually in a research proposal. Net result is that they do not get started. A small continuous research grant to the department for supplies, materials and small equipment, administered by the Department Head, could be very beneficial and would be a sound investment in research activity especially for pilot studies and for M.S. thesis problems. This should be in the order of \$1,000 per annum for each Graduate Faculty member active in research -- say \$4,000 - \$5,000 for a department of this size.

I have not as yet discussed any possibility of increase in faculty members. I feel it is behoven to me to prove that I can make a worthwhile department with present numbers before I can have any right to request an increase in size. However, I happen to believe Nutrition is important, not only as a world wide problem but also in the United States and a thriving department of nutrition should be essential in any future plans for this University. I do not wish to develop an 'ivory tower' approach, too much United States nutrition research has become cellular biochemistry. However, a firmly based, scientific, laboratory oriented program is essential even if the department is to be (as it should) community oriented. Thus within the next five years I would like to see at least two new junior faculty positions be created for this department. This, with some research support, would cost in the order of \$30,000 - \$40,000 per

1. The first part of the document discusses the importance of maintaining accurate records of all transactions. It emphasizes that this is crucial for the company's financial health and for providing reliable information to stakeholders.

2. The second part of the document outlines the specific procedures for recording transactions. It details the steps from identifying a transaction to entering it into the accounting system, ensuring that all necessary details are captured.

3. The third part of the document discusses the role of the accounting department in monitoring and controlling the company's financial performance. It highlights the importance of regular reviews and the use of financial ratios to assess the company's position.

4. The fourth part of the document addresses the challenges of managing financial data in a complex and rapidly changing business environment. It suggests strategies for staying organized and up-to-date with the latest financial information.

5. The fifth part of the document provides a summary of the key points discussed in the previous sections. It reiterates the importance of accurate record-keeping and the role of the accounting department in ensuring the company's financial success.

6. The final part of the document concludes with a statement of the author's hope that the information provided will be helpful to the reader in understanding the importance of financial record-keeping.

7. The document also includes a list of references to various sources of information used in its preparation. These references include books, articles, and online resources that provide further insight into the topics discussed.

annum. It is hoped in addition that the vacancy caused by the transfer of Mrs. McCullough can be filled by a nutritionist. Request has been made to the administration for the position to be available for September 1973. A nutritional-biochemist with an international reputation has expressed interest and his curriculum vitae is already in the hands of the administration for their consideration.

A thriving department and an increased reputation will produce its own momentum in that post-doctoral fellows and even workers from overseas may join us on sabbatical leaves.

In relation to the above needs for improvement in research facilities up to date equipment is paramount. The laboratories in this department have been almost unused for several years and much of the equipment at present there is outdated. No modern equipment has been added in recent years and considerable expenditure will be needed to bring the facilities up that required even for relatively unsophisticated research. Much equipment required is of a general routine duties nature and is difficult to justify on individual grant requests though its absence makes the task considerably more time consuming and difficult. Updating of equipment will be also needed for the proposed methodology courses at both the graduate and undergraduate levels.

A list of equipment needs has been prepared and has been submitted to the administration. This list totals in the order of \$20,000 to bring the laboratories up to the minimum standards needed for serious research. Some funds have already been found and purchases have started though what seems likely to be available is only a fraction of that needed.

The goal for our new program is Human Nutrition should be the production of well-rounded individuals, adequately trained in all facets of nutrition, or at least having some knowledge of all the general areas of nutrition and detailed knowledge of some of them, such as (a) Human nutritional requirements, (b) Nutrient composition of foods and food products, (c) Behavior factors related to consumption, (d) Current nutritional problems both of the rich and poor nations, (e) Public programs related to improving the nutritional state of individuals.

Research is included in our proposed program not as an end in itself but because of the belief that only by doing research and handling data can a person become numerate and be able to evaluate correctly the action required in whichever field of nutrition he eventually finds himself.



DEPARTMENT OF TEXTILES, CLOTHING & ENVIRONMENTAL ARTS

Annual Report, July 1, 1971 -- June 30, 1972

Submitted by: Dr. Herbert S. Paston, Assoc. Prof.

PUBLICATIONS

- Paston, Herbert S. "When Photography is an Art." Arts and Activities, Jan. 1972.
- Morris, Bruce R. "Hotel Pricing." Cornell Review, Nov. 1971.
- "Unemployment in Developing Countries." Liberian Economic Review, 1972.

EXHIBITIONS

- Paston, Herbert S. Springfield Art League: Eastfield Mall Invitational Exhibition, November 2-16, 1971 (two works of art).
- 53rd National Juried Exhibition, George Walter Smith Museum, Springfield, Mass., April 12 - May 8, 1972.
- The Copley Society of Boston, May 26 - June 15, 1972.
- Rainsford, Richard A. Hartford Fine Arts Council Art Festival.
- Sturbridge Annual Art Festival.
- Woodstock Fair: Woodstock Agricultural Society, 1st prize in painting, Sept. 1971.

FACULTY RESEARCH IN PROGRESS

- Niederpruem, Marion A. Revision of Book: Development of Store Executives (1960).
- Revision and class experimentation with Program for Analysis of Retail Field Experience.
- Paston, Herbert S. Complete full length text On Teaching Art, currently being considered for publication by the National Art Education Association.

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- Paston, Herbert S. Belchertown Research Proposal relative to Environmental Design.
- Hawes, Sarah L. & Randall, Margaret J. Developing illustrative material for "Programmed Learning in Introductory Phase of Apparel Design" to be used in classroom instruction.
- Developing Pre-test for Apparel Design to better meet needs of individual students.
- Belchertown Research Proposal relative to Clothing.

PAPERS AND SYMPOSIA

- Paston, Herbert S. Colloquium, Orchard Hill, Fall 1971.
- Two Colloquium, Southwest Residential College, Spring 1972.
- Paper presented at National Society of of Interior Designers, New England Chapter Meeting, November 7, 1971.
- Rainsford, Richard A. Two Colloquium at Orchard Hill.
- Three Colloquium at Northeastern Area.
- Seminar at Orchard Hill.

INVITED TALKS AND GUEST LECTURES

- Hawes, Sarah L. "Now Development in Textiles," University Day Workshop, June 1, 1972.
- Paston, Herbert S. To give a Lecture Presentation at the National Conference of the National Society of Interior Designers in Dallas, Summer 1972.

CONSULTANTSHIPS

- Hawes, Sarah L. Pre-publication reading of book: "History of Textiles" for Houghton-Mifflin.
- Division of Continuing Education - Norman Vercoe Program.



Paston, Herbert S.            Consultant on Interior Design for Joel M. Stoneham, Director of University Food Services, regarding Worcester Dining Commons, Summer 1971 and 1972.

Consultant to Amherst Housing Authority on Environmental Design (CSC).

Rainsford, Richard A.        Consultant on Interior Design of Chancellor's House and photo lab reception room at U.Mass.

Consultant to Mrs. George Leary, Wilton, Conn., on transfer of ownership of Lambert Painting to Lilacstead Museum.

DEPARTMENT, SCHOOL AND UNIVERSITY SERVICE

Hawes, Sarah L.                Department Personnel Committee (of the whole)  
Ad Hoc Search Committee for Department Head  
School Undergraduate Committee (Chairman)  
Travel Fund Committee  
University Committee on Status of Women  
University Discipline Board

Niederpruem, Marion A.        Department Personnel Committee (of the whole)  
Department Curriculum Committee (Chairman)  
School Executive Council  
Ad Hoc Committee on Faculty Evaluation (Chairman)  
School Grievance Committee (Chairman)  
School Graduate Committee (Chairman)  
Department Graduate Committee (Chairman)  
University Graduate Council  
University Academic Matters Committee  
Graduate Director of School of Home Economics

Paston, Herbert S.            Department Personnel Committee (Chairman)  
School Graduate Committee (Secretary)  
School Personnel Committee (Chairman)  
Ad Hoc Search Committee for Department Head  
Ad Hoc Search Committee for new Dean  
School Personnel Policy Committee  
University Fine Arts Council  
University Tenure and Grievance Committee

1. The first part of the document discusses the importance of maintaining accurate records of all transactions. It emphasizes that this is crucial for the company's financial health and for providing reliable information to stakeholders.

2. The second part of the document outlines the specific procedures for recording transactions. It details the steps from initial entry to final review, ensuring that all necessary information is captured and verified.

3. The third part of the document addresses the role of the accounting department in this process. It highlights the department's responsibility for ensuring that all transactions are recorded correctly and in a timely manner.

4. The fourth part of the document discusses the importance of regular audits. It explains how audits help to identify any discrepancies or errors in the records, allowing for prompt correction and ensuring the integrity of the data.

5. The fifth part of the document concludes by reiterating the overall goal of the document: to ensure that the company's financial records are accurate, complete, and reliable.

6. The sixth part of the document provides a summary of the key points discussed. It serves as a quick reference for anyone involved in the accounting process, ensuring that all critical information is easily accessible.

7. The seventh part of the document includes a section on the importance of communication. It stresses that clear communication between all parties involved is essential for the successful implementation of the procedures outlined.

8. The eighth part of the document discusses the role of technology in modern accounting. It highlights how software solutions can streamline the recording process, reduce the risk of errors, and provide real-time access to financial data.

9. The ninth part of the document provides a final overview of the document's content. It summarizes the main objectives and the key takeaways, ensuring that the reader has a clear understanding of the document's purpose and the actions required.

- Randall, Margaret J. Department Personnel Committee (of the whole)  
 School Faculty Fund Committee (Chairman)  
 Ad Hoc Committee for Refurbishing Helen S. Mitchell Lounge (Co-Chairman)  
 School and Department Faculty Advisor and Liaison Committee  
 University Admissions and Records Committee
- Porter, Catharine Department Personnel Committee (of the whole) (Secretary)  
 School and Department Field Study Committee  
 University Sub-Committee for Academic Matters on School of Home Economics New Program
- Rainsford, Richard A. Department Personnel Committee (of the whole)  
 Department Liaison Committee  
 School Publicity Committee (Chairman)  
 Orchard Hill Curriculum Committee  
 University Master Planning Committee

PROFESSIONAL ACTIVITIES

- Hawes, Sarah L. Attended meeting of Western Massachusetts Home Economics Association.
- Niederpruem, Marion A. Member on Apparel Performance Level Standards Committee of the "Apparel Research Foundation, Inc.," Washington, D.C.  
 Voting representative of the School of Home Economics at accreditation meetings at Annual American Home Economics Association Conference in Denver, June 1971.  
 Membership in seven professional societies.
- Paston, Herbert S. Recipient of the 1971 Educational Grant from the National Society of Interior Designers to attend Attingham College, England, for advance study program.  
 Elected Education Chairman, New England Chapter, National Society of Interior Designers.  
 Attended annual meetings of the National Art Education Association, Interior Designers Educators Council, and American Institute of Interior Designers.  
 Elected professional member of Interior Designers Educators Council, Inc.

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Randall, Margaret J. Assistant Program Chairman, Western Massachusetts Home Economics Association, 1972-73.

Taking a graduate course, Spring 1972.

Rainsford, Richard A. Restoration of 'Marshall Manse' in West Woodstock, Conn.  
Faculty Fellow, Orchard Hill

#### MAJOR ACCOMPLISHMENTS OF THE DEPARTMENT

1. The establishment of a major program in Interior Design, with professional options is a substantial achievement and a positive response to student needs and goals.
2. The recruitment of Mr. Arnold Friedmann, former chairman of the Department of Interior Design at Pratt Institute, represents both substantial up-grading of our program and experienced professional and educational leadership of the highest quality.
3. The recruitment of Miss Georgina Moroney to provide leadership as Environmental Arts Specialist for the Extension Program of the Department.
4. Development of new courses, up-grading of old ones and major curriculum changes provide a more flexible program and greater choice of options in all areas within the Department.
5. The further interdisciplinary development of graduate programs for students selecting to major in the Department.
6. Development of an active Department Student Liaison Committee.
7. Re-dedication and refurbishing of the "Helen S. Mitchell Lounge" for expanded use by students as well as faculty.

This year we were able to stem the loss of majors from the Department and, in fact, reversed the trend and now seem to be growing steadily. With our new faculty and curriculum, I believe this growth will continue.

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## FUTURE NEEDS

1. More academically qualified graduate faculty, particularly in the area of the psychological, sociological and economic aspects of clothing and textiles, but also in the environmental arts area.
2. A full-time departmental secretary is an urgent need of the seven full time members in the Department.
3. Graduate teaching and research assistants for the areas of Textiles, Clothing and Interior Design required to meet the expanding needs of the Department in general and the graduate program in particular.
4. Along with qualified faculty, space is our most urgent need. Even in the recent past, before new leadership and future promise of continued growth at both the undergraduate and graduate levels, our present space was hopelessly inadequate. The rapid growth of the Human Development Department and Home Economics Education has increased our need for studio space. We have had to drastically limit our acceptance of students from outside the School for several years because of our lack of space and faculty. With our new directions and expanded program our space needs become critical. Much of the success of our future programs will depend on providing adequate new facilities and space. The following are our most immediate needs:
  - a. A drawing studio room for Interior Design and Environmental Arts students (drawing desks, stools, etc.) with wall display area for regular critiques of student work.
  - b. Adequate room for graduate assistants to do research and department work.
  - c. Space to house large portfolios, sample supplies, catalogs, literature and demonstration equipment, and models for Interior Design and Display program.
  - d. Laboratory space for textile testing equipment (which we were able to purchase from Lowell Technological Institute).
  - e. Work room for preparation of teaching materials for textiles and apparel design courses.

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- f. Equipment and laboratory space for special media for individualized instruction, including projectors and other audio-visual equipment.
- g. Display equipment, props, etc., for display, interiors, merchandising and retail programs.
- h. More office space will be necessary to house new faculty members and to provide more reasonable accommodations for present staff members. Several of our faculty are currently sharing cramped and sub-standard facilities.

\* \* \*



**Extension Division of Home Economics**  
July 1, 1971 - June 30, 1972  
Submitted by Winifred Eastwood  
Assistant Director of Extension for Economics

Publications, growth and professional activities of faculty doing Extension teaching are reported by the department heads of the School of Home Economics. This report includes the Extension teaching and program for the eight faculty who have some Extension responsibilities. One is 100% Extension responsible for administration and supervision, two have been 100% Extension teaching during the year; however, one retired in mid-year, the other was on sabbatical leave second semester. Four have taught one undergraduate resident course during the academic year thus were 80% Extension, one has been 50% resident, 50% Extension. Thus, the Extension Home Economics faculty has been 5.5 full time equivalents during the reporting year. All carried committee responsibilities in the School and the University. The impact of program in the state is accomplished in cooperation with fifty county Home Economics Extension staff.

Low-Income Clientele

Ten years ago, the Extension Division of Home Economics began to make attempts to meet and develop educational programs for the low-income individual and family in the inner city. It is essential to go to the low-income audience, long experience has shown they do not come to the source of educational program as do the middle income group. Three years ago special earmarked federal money allotted to the state gave the effort more "power". Program Assistants (low-income women) were hired and trained to teach food and nutrition in their own communities. The approach has been face-to-face in the home of the student homemaker and in small groups organized by the Program Assistant in her own home, the home of a participant in the program, or a public meeting place. The Program Assistant method of reaching the low-income has proved to be more effective than the professional direct to the low income which was the method used before the special money in 1969. Presently, the program is effective for some change practices with about 60% of the participants.

In the three years, 406 women and one man have been trained to be Program Assistants. Of that number, 196 are now Program Assistants. The initial training is 120 hours followed by weekly in-service training. In the time, nearly 9000 families have been reached in the concentrated method of face to face individual teaching which may continue as long as two years with a woman who has difficulty. Group meetings have reached a much larger number, around 6000 each year. Of the families reached about half are white, one fourth negro and another fourth Spanish speaking. The largest percent of the families are in the \$2000-\$4000 income bracket. Over half

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of the families reached are on welfare, many one-parent families.

Of the school children in the program families, only about half have access to school lunch, which means many of our inner city schools do not offer lunch due to space, no funds and in many cases the authorities of the schools feel there is no need. Just one of the many services which the families most in need in Massachusetts do not receive.

The Extension program makes an effort to teach the mother how she may afford and select good nutrition for her family, her role and the effort she should make, and where available, how to get and use the commodity foods.

A second faculty member trained in food and nutrition is to be added in mid-1972 to assist with the training and supervising of the program. Harriet Wright, Professor, Nutrition and Food, has done more than her share for the program in the past three years.

#### Consumer Education

About half of the Extension Program is devoted to helping consumers to better function in the marketplace. The program is directed to the principal that consumers have the right to the full information necessary to perform their economic function as buyers and users of products and services.

Example of programs directed to meeting the above objective are:

Consumer Affairs

In the Consumers' Interest

American Consumer in the Seventies

Legal Rights of the Consumer

Credit: An American Syndrome

"Caveat Emptor" Let the Buyer Beware

Your Clothing \$ - Bonded Fabrics

Your Clothing \$ - Pros and Cons

Your Clothing \$ - Shopping the Market

Your Clothing \$ - Knits

Low-Income Consumers

Money Stretching Ideas for Making Your Food Dollar Go Further

How to Manage Your Money was introduced by Marjorie Merchant, Professor, Management and Family Economics, as a correspondence course in 1972, in Franklin and Hampshire Counties. The enrollment was limited to test the materials, 84 enrolled for the 3 lessons, which include a background on money management, credit, food marketing, warranties, guarantees, insurance, shelter, savings and retirement plans. Eight counties have signed up for the course starting in the fall of 1972.





### Clothing Caravan

A special educational program developed to cover the state by means of a group of Extension Home Economists advised by specialist, Virginia Davis, Associate Professor, Extension, Textiles, Clothing and Environmental Arts, to teach at a one-day stand in fifteen different locations of the state. One location was a shopping mall. Each topic was to assist the consumer in areas of selecting and construction of clothing for herself and family. Well over 2000 attended the caravan program. Plans are to repeat the program with different topics in the fall of 1972.

### Nutrition Panel

A similar method to the Caravan was used four evenings in the western four counties with a traveling panel of nutrition specialists drawn from the University and community in the spring of 1972. The panel members each spoke on different areas of nutrition, and then answered questions, attendance was more than expected, each group asking innumerable questions. People are seeking correct answers to their questions in areas of food and nutrition.

### Human Development

A high percent of effort by Warren Schumacher, Assistant Professor, Human Development, since his employment September, 1971, has been spent with the Program Assistant staff in assisting them to meet some of their own problems which affect their job performance and also deal with the families they are teaching, many of whom have severe problems in the areas of relationships and development. Adding this assistance to the low-income program has been needed from the first. Extension is fortunate to have so well trained and able a faculty member with inner city experience.

Hopefully, a pilot project may be developed next year, when Program Assistants will be trained to teach in the subject matter area of Human Development, possible three Assistants as a start. The Assistants will be drawn from the inner city each to work in his or her own community, organized on the model of the food and nutrition program.

### Future Plans and Needs

1. Extension faculty with interest and ability should have the opportunity to develop applied research related to family and community problems. This would be in place of a percent of time spent in undergraduate teaching.



2. Develop an urban center (learning center) where School faculty, both extension and resident, plus students may gain first hand experience with community. Consideration should be given to having one or more faculty located at the center. An established county Extension office might be the location, with the expected cooperation of the local staff. The Program Assistants and the families they are serving are a likely audience for the study and/or observation of problems of the disadvantaged family.
3. Employ a Home Economist to work in Suffolk County in areas of subject matter other than food and nutrition.
4. Employ six Program Assistants, three to work in Consumer Education, three in Human Development. Each group of three will function in two different cities of the state.

*[The text in this section is extremely faint and illegible. It appears to be a list or a series of entries, possibly a table of contents or a list of references, but the specific details cannot be discerned.]*

## THE RECRUITMENT OFFICE

Annual Report: July 1, 1971 - June 30, 1972

Submitted By: Ruth C. Boicourt

### Community College Program

The Recruitment officer is a member of the University visitation group which went to every community college in the state during the fall semester. The advantages of the team approach include:

1. Maximum number of students contacted because of advance publicity and arrangements by the community colleges, resulting in attendance at meetings by all students interested in transferring to the University.
2. Opportunity to talk with all guidance personnel to explain the prospective new Home Economics program.
3. Familiarization with Home Economics program by the University Transfer Officer who in turn is able to discuss these with prospective students in future meetings.
4. Minimum cost to the School of Home Economics because of the combined use of a state car.

The Recruitment officer also went alone to several private junior colleges, such as Lasell Junior College, which is a women's college and therefore was not visited by the whole University team. Many transfers come from Lasell.

### High School Program

The School of Home Economics is a member of the Massachusetts School Counselor's Association. This provided, among other benefits, a roster of the Guidance Personnel in high schools which are members of the Association.

Three hundred letters were sent to Guidance Personnel in each of the high schools offering a college preparatory program.

These letters provided details about the proposed new department offerings. As soon as curricula are approved by the faculty senate, more information should be sent to all the high schools.

Also student volunteers could visit high schools during University vacation periods. The Departmental Student Committees should prove useful in this connection. The Recruitment Officer was asked to speak



## Recruitment Office

to our TCEA student liaison committee which was very receptive to a request for help in recruiting. Prospective students have been given conducted tours of Skinner Hall and the campus by individual student volunteers this year. These tours have been very successful, as, increasingly, students are asking to attend classes and visit dormitories to help them decide which college to attend.

4-H groups have also been taken on tours of Skinner Hall.

The faculty also has been very cooperative by being willing to talk to visiting students and parents, often on ten minutes' notice in the case of drop-in visitors.

Letters have been sent in reply to requests for information about the School of Home Economics from prospective students, parents, other colleges and institutions, employers, consulting services, correspondence schools, and individualized learning programs.

Recruitment literature specifically depicting the School of Home Economics at the University of Massachusetts is still desperately needed. Hopefully, after the new programs, name changes, and reorganizations have jelled, there will be professionally prepared, attractive, dynamic brochures available.

The leaflets currently used are those prepared by the National Home Economics Association and the American Dietetics Association. In addition, several copies of the new edition of the film strip, "A New Look at Home Economics," have been ordered for use by students, faculty and extension personnel in the counties. A new display, "Home Economics 1972," should prove a welcome addition to our public relations kit.

Letters have been sent to all students accepted as freshmen into the School of Home Economics for the fall of 1972 welcoming them to the School and offering opportunities for visits and information, which many have used.

The Placement office sends notices of job opportunities to the Liaison Officer who distributes them to the departments involved or posts on the appropriate bulletin board.

Files in the Placement office are maintained and updated.

The Recruitment officer is also a member of the following groups:

1. Summer Counseling Staff
2. American Home Economics Association
3. Massachusetts State Counselor's Association
4. Omicron Nu

The first part of the document discusses the importance of maintaining accurate records of all transactions. It emphasizes that every entry should be supported by a valid receipt or invoice. This ensures transparency and allows for easy verification of the data.

In the second section, the author details the various methods used to collect and analyze the data. This includes both primary and secondary research techniques. The primary research involved direct observation and interviews with key stakeholders. Secondary research was conducted through a review of existing literature and industry reports.

The third section presents the findings of the study. It highlights several key trends and patterns observed in the data. These findings are supported by statistical analysis and visual representations such as charts and graphs. The results indicate a significant shift in consumer behavior over the period studied.

Finally, the document concludes with a series of recommendations based on the findings. These suggestions are aimed at helping organizations better understand their market and make informed decisions. The author also notes the limitations of the study and suggests areas for future research.









University Day School Bowditch Lodge  
 University Drive  
 University of Massachusetts,  
 Amherst, Ma. 01002 545-2466

1971-72 ANNUAL REPORT  
 FOR THE OFFICE OF INSTITUTIONAL STUDIES

• Since the Day School was opened in September, 1971, there are no previous reports.

1. Appropriation for this fiscal year

Outside Money	tuition fees	13,000
	undergraduate student senate	3,800
	Commuter Assembly	5,000
	Graduate Senate	5,000
University Money	Renovation	5,000
	Teaching Assistants	6,400
		<hr/>
		37,200

2. Personnel

Non-Faculty Professional Staff: 2  
 Part-time (Teaching Assistant): 2

3. Organization Chart

Director  
 T.A.    Ass't Director    T.A.

4. Clientele Served

Children: 50 fall semester  
 80 spring semester

Parents: 50 graduate students  
 40 undergraduate  
 5 special or part-time  
 15 staff  
 4 faculty





University Day School Bowditch Lodge  
University Drive  
University of Massachusetts,  
Amherst, Ma. 01002 545-2466

5. Professional Staff activities beyond regular duties: none.

The professional staff devoted more than full time to their work in Bowditch Lodge.

6. Major Accomplishments:

1. establishment of a warm, responsible, and educational day care center for the children of U.Mass. students and staff.
2. development of an active relationship with the School of Education, the Department of Human Development, and the Office of Financial Aid.
3. establishment of a good reputation in the community
4. initiation of a summer day care program

7. Special projects:

1. establishment of a student teaching course in the Day School during the spring semester in conjunction with the department of Human Development
2. Accomplishment of a merger between the department of Human Development and the Cooperative Extension service for the year 72-73.

8. Future Plans:

1. growth within Human Development and Cooperative Extension
2. Outreach: the organization of workshops to develop community awareness of the purpose and means of day care.
3. development of a parent cooperative for the period of time the university is not offering classes in January
4. development of parent participation through a parent council
5. development of a lunch program
6. development of a toddler service, and infant service
7. establishment of a system of tuition waivers for very needy parents
8. growth of cooperation with the Mass. Rehabilitation Center, the Neighborhood Youth Corps, and the Emergency Employment Act

9. Future Needs:

1. More custodial service
2. a full time secretary
3. purchase of new equipment
4. installation of a ceiling, lights, and extra plumbing







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UNIVERSITY OF MASSACHUSETTS

School of Nursing

ANNUAL REPORT

July 1, 1971 - June 30, 1972



UNIVERSITY OF MASSACHUSETTS  
School of Nursing

ANNUAL REPORT

July 1, 1971 - June 30, 1972

1. APPROPRIATION AND EXPENDITURES

	<u>1969-70</u>	<u>1970-71</u>	<u>1971-72</u>
State Funds - Salaries	428,030	445,279	508,000
State Funds - Other	26,733	26,190	19,600
Other Operating Funds - Salaries	62,742	71,042	N/A
Total	<u>517,510</u>	<u>542,511</u>	<u>N/A</u>

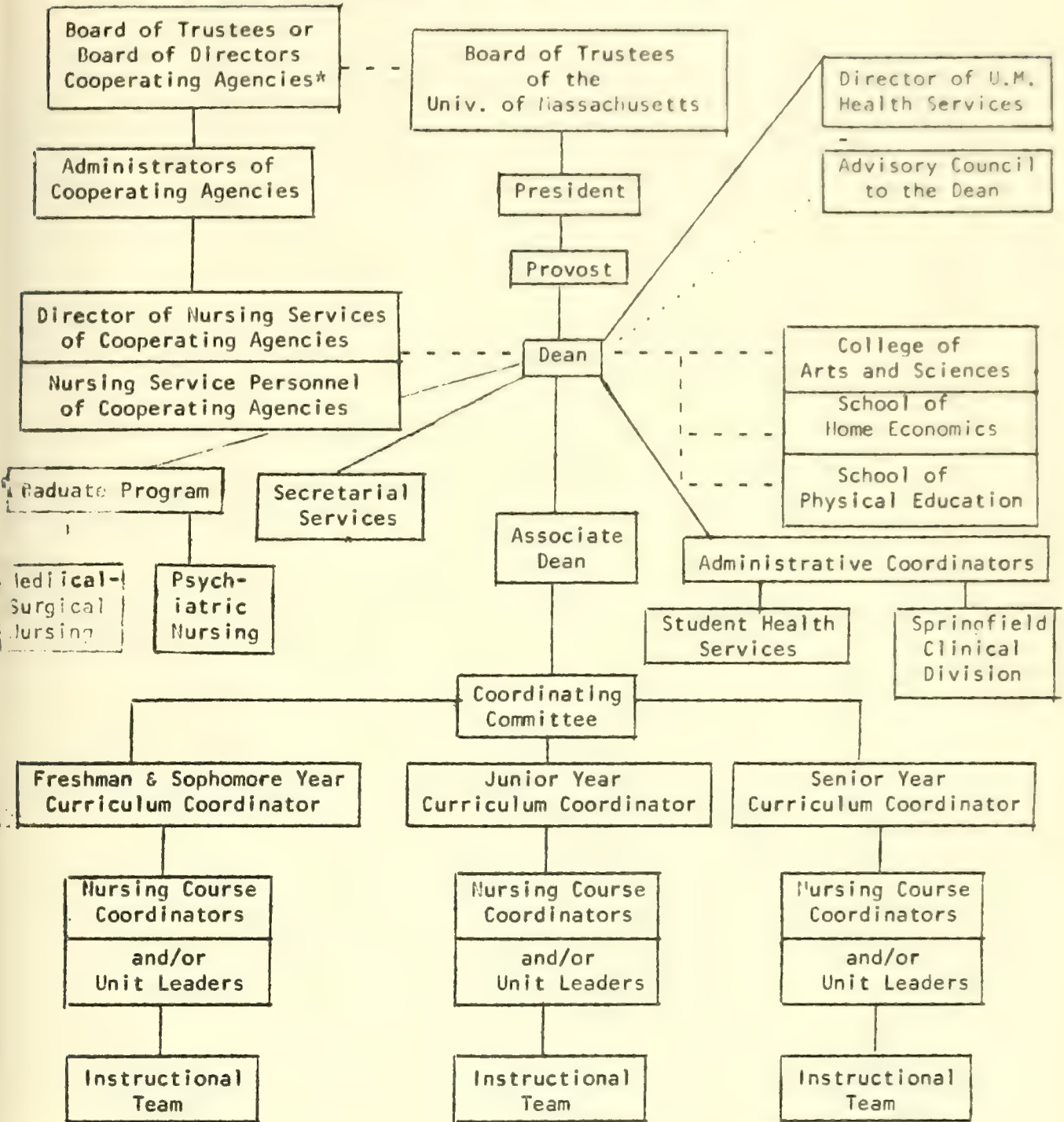
2. PERSONNEL

	<u>1969-70</u>	<u>1970-71</u>	<u>1971-72</u>
<b>Faculty - Full-Time</b>			
Professors	2	3	3
Associate Professors	5	5	9
Assistant Professors	16	14	11
Instructors and Lecturers	11	11	16
Part-Time Faculty - Number	1	3	3
Full-Time Equivalent	0.5	1.7	1.5
Faculty Subtotal	34.5	34.7	39.5
<b>Non-Faculty Professionals</b>			
Deans or Directors	2	1	1
Staff	-	1	-
Other (and Part-Time, FTE)	-	-	0.4
<b>Classified Personnel</b>			
Clerical Positions	5	5	5
Technical	-	-	-
Other	-	-	-
Classified Subtotal	5	5	5



UNIVERSITY OF MASSACHUSETTS  
School of Nursing

Functional Chart of Organization



Legend:  
 ————— Direct Responsibility  
 - - - - - Collaborative Relationship  
 . . . . . Advisory Relationship

\* Nine (9) Cooperating Agencies



4. CLIENTELE SERVED

STUDENT MAJORS (Fall Semester)	<u>1969-70</u>	<u>1970-71</u>	<u>1971-72</u>
<b>Undergraduate</b>			
Freshmen	91	109	119
Sophomores	82	112	113
Juniors	32	30	120
Seniors	65	64	63
Undergraduate Subtotal	<u>320</u>	<u>365</u>	<u>419</u>
<b>Graduate</b>			
Degree Students	10	16	33
Other	0	1	8
Graduate Subtotal	<u>10</u>	<u>17</u>	<u>41</u>
<b>Total Majors</b>	<b>330</b>	<b>382</b>	<b>460</b>
<b>STUDENT CREDIT HOURS TAUGHT</b>			
Undergraduate	2,298	2,603	2,458
Graduate	45	42	129

OTHER

5. FACULTY PUBLICATIONS, RESEARCH GRANTS, RESEARCH PROJECTS, AND OTHER PROFESSIONAL ACTIVITIES

Publications -

Books:

Book Chapter in Moidel, H., Sorenson, G., Giblin, E., Kaufmann, M. Nursing Care of the Patient with Medical-Surgical Disorders. Chapter 17, Abnormal Behavioral Responses, pp. 339-352. Virginia Earles.

Helming, Mary G. (ed.), "Nursing in Respiratory Diseases: A Symposium", Nursing Clinics of North America. Philadelphia: W. B. Saunders Co., September, 1968.

Helming, Mary G. "Nursing Care of Patients with Chronic Obstructive Lung Disease", Nursing Clinics of North America, Philadelphia: W. B. Saunders Co., 1968.

Submitted - Chapter, "Postpartum Mothers Concerns, Conflicts, Confident" in Current Concepts in Clinical Nursing, editors, Margery Duffey, et al. St. Louis: C. V. Mosby Co., Volume IV for publication late 1972. Edith Walker.

Groups in A Changing Society: An Introduction to T Groups and and Therapy Groups. (With Dee Appley) Van Nostrand Reinhold, Spring, 1972. Alvin Winder.





"A Sensitivity Class Tries Captain Vere" (with Barbara Winder.  
The Massachusetts Teacher, Vol. LI, No. 4, January, 1972,  
 pp. 36-37. Alvin Winder.

Journals:

"Home Visits by Nurses Who Are Therapists , Psychiatric Opinion,  
 Vol. 3, No. 5, October, 1971, pp. 16-19. H. Salenius.

Abstracts:

"A Study of Navajo Health Care", (not published). B. Dembishack.

Book Review for Nursing Outlook on Govoni, Lauri E., Hayes,  
Janice. "Drugs and Nursing Implications", 2nd edition,  
 New York: Appleton-Century-Crofts. Virginia Earles.

Book Review, Advanced Concepts in Clinical Nursing (Kay Carmen  
Kintzel) in American Journal of Nursing, February 1972.  
NEL GETCHEL

For W. B. Saunders - Review of 3rd edition of Maslow, G.  
Textbook of Pediatric Nursing with recommendations for  
revision. Ann Sheridan.

Research Grants -

Faculty Research Grant awarded to Professors Nel Getchel and  
Hildegard Salenius to study "Time-Oriented Responses of Elderly  
 People".

Attendance at Professional Meetings -

<u>Date</u>	<u>Nature of Meeting and Location</u>	<u>Faculty Member</u>
9/22/71	"Venereal Disease and the College Student"	Alice Friedman
10/15- 19/71	Multimedia Workshop - Atlanta, Georgia	Jeanne Lehman
10/21/71	Massachusetts Nurses Association and Nursing Education Biennial Convention	Mary Helming Elizabeth Clarke
10/23/71	Third Annual Undergraduate Education Conference - University of Massachusetts	Alice Friedman
10/23/71	Massachusetts League for Nursing - "Today's Planning - Tomorrow's Nursing"	Alice Friedman Linda Ceriale
10/71	American Public Health Association Convention in Minneapolis, Minnesota	Margaret Craig Alice Friedman
11/18/71	Visiting Nurse Association, Springfield, Massachusetts - "Focus for Action As We Look to the Future"	Alice Friedman
11/9- 12/71	National League for Nursing - Meeting of Council of Baccalaureate and Higher Degrees - Kansas City, Missouri	Virginia Earles Nel Getchel Loretta Sharp
11/17- 21/71	American Anthropological Convention - New York City	Ellan Cole



<u>Date</u>	<u>Nature of Meeting and Location</u>	<u>Faculty Member</u>
12/3- 4/71	National League for Nursing - New England Regional Assembly Workshop - "We Can Influence the System" - Bedford, New Hampshire	Joan Sweeney
12/15/71	"World Health Council on Aging: Nursing Implications" - Honor Society - University of Massachusetts	Alice Friedman
1/12/72	AFL-CIO (Mass.) Training Program (OISHA) "Mass Plan for Action" - University of Massachusetts	Alice Friedman
1/12/72	Massachusetts Nurses Association - Conference for In-Service Education Special Interest Group - Waltham, Mass.	Mary Helming
2/72	District #2, Massachusetts Nurses Association Panel Presentation	Virginia Earles
3/11/72	Visiting Nurse Association of Boston - "Convocation for Health Care" - Boston, Mass.	Alice Friedman
3/28/72	New England Hospital Assembly - "Family Planning: A Reality in Massachusetts" - Boston, Mass.	Alice Friedman
3/21- 26/72	Council of Baccalaureate and Higher Degree Education - New Orleans, Louisiana	Nel Getchel Lillian Goodman Karen Johnson
3/24- 30/72	Esalen Weekend Workshop - Monterey, Calif.	Catherine Hines
3/13- 15/72	Conduct Workshop for Head Nurses at Milledgeville State Hospital - Macon, Georgia	Lillian Goodman
4/17- 18/72	Multimedia Workshop - Richmond, Virginia	Helen Auton Nina Entrekin
4/18/72	Massachusetts League for Nursing Council of Programs - Speaker	Lillian Goodman
4/25/72	Department of School Nurses, NEA - Western Massachusetts Branch - W. Springfield, Mass.	Alice Friedman
4/21- 22/72	Conference on Nursing Research - Cleveland, Ohio	Nel Getchel
4/30- 5/5/72	American Nurses Association Convention - Detroit, Michigan	Alice Friedman Ruth Smith
4/19/72	Western Mass. Chapter Heart Association "Living with A Pacemaker"	Loretta Sharp
5/11/72	District #1 - Massachusetts Nurses Association Panel Moderator	Virginia Earles
5/11/72	Veston Assembly - Massachusetts Board of Higher Education - Speaker	Lillian Goodman
5/3/72	Heart Association Program - "A New Look at Congestive Heart Failure and Shock"	Patricia Economakos
5/24/72	NECHEN Meeting - Manchester, New Hampshire	Nel Getchel Lillian Goodman Hildegard Salenius Edith Walker
5/23- 24/72	New England Public Health Association - Chilcopee, Mass.	Alice Friedman
5/15- 19/72	American Association of Mental Deficiency - Minneapolis, Minnesota	May Hall
5/24- 27/72	American Association for Child Care in Hospitals - Montreal, Canada	Loretta Sharp Ann Sheridan



1971-72

Humanistic Curriculum Workshop - Boston College	Patricia Shea Sue Murdock
Two Bioenergetic Workshops (2 days)	Catherine Hines
New England Center Weekend Workshops	Catherine Hines Linda Ceriale
Massachusetts Nurses Association - Psychiatric Conference	Linda Ceriale
Massachusetts Association for Mental Health Conference	Linda Ceriale
Behavior Modification Workshop	Linda Ceriale
Yale Psychiatric Nursing Institute	Linda Ceriale

Service -

University:

Senators - Elizabeth Clarke  
Barbara Redding  
Lillian Goodman

Senate Committees -

Linda Ceriale - Search Committee for Dean of the School of Nursing

Elizabeth Clarke - Faculty Senate  
Advisory Council on International Programs  
Transportation and Parking Council  
Undergraduate Academic Deans

Virginia Earles - Search Committee for Dean of the School of Nursing  
Graduate Council  
Graduate Committee on Financial Aid to Students

Alice Friedman - Committee on Committees  
Committee on Scholarship, Financial Aid and International Study

Nel Getchel - Search Committee for Dean of the School of Nursing  
Search Committee for Dean of School of Home Economics  
Interdisciplinary Committee

Mary Helming - University Library Committee  
Tenure and Grievance Committee  
Search Committee for Dean of the School of Nursing

Karen Johnson - Faculty Affairs Committee, Secretary  
Sub-committee on Liability

Jane Nicholson - Board of Admissions and Records  
Council of Undergraduate Deans

Hildegard Salenius - Ad Hoc Human Subjects Review Committee



- Loretta Sharp - Academic Matters Committee of University Senate - and Sub-Committee to Study Core Requirement Policies and Practices  
Distinguished Teacher Award Committee
- Ruth Smith - Search Committee for Dean of the School of Nursing  
Committee on Status of Women  
Ad Hoc Committee for Exploration of Inter-disciplinary Experiences, Graduate School
- Joan Sweeney - Biological Science Library Liaison Committee
- Alvin Winder - Faculty Senate Committee on Student Affairs  
Faculty Senate Committee on Campus Wide Groups

Other:

Lillian Goodman - Dean's Council, Member

Extra-University Services:

- Helen Auton - Completed Graduate Course in Audio-Visual Technology - Education 728 - 3 credits
- Margaret Craig - Visiting Lecturer to Trends Class at Cooley Dickinson School of Nursing (4 hours)  
Visiting Lecturer to Nursing 390 - National Health Insurance  
Consultant, Professional Advisory Committee-Franklin County Home Care
- Virginia Earles - Consultant - Hartford Hospital School of Nursing  
Consultant - St. Francis Hospital School of Nursing
- Patricia Economakos - Speaker at Coronary Care Training Program for Nurses sponsored by the Heart Association  
Conducted mini-course on electrocardiography for graduate students
- Mina Entrekin - Worked on Investiture as Chairman of Reception Committee
- Alice Friedman - Speaker: February 9, 1972, Panel Presentation of the Self-Study Committee, School of Nursing, "Should the School of Nursing Remain on Amherst Campus or Move to Worcester?"
- Hel Getchel - Actively engaged with Ruth Smith in the Development of course proposals to implement the clinical major in Community Nursing in September, 1972.  
Field trip to Yale School of Nursing to meet with two consultants regarding development of Community Nursing curriculum.





Janet Hine - Part-time student, Teachers College, Columbia University, meeting requirements of the Master of Education

Karen Johnson - Speaker - Westfield Nurses Association, February 2, 1972, "Nursing Process A Means to Individualized Patient Care"

Margaret Moynihan - Summer Workshop - "Theory of Intensive Care Nursing", Continuing Education Department, July, 1972.

Hildegard Salenius - Faculty Research Development Grant written in collaboration with Nel Getchel, to the Biomedical Foundation received approval

Ruth Smith - Taught Nursing 301, Community Health Nursing, Summer, 1972  
Pilot Program, January, 1972, with University of Massachusetts Medical School - Community Medicine Clerkship in which 3 senior nursing students participated

Edith Walker - Panel Member with Wesson Womens Hospital pediatrician and nursing staff, "Intensive Care of the Neonate", Farren Memorial Hospital

Alvin Winder - Consultant, Psychiatric Unit, Springfield Medical Center

#### Contribution to Professional Organizations:

Linda Ceriale - Sigma Theta Tau, Beta Zeta Chapter, Vice President  
Board of Directors for SPOP (Service Program for Older People), New York City  
American Nurses Association, Member  
Massachusetts Association of Mental Health, Member

Elizabeth Clarke - American Nurses Association, Member  
Massachusetts Nurses Association, Member  
District #1 Delegate to Massachusetts Nurses Association Convention  
National League for Nursing

Ellan Cole - American Nurses Association, Member  
Sigma Theta Tau, Member

Mary Condron - Scholarship Committee, Westfield Nurses Association

Margaret Craig - Massachusetts Nurses Association, Member  
Massachusetts Public Health Association, Member  
Abortion Study Committee, Member  
League of Women Voters



- Virginia Earles - Massachusetts Nurses Association, Council on Practice  
Heart Association - Nursing Education Committee  
Western Mass. Chapter
- Patricia Economakos - Western Mass. Heart Association, Co-Chairman of Nursing Education Committee  
Sigma Theta Tau  
American Association of Critical Care Nurses Pioneer Valley Chapter, Chairman of Program
- Nina Entrekin - Sigma Theta Tau, Chairman, Nominating Committee  
Western Mass. Chapter of American Heart Association  
National League for Nursing  
Massachusetts Nurses Association
- Alice Friedman - Professional Advisory Committee Board -  
Visiting Nurse Association of Springfield  
Committee to Study Health Needs of Amherst Model Cities Committee, Springfield  
Massachusetts Public Health Association, Secretary
- Nel Getchel - Massachusetts Nurses Association, Special Interest Group for Rehabilitation Nurses, Vice-Chairman  
New England Council on Higher Education in Nursing - Graduate Special Interest Group - Chairman  
New England Research Organization - Chairman  
National League for Nursing, Program Committee  
Council of Nurse Researchers  
American Association of University Professors  
Sigma Theta Tau  
Pi Lambda Theta  
American Congress of Rehabilitation
- May Hall - American Nurses Association  
National League for Nursing  
American Association of University Professors  
American Public Health Association  
Massachusetts Mental Health Association  
Naval Reserve
- Mary Helming - Massachusetts Nurses Association, Council on Education  
National League for Nursing, Scholarship Committee  
Massachusetts and Respiratory Disease League - Guidance Committee  
Alumni Senate - Catholic University of America
- Janet Hine - American Cancer Society, Professional Education Committee, Greater Springfield Unit  
American Nurses Association  
National League for Nursing



Karen Johnson - Massachusetts Nurses Association, Committee on  
Membership  
District #1, Secretary  
Board of Directors, District #1  
Committee on Public Relations  
New England Council on Higher Education in  
Nursing  
American Association of University Professors,  
Chairman, Welfare Committee

Sue Murdock - Massachusetts Nurses Association

Madeline Murphy - Board of Trustees, Sarah Gillette Funds for  
the Aged  
American Red Cross - Volunteer, Instructor

Jane Nicholson - American Nurses Association  
National League for Nursing

Constance Petrunenko - American Nurses Association  
National League for Nursing  
American Public Health Association  
New England Public Health Association  
Massachusetts Public Health Association  
ASHA  
Board Member, North End Community Center,  
Springfield  
Board Member, Cancer Society, Springfield  
Board Member, Brightwood Day Care Center,  
Springfield

Barbara Redding - Massachusetts Nurses Association  
Massachusetts League for Nursing  
American Association of University Professors  
AAMD  
ACCH

Loretta Sharp - Western Mass. Heart Association  
American Association for Child Care in Hospitals  
National League for Nursing  
Sigma Theta Tau

Ann Sheridan - National League for Nursing  
Heart Association  
American Association of Child Care in Hospitals

Ruth Smith - Nursing Education Sub-Committee of Western Mass.  
Chapter of the Heart Association  
American Public Health Association  
New England Public Health Association  
Massachusetts Public Health Association  
American Nurses Association  
National League for Nursing  
Massachusetts League for Nursing - Program Committee  
for 1972 Annual Meeting  
Massachusetts Nurses Association, Scholarship  
Committee  
Child Welfare Committee, Springfield



Joan Sweeney - Massachusetts Nurses Association  
American Nurses Association  
Massachusetts League for Nursing  
National League for Nursing  
Sigma Theta Tau  
Western Mass. Chapter of the Heart Association  
Springfield Hospital Alumnae Association

Edith Walker - American Nurses Association  
Massachusetts Nurses Association  
New England Council of Higher Education in Nursing  
Wesson Womens Hospital - Committee on Family  
Centered Care

Helen Whitbeck - Amherst Town Meeting Member  
American Nurses Association  
National League for Nursing  
Massachusetts Nurses Association  
Massachusetts League for Nursing  
Sigma Theta Tau

Alvin Winder - Springfield Medical Center, Consultant,  
Psychiatric Unit  
Western Mass. Psychiatric Group, Steering  
Committee

## 6. MAJOR ACCOMPLISHMENTS

A Grant was awarded for Graduate Training in Psychiatric-Mental-Mental Health Nursing from HEW, Public Health Service. Six full-time and 4 part-time students enrolled in this specialty area of the Graduate Program in Nursing. Professor Salenius submitted the proposal.

The faculty completed plans and course proposals for implementation of a third Graduate Clinical Specialty in Community Health Nursing to be initiated in September, 1972. This is in direct response to needs expressed by hundreds of public health nurses in the Commonwealth, and particularly in Western Massachusetts.

In cooperation with the Division of Continuing Education, summer workshops were planned for School Nurses and Nurses Working in Hospital Intensive Care Units.

Professors Getchel and Salenius were awarded a Faculty Research Grant for the study of Time-orientation of Elderly People.

The National Fund for Graduate Education awarded the School \$2000 in response to the application submitted by Professor Getchel.

The faculty completed its second year of intensive work toward a major change in the undergraduate curriculum to begin with a pilot class in September, 1973 and to be in full operation by September, 1974.





On June 26, 1972, the School was notified that the National Advisory Council on Nurse Training of NIH recommended approval of the Special Project Grant application titled, "The Development of Community Satellite Learning Centers to Implement a New Baccalaureate Nursing Curriculum". We now await the official "Notice of Grant Awarded" letter. Professor Jeanette Hines was the key person in the preparation of the proposal.

The School continues to receive NIH support for the undergraduate program in two facets: undergraduate psychiatric nursing (Project Director, Alvin Winder) and community nursing (Project Director, Constance Petrunenko).

### 3. FUTURE PLANS AND NEEDS

It is increasingly apparent that one of the most critical needs of the faculty of the School of Nursing is for support staff in the areas of administrative, secretarial, and research functions. There has been a tremendous increase in the numbers of students and clients served by the School during the past two years with no increase of support staff. Faculty could be expended much more fruitfully if the detail of records and reports were handled by administrative assistants.

The dearth of travel funds will be increasingly felt as we move into our new curriculum and extend the clinical laboratory of the School of Nursing into a wider community than ever before. Indeed, there is justification for faculty to receive travel compensation for fulfilling their supervisory and teaching-learning responsibilities for our students since the clinical laboratory is not on campus.

The School of Nursing will continue its efforts to expand and strengthen the graduate program in nursing. This is viewed as an imperative in response to the needs of nursing education in the Commonwealth. We will begin to explore the feasibility of initiating a doctoral program in nursing at the University.

The faculty continues to work toward the implementation of a major curriculum revision which, as noted earlier in this report, will begin with a pilot class in September, 1973 and be fully implemented in September, 1974. The thrust of the revision is to make nursing an upper division major, to provide the student with more options, and to prepare a nurse practitioner who will be able to meet the ever-changing and complex health needs of people in the coming decade.

Planning should begin in the immediate future for a new building for the School of Nursing. There is a pressing need for a modern facility in which opportunities for teaching, learning, research and service will be readily available. The present over-crowded situation must be relieved. For example, 2-3 faculty share office space which was designed for one person. This is a negative situation, particularly as so much faculty time is devoted to student advising, counseling and supervising. And, as we expect more faculty to engage in research activities, we must provide space where people may work in quiet and with room to keep tools and data.

Additional space will be needed for the support staff that will be allotted to the School.



Further, there should be more space for students' use: space for study as well as for interaction with other students of nursing.

The realization of the above will, hopefully, aid in the effort to organize the alumni of the School of Nursing into a viable, dynamic and contributing force.



Number	Source & Purpose	Duration	Direct Teaching Costs	Traineeships	Overhead	Total
5 T02 H1100400-10	National Institute of Mental Health, Dept. of H.E.M., Public Health Service - UNDERGRADUATE TRAINING IN PSYCHIATRIC-MENTAL HEALTH NURSING Director: Alvin Vinder	3rd year of Continuation Grant	\$24,673	\$1,150	\$1933	\$26,606
5 D10 H110037-04	Division of Nursing Dept. of H., E., M., Public Health Service LABORATORY IN COMMUNITY NURSING Director: Constance Patruncello	4th year of Grant - 2/1/72 - 1/31/73	\$23,321.00	--	\$2027.12	\$25,349
2-ALL HU 00131-02	Division of Nursing, Dept. of H., E., M., Public Health Service TRAINEESHIP - Graduate Program in Medical-Surgical Nursing Director: Virginia Earles	4th year of Traineeships for graduate student in Med-Surg. Nursing	--	\$20,768	--	\$20,768
1 T01 H12537-01	National Institute of Mental Health, Dept. of H., E., M., Public Health Service - GRADUATE TRAINING IN PSYCHIATRIC-MENTAL HEALTH NURSING Director: Hildegard Salenius	1st year of Grant 7/1/72 - 6/20/72	\$23,152	\$15,532	\$2078	\$41,712



## Appointment of Annual Degree Council of Nursing

The School of Nursing was pleased to District of Columbia's distinguished alumnus of Delta Theta Tau, the only National Honor Society in Nursing. The Installation of Beta Lambda chapter was held on April 5, 1974. At this time, representatives and visitors representing undergraduates and graduate students, faculty and community leaders in Nursing, completed the chapter membership. Along with Beta Lambda's transfer members the chapter is now a well-insulated unit.

The President of the University, Edward C. Ford addressed the Inductees and their guests in the Chancellor Building, V. Henry, and the Vice-Chancellor for Academic Affairs, Robert L. Sturges.

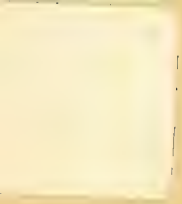
Dr. June Feldberg, Dean of the School of Nursing at Yeshiva University in New York delivered a complimentary paper on "Leadership in Nursing".

In this regard, Beta Lambda Chapter has become a reality and will continue to select members in recognition of scholastic achievement, leadership and service qualities. It will also provide for excellence in Nursing program as well as leadership for the future.









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SCHOOL OF PHYSICAL EDUCATION

ANNUAL REPORT

1971-1972

David C. Bischoff  
Dean

UNIVERSITY OF MASSACHUSETTS, AMPERST



School of P.E. Annual Report

1. <u>Expenditures and Appropriation</u>	<u>1969-1970</u>	<u>1970-1971</u>	<u>1971-1972</u>
State Funds - Salaries	<u>1,164,644</u>	<u>1,277,949</u>	<u>1,400,338</u>
State Funds - Other	<u>71,008</u>	<u>77,273</u>	<u>83,500</u>
Other Operating Funds - Salaries	<u>514,940</u>	<u>536,323</u>	<u>165,300 (Part)</u>
Total	<u>1,750,592</u>	<u>1,891,545</u>	<u>N/A</u>

2. Personnel

Faculty - Full Time

Professors	<u>9</u>	<u>10</u>	<u>9</u>
Associate Professors	<u>10</u>	<u>11</u>	<u>11</u>
Assistant Professors	<u>12</u>	<u>10</u>	<u>9</u>
Instructors & Lecturers	<u>14</u>	<u>17</u>	<u>17</u>
Part Time Faculty - Number	<u>--</u> <u>0</u>		<u>3</u>
Full Time Equivalent	<u>--</u>	<u>0</u>	<u>1.0</u>
Faculty Subtotal	<u>45</u>	<u>48</u>	<u>47</u>

Non-Faculty Professionals

Deans or Directors	<u>2</u>	<u>2</u>	<u>2</u>
Staff	<u>20</u>	<u>20</u>	<u>22</u>
Other (and Part Time, FTE)	<u>--</u>	<u>0.5</u>	<u>0.5</u>
Faculty and Professional Subtotal	<u>67.0</u>	<u>70.5</u>	<u>71.5</u>

Classified Personnel

Clerical Positions	<u>          </u>	<u>          </u>	<u>          </u>
Technical Positions	<u>          </u>	<u>          </u>	<u>          </u>
Other	<u>          </u>	<u>          </u>	<u>          </u>
Classified Subtotal	<u>          </u>	<u>44</u>	<u>44</u>



3. Organizational Chart<sup>1</sup>

<u>Departments</u>	<u>Degree*</u> <u>Programs</u>	<u>Instruc-</u> <u>tion</u>	<u>Re-</u> <u>search</u>	<u>Service</u>	<u>Other</u>
Physical Education for Men	BM	X			
Physical Education for Women	BM	X			
Recreation	B	X			
Athletics				X	
Exercise Science	BMD	X	X	X	
Required Activity Program		X			
Intramural Program				X	

<sup>1</sup>See the next page for a further breakdown

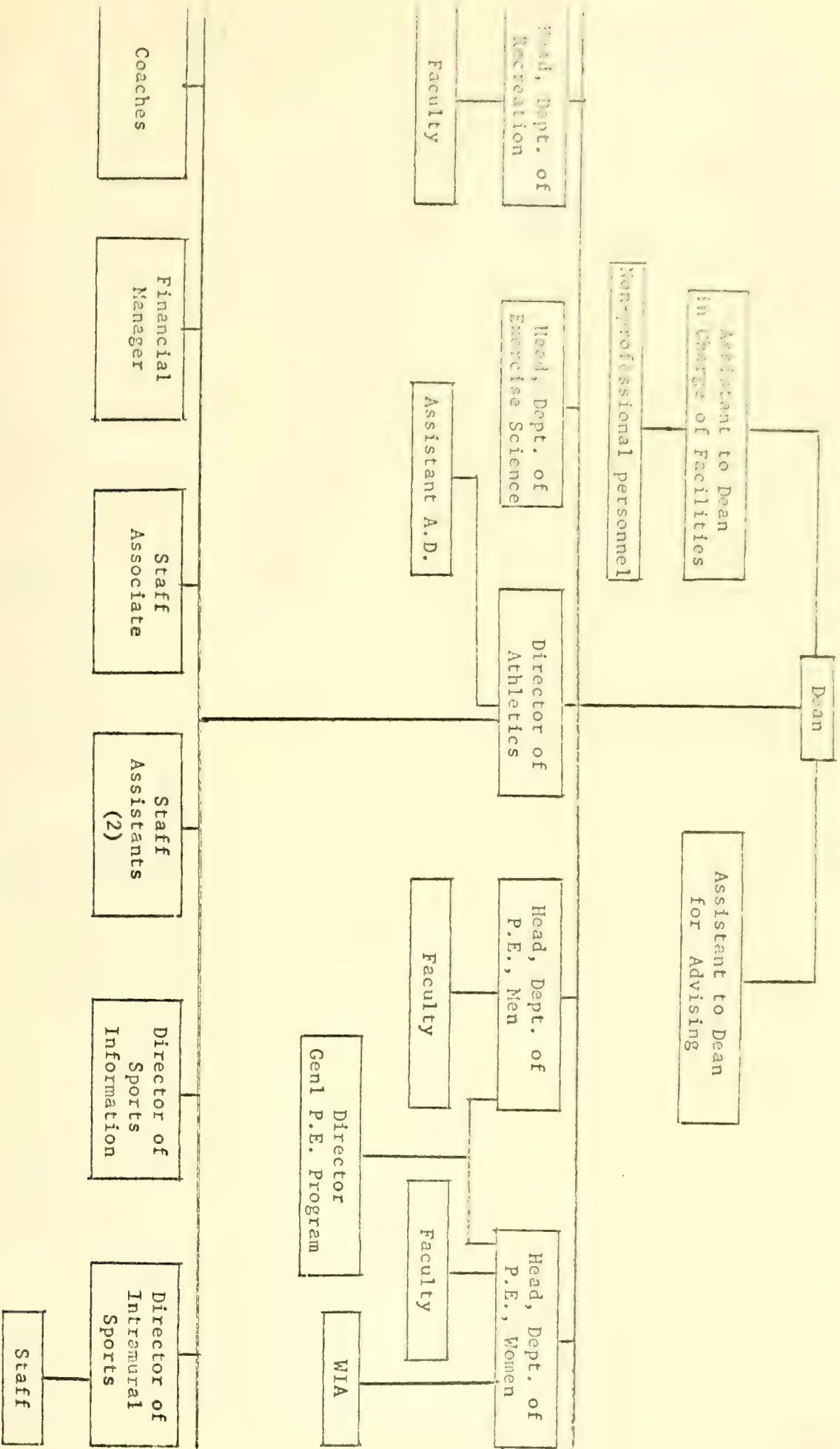
\* A - Associate; B - Bachelor; M - Master, less than 40 credits required;  
S - Master, 40 or more credits required; D - Doctoral Degree.





UNIVERSITY OF MASSACHUSETTS, AMHERST

SCHOOL OF PHYSICAL EDUCATION





4. Clientele

STUDENT MAJORS (Fall Semester):	<u>1969-1970</u>	<u>1970-1971</u>	<u>1971-1972</u>
Stockbridge School	<u>---</u>	<u>---</u>	<u>---</u>
Undergraduate			
Freshmen	<u>154</u>	<u>158</u>	<u>164</u>
Sophomores	<u>203</u>	<u>180</u>	<u>200</u>
Juniors	<u>207</u>	<u>242</u>	<u>250</u>
Seniors	<u>177</u>	<u>198</u>	<u>207</u>
Undergraduate Subtotal	<u>741</u>	<u>778</u>	<u>821</u>
Graduate			
Degree Students	<u>55</u>	<u>50</u>	<u>76</u>
Other	<u>7</u>	<u>12</u>	<u>21</u>
Graduate Subtotal	<u>62</u>	<u>62</u>	<u>97</u>
Total Majors	<u>803</u>	<u>840</u>	<u>918</u>

## STUDENT CREDIT HOURS TAUGHT (Fall Semester):

## In courses of this unit

Undergraduate including Stockbridge	<u>8,622</u>	<u>8,975</u>	<u>9,001</u>
Graduate	<u>315</u>	<u>360</u>	<u>588</u>

## In courses of other units

Undergraduate	<u>          </u>	<u>          </u>	<u>          </u>
Graduate	<u>          </u>	<u>          </u>	<u>          </u>

## OTHER CLIENTELE:

General Physical Education Program Students	<u>3,025</u>	<u>4,075</u>	<u>4,279</u>
Athletic Team Membership	<u>750</u>	<u>714</u>	<u>795</u>
Intramural Sport Participation	<u>5,313</u>	<u>5,615</u>	<u>7,032</u>



5. Faculty Publications, Research Grants, and Other Professional Activities:a. Books:

Gerber, Ellen W. Sport and the Body: A Philosophical Symposium. Philadelphia: Lea & Febiger, 1972.

Loy, John W. (with D. Lamb, R. Malina, S. Kleinman, and R. Singer). Physical Education: An Interdisciplinary Approach. New York: Macmillan Co., 1972.

Spears, Betty (with Aileene Lockhart). Chronicle of American Physical Education. Dubuque, Iowa: Wm. C. Brown Co., 1972.

VanderZwaag, Harold J. Toward A Philosophy of Sport. Reading, Mass.: Addison-Wesley Publishing Co., 1972.

Vendien, C. Lynn (with Sara S. Jernigan). Playtime: A World Recreation Handbook. New York: McGraw Hill, Inc., 1972.

b. Articles:

Edington, Dee W. "New World of Exercise Physiology." Proceedings of the National College Physical Education Association for Men. (In Press)

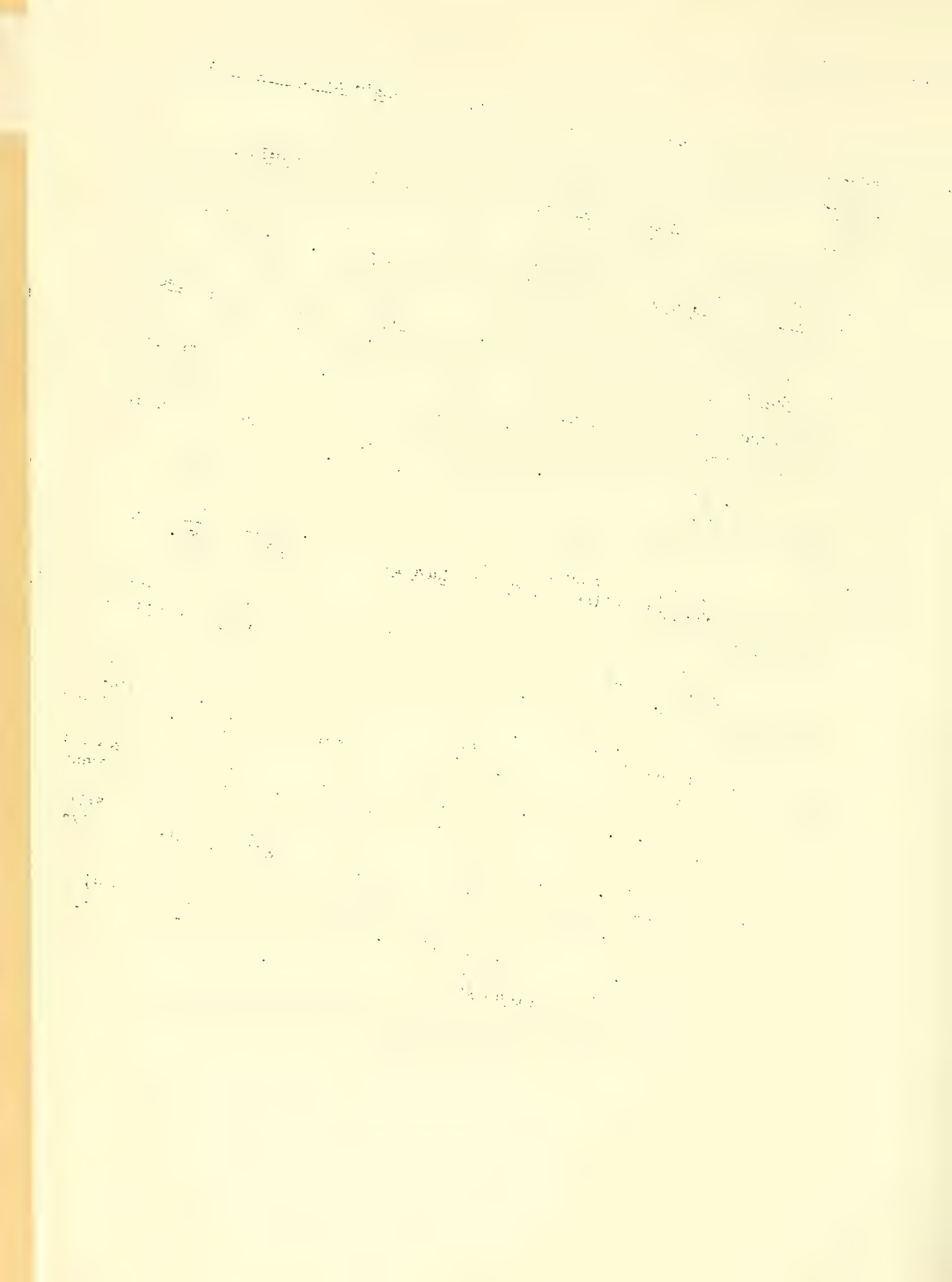
\_\_\_\_\_ and A. C. Cosmas. "Mitochondrial Distributions from Hearts of Trained, Non-Trained, and Immature Rats." Medicine and Science in Sport, 4:64 Abs., 1972.

\_\_\_\_\_ and A. C. Cosmas. "Size Distribution Analysis of the Mitochondrial Population in the Hearts from Immature, Mature and Mature-physically Trained Rats." Journal of Applied Physiology. (In Press)

\_\_\_\_\_, A. C. Cosmas and W. B. McCafferty. "Exercise and Longevity: Evidence for a Threshold Age." Journal of Gerontology. (In Press)

\_\_\_\_\_ and G. Ward. "Changes in Selected Biochemical Concentration Profiles During Exercise." Federation Proceedings. 31:719, 1972 (Abstract).

\_\_\_\_\_, G. Ward and W. A. Saville. "Energy Metabolism of Working Muscle: I. Concentration Profiles of 24 Selected Metabolites." Submitted to American Journal of Physiology.



b. Articles: (cont'd)

Edington, Dee W. "Energy Metabolism of Working Muscle: II. Redox State in the Cytoplasm and Mitochondria." Submitted to American Journal of Physiology.

\_\_\_\_\_ and L. Cunningham. "Applied Physiology of Exercise: A Biological Awareness Concept for the Schools." Submitted to the Journal of Health, Physical Education and Recreation.

Gerber, Ellen W. "The Ideas and Influence of McCloy, Nash and Williams." Big Ten Symposium on the History of Physical Education and Sport. Proceedings. The Athletic Institute. Scheduled for Spring, 1972.

\_\_\_\_\_. "The Changing Female Image: A Brief Commentary on Sport Competition for Women." Journal of Health, Physical Education and Recreation, 42 (October, 1971), 59-61.

\_\_\_\_\_. "Early Professional Preparation Curriculums in the United States." Physical Educator, 29 (March, 1972), 38-41.

\_\_\_\_\_. "On the Teaching of History." Journal of Health, Physical Education and Recreation, 43 (April, 1972), 75, 77.

Kroll, Walter. "Isometric Strength Fatigue Patterns in Female Subjects." Research Quarterly, 42: 286-298, 1971.

\_\_\_\_\_. "Recovery Patterns after Local Muscular Fatigue for Different Levels of Isometric Strength in College Age Females." Journal American Corrective Therapy Association. 25: 132-138, 1971.

\_\_\_\_\_ with P. J. Rasch. Chapter 31, "Wrestling." pp. 153-155. In Sports Safety, C. P. Yost (ed.), Washington, D.C.: AAHPER, 1971.

Lewis, Guy M. "John Rickards Betts and the Beginning of a New Age in Sports History." Journal of Health, Physical Education, Recreation, Vol. 43, No. 3, March 1972, 81-82.

Loy, John W. "The Nature of Social Science Theory and Its Import for the Explanation of Agonetic Behavior." Proceedings of the 1971 Meetings of the National College Physical Education Association for Men.

\_\_\_\_\_. "Social Origins and Occupational Mobility Patterns of a Selected Sample of American Athletes," Vol. IV of the Proceedings of the 7th World Congress of Sociology, Varna, Bulgaria, 1970.

\_\_\_\_\_. "A Case for the Sociology of Sport: A Personal Perspective with Empirical Illustrations." Journal of Leisure Research, Spring 1972.

Randall, William E. "Ferns and their Allies." Focus: Outdoors Speakers' Notes, V:59-62. August 1971.

Robb, Gary M. "State Therapeutic Recreation Sections: A Status Report." Therapeutic Recreation Annual, VIII, 1972.





b. Articles: (cont'd)

Spears, Betty. "Adventures in History: The Whodunit Way." JOHPER, Vol. 43, No. 5, May 1972, p. 89.

VanderZwaag, Harold J. "Pitfalls in Philosophical Research." Research in the History, Philosophy, and International Aspects of Physical Education and Sport: Bibliographies and Techniques, eds. E. F. Zeigler, M. L. Howell, and M. Trezell. Champaign, Ill.: Stipes Publishing Co., 1971, 182-187.

Articles by Doctoral Students in Exercise Science:

Ariel, Gideon, directed by Dr. Benjamin Ricci. "Anabolic Steroids: Physiological Effects of Placebos." Track Technique, 46: 1470-1472, 1972.

\_\_\_\_\_, \_\_\_\_\_. "Psychological Effects of Anabolic Steroids." Track and Field News, Jan. 1972.

\_\_\_\_\_, \_\_\_\_\_. "The Effect of Anabolic Steroids on Reflex Components." Journal of Applied Physiology (accepted for publication for next issue).

\_\_\_\_\_, \_\_\_\_\_. "The Effect of Anabolic Steroid (Dianabol) upon Skeletal Muscle Contractile Force." Medicine and Science in Sports (accepted for publication).

Cosmas, Arthur, directed by Dr. D. W. Edington. "Exercise and Aging: Evidence for a Threshold Age." Journal of Gerontology. May 1972.

\_\_\_\_\_, \_\_\_\_\_. "Mitochondrial Distributions in Hearts of Immature, Mature Physically Trained and Non-Trained Rats." Medicine and Science in Sports. 1972.

Hayes, Keith C., directed by (Dr. Harry Campney and) Dr. Walter Kroll. "Jendrassik Maneuver Facilitation and Fractionated Patellar Reflex Times." Journal of Applied Physiology, 32: 290-295, March 1972.

c. Papers Presented:

Berryman, Jack W. and John W. Loy. "Democratization of Intercollegiate Sports in the Ivy League: A Study of Secondary School Background and Athletic Achievement at Harvard and Yale (1911-1960)." Third International Symposium on Sociology of Sport, University of Waterloo, Waterloo, Ontario, Canada, August 22-28, 1971.

Berryman, Jack W. "The Ending of American Blood Sports." Eighty-Sixth Meeting of the American Historical Association, Hilton Hotel, New York, New York, December 28-30, 1971.

\_\_\_\_\_. "Early Black Leadership in Collegiate Football." Second Canadian Symposium on History of Sport and Physical Education, University of Windsor, Windsor, Ontario, Canada, May 1-3, 1972.



c. Papers Presented: (cont'd)

Edington, D. W. "What's Good for the Rat may be Good for You." Mass. Heart Association, Springfield, Mass., October, 1971.

\_\_\_\_\_. "The New World of Exercise Physiology." National College Physical Education Association for Men, New Orleans, January, 1972.

\_\_\_\_\_. "Changes in Selected Biochemical Concentration Profiles during Exercise." Federation Proceedings, Atlantic City, April, 1972.

\_\_\_\_\_. "Applied Physiology of Exercise." Massachusetts Association of Health, Physical Education and Recreation Meeting, Boston, April, 1972.

Evans, Virginia. "The Formative Years of Women's College Basketball in Five Selected Colleges, 1880-1917." Research Section, AAHPER Convention, Houston, March 25, 1972.

\_\_\_\_\_. "Sport in the Perfectionist Community at Oneida." Research Section, Eastern District Convention, AAHPER, Kiamesha, New York, April 15, 1972.

\_\_\_\_\_. Reaction Paper to "The American Woman's Sport Experiences: An Analysis of Historical Trends," by Ellen W. Gerber. Second Canadian Symposium on History of Sport and Physical Education, Windsor, Ontario, Canada, May 1-3, 1972.

Gerber, Ellen W. "Venerable Myths and Attendant Fantasies." State University College, Brockport, N.Y., November 15, 1971.

\_\_\_\_\_. "Philosophy of the Body." University of North Carolina, Greensboro, N.C., January 24, 1972.

\_\_\_\_\_. "Critique" of "Physical Education and the Reification of the Human Body." History of Sport and Physical Education Section, AAHPER, Houston, March 24, 1972.

\_\_\_\_\_. "The American Woman's Sport Experience: An Analysis of Historical Trends." Second Canadian Symposium on History of Sport and Physical Education, Windsor, Ontario, Canada, May 1-3, 1972.

\_\_\_\_\_. "The American Woman in Sport." Eastern Area Association of Women in Physical Education of New York State, Albany, May 19, 1972.

Kroll, Walter. "Proprioceptive Facilitation and Isometric Strength." New England Exercise Physiology Conference, Boston University, May 1, 1971.

\_\_\_\_\_. "Isometric Strength and Endurance under Successive Induction Conditions." Research Section, Massachusetts Association for Health and Physical Education, Boston, March 26, 1971.

\_\_\_\_\_. "Psychological Aspects of Wrestling." American College of Sports Medicine, Philadelphia, May 2, 1972.



c. Papers Presented: (cont'd)

Kroll, Walter. "Model Building in Research." Symposium on Research Methodology in Perceptual-Motor Development, Springfield College, May 12, 1972.

\_\_\_\_\_. "Designing the Multivariate Study." Symposium on Research Methodology in Perceptual-Motor Development, Springfield College, May 12, 1972.

Lewis, Guy M. "Sport, Youth Culture, and Conventional Morality." American Historical Association, Annual Meeting, New York, December, 1971.

Spears, Betty. "College Physical Education - Student Challenges and Self Challenges." Eastern Association for Physical Education of College Women, Portsmouth, N.H., October 15-17, 1971.

\_\_\_\_\_. "Influences on Early Professional Curriculums in Physical Education in the United States." Second Canadian Symposium on History of Sport and Physical Education, Windsor, Ontario, May 1-3, 1972.

\_\_\_\_\_. "Changing Views in College Programs." AAHPER, March 27, 1972.

VanderZwaag, Harold J. "A History of the Concept of Athletics." Annual Meeting, National College Physical Education Association for Men, New Orleans, La., January, 1972.

\_\_\_\_\_. "Sport as a Microcosm." Symposium on the Philosophy of Sport, Brockport, New York, February, 1972.

\_\_\_\_\_. "Innovations in Professional Preparation Programs." 50th Annual Convention, Eastern District Association of the AAHPER, Kiamesha Lake, N.Y., April, 1972.

\_\_\_\_\_. "Philosophy of Sport Science." 50th Annual Convention, Eastern District Association of the AAHPER, Kiamesha Lake, N.Y., April, 1972.

Vendien, C. Lynn. "Physical Education and Sport in the U.S.A." International Council for Physical Education and Recreation, Kingston, Jamaica, August 2, 1971.

\_\_\_\_\_. "Sampling of Visual Aids for Comparative Physical Education and Sport Courses." AAHPER, April 27, 1972.

Wallace, Esther. "Variations of Levels." International Academy of Aquatic Art, Williamsburg, Va., April 19-23, 1972.

Papers Presented by Doctoral Students in Exercise Science:

Ariel, Gideon, directed by Dr. Benjamin Ricci. "The Effect of Anabolic Steroids on Reflex Component and Skeletal Muscle Contractile Force." American College of Sports Medicine, Philadelphia, May 1, 1972.

\_\_\_\_\_. "The Physiological Effects of Anabolic Steroids." Mass. Association for Health, Physical Education and Recreation Convention, Boston, March 2, 1972.



Papers Presented by Doctoral Students in Exercise Science: (cont'd)

Ariel, Gideon, directed by Dr. Benjamin Ricci. "The Effect of Anabolic Steroids on Physical Performance." Eastern Coaches Association, Dartmouth College, New Hampshire, December 21, 1971.

Cosmas, Arthur, directed by Dr. D. W. Edington. "Mitochondrial Distributions in Hearts of Immature, Mature Physically Trained and Non-Trained Rats." American College of Sports Medicine, Philadelphia, May, 1972.

d. Programs Presented:

Cooper, Elizabeth. Workshop in Educational Gymnastics, University of Rhode Island, Kingston, R.I., March 16, 1972.

Farr, Jane. Basketball, Head Clinician, Second Annual Southern Tier and Sheridan Inn Women's Basketball Coaches' Clinic, Binghamton, New York, October 29 and 30, 1971.

Kjeldsen, Kitty. Director, New England Gymnastic Clinic, University of Massachusetts, Amherst, November 26 and 27, 1971.

\_\_\_\_\_. Head, Women's Program, Amateur Athletic Union, Gymnastics Clinic, Sarasota, Fla., December 27-31, 1971.

McEnroe, Leone. "Tempest," World Project, Hampshire College, December 9-12, 1971.

Morse, Candice. "L'Histoire du Soldat," Bowker Auditorium, University of Massachusetts, November 30, 1971.

Peterson, Daniel, Leone McEnroe and Candice Morse. Concert Dance Group Tour. Pioneer Valley Regional High School, October 21, 1971; Ware High School, November 10, 1971; Mohawk Trail Regional High School, February 11, 1972; Stoneleigh-Burnham School, February 16, 1972.

e. Research Grants:

Edington, D. W. Ultrastructure and Energy Production during Aging and Training. Biomedical Sciences Support Grant RR 07048-06. \$1,000. July 71 to June 72.

Kroll, Walter. U.Mass. Biomedical Sciences Support Grant RR 07048-06. Muscular Fatigue and Fractionated Reaction Time.

\_\_\_\_\_. National Institute of Health Grant NB-07833-01. Proprioceptive Effects in Isometric Muscular Effort.

Lewis, Guy M. Faculty Research Grant, Research Council, Graduate School, University of Massachusetts, #FR-P12-72(1).

Ricci, Benjamin. Biomedical Sciences Support Grant RR No. 07048-05, 71-72.

VanderZwaag, Harold J. Faculty Research Grant, Research Council, Graduate School, University of Mass., #FR-P12-72(1).





## 6. Major Accomplishments:

### a. Department of Athletics

#### (1) Intramurals

The Intramural Department administered and supervised six major phases of physical activity accounting for 125,000 individual participations, an increase of 5,000 over the previous year. A major part of the increase was due to the fact that the Intramural Department added a summer session program and a formal women's program, bringing the areas of responsibility to six.

The Undergraduate Men's Program presented 20 competitive sports activities, with softball, basketball, and touch football being the most participated in team sports; wrestling still packs the Auxiliary Gym with spectators for the semifinal and final matches and leads all combination team-individual sports in participations; badminton singles is by far the most popular individual sport. Wrist wrestling was added for the first time, with an impressive 269 entries.

There were nine sports activities in the Women's Program. The fall season began with a bang, as 19 women's powder puff football teams captivated spectator interest. The most popular women's team sport, however, was basketball, with the turkey trot leading all combination team-individual sports. Again, badminton singles was the most popular individual sport.

The Co-Recreational Braves-Squaws Program showed an increase of 873 participations over the previous year despite the canceling of the swim meet. The most popular activity is volleyball, with over 70 teams playing this past year.

The Graduate-Faculty-Staff Program offered 17 sports activities. The most popular team sports are basketball and volleyball. Swimming is the most participated in combination team-individual sport, while squash holds the interest in individual sports. Again, there was an increase of 1,000 participations over the previous year. The Civil Engineering Department is to be complimented for winning their second All Campus Championship.

The Recreational Activities or Open Play Program is proving more and more that life styles, in regard to free physical exercise, are leaning toward recreational sports of a carry-over nature. This past year the Intramural Department supervised over 85,000 individual participations. More open play facilities were made available at the Department of Physical Education for Women.

#### (2) Intercollegiate Athletics

The 1971-72 performances of intercollegiate athletic teams rank with some of the finest in the school's history. Overall, fifteen varsity teams won 65% of their regularly scheduled contests and thirteen of these teams had winning seasons. Performances in Yankee Conference competition were exemplary as Massachusetts won seven of nine conference

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## 6. a. (2) Intercollegiate Athletics (cont'd)

titles and retained the Frank Keaney Trophy, symbolic of league championship supremacy, for the eighth time in ten years.

The hockey team climaxed the best year in the school's history by winning the Eastern College Athletic Conference Division II Championship which comprises 24 schools in the East. Massachusetts athletes were accorded a variety of honors and recognition on the conference, sectional, and national levels.

Facility improvements over the past year included completion of the steeplechase area of our olympic track and additional bleachers for baseball. Facility improvements under way include installation of additional lighting of the intramural fields and the completion of 12 new tennis courts, 6 of which will be surfaced with Dynaturf and the remaining 6 with asphalt.

In keeping with the concept of President Robert Wood concerning the University being service oriented, it should be pointed out that the Athletic Department, through its coaches, hosted several thousand high school students and their supervisors at baseball, football, gymnastics, and wrestling clinics. Also, the Department of Athletics co-sponsored clinics with the New England Lacrosse Officials Association and with the Western Massachusetts Basketball Officials Association. Utilization of our athletic facilities was also enjoyed by soccer, gymnastics, and swimming clubs from Hampshire College, the Western Mass. Swimming Coaches Association, the Western Mass. Track Coaches Association, and the Western Mass. Small Schools Basketball Tournament.

## b. Department of Exercise Science

The Department of Exercise Science was approved by the Board of Trustee action on November 10, 1971. Six faculty members constitute this department which offers the Ph.D. in Human Movement with a specialty in Exercise Science. In the U.S. this program of study is unique. The department operates five well-equipped laboratories which feature sophisticated electronic apparatus, including an electron microscope, thus enabling the research-oriented faculty to offer a research-oriented program in exercise science: exercise physiology, biomechanics, exercise biochemistry, motor integration, and therapeutic exercise. In addition to serving the doctoral student subpopulation, the exercise science faculty offer graduate level courses to master's degree candidates. Each faculty member also teaches one undergraduate course per semester in his area of specialization.

Demand for our doctoral students has already been demonstrated. Two advanced doctoral candidates have already accepted appointment to university faculty-research positions. One candidate, scheduled to receive his Ph.D. at the early fall granting period, gained an appointment at Eastern Kentucky U. Another doctoral candidate, scheduled to receive his degree in February, 1973, has been appointed to the faculty of the University of Connecticut Medical School. He will conduct research in the Department of Pathology and will teach a course in neuroanatomy in the School of Physical Therapy. Despite strong national competition for relatively few university teaching positions, our doctoral students bested Ph.D. holders -- testimony to the quality of our program and candidates. In addition, six serious requests were declined for lack of candidates.



6. Major Accomplishments: (cont'd)

## c. Department of Physical Education for Women

Student participation in departmental procedures. Students were included in as many discussions and decisions as possible. They served on four departmental committees, attended some department meetings, and met with several candidates for positions. Their contributions were significant, particularly on the departmental curriculum committee and in discussions with candidates.

Revision of emphasis program in women's activity requirement. To permit the student as much flexibility as possible in her preparation in physical activities, the emphasis program was redesigned to a maximum of 6 credits. The remaining 8 credits in physical education are elective.

Intercollegiate athletics for women. The program was organized under coordinators Farr and Ogilvie, and a Sports Council consisting of all coaches and seven students, one representing each sport. Intercollegiate sports included basketball, field hockey, gymnastics, skiing, softball, swimming, and tennis. In addition students participated in the DGWS National Collegiate track and field championship meet and the Eastern Regional swimming meet. U.Mass. gymnastic team placed second in the Eastern Regional Meet with Marjorie Combs in first place in the all round event. The gymnastic team placed fourth in the DGWS National Collegiate Meet in Des Moines, Iowa.

## d. Department of Physical Education for Men

The accomplishments indicated here also reflect the accomplishments of the Department of Physical Education for Women because the two departments offer joint curricula in the General Physical Education Program, the Undergraduate Majors Program, and the Graduate Program.

General Physical Education Program. The following new courses were added in 1971-72: African Dance, Water Polo, Kundalini Yoga, and a 2-credit course in Sport Appreciation. Certain faculty members were appointed as activity coordinators who are responsible for the conduct of activity classes in their areas of competency, including the supervision and evaluation of teaching in their areas. Initial steps were taken to provide computer programming for the process of assigning instructors to specific sections in the program. That was placed in effect on a preliminary basis during the Spring Semester 1972. During the academic year a total of 865 students elected to take General Physical Education courses beyond their requirement of 2 credits.

Undergraduate Majors Program. This was the third year that the revised curriculum has been in effect. The advising for this program was considerably improved this year through the establishment of a new position in the School. Dr. Margaret Coffey was appointed to this position as Assistant to the Dean for Advising. More concern is being given to the need for selective admissions in the undergraduate majors program. A committee is being appointed to study this matter in the forthcoming year. The number of co-educational activity courses has been increased. Eleven physical education majors were selected for the ACTION program. This represented approximately 20% of the total student involvement in the University. Physical education



## 6. d. Department of Physical Education for Men (cont'd)

student teachers were also included in the School of Education's "off campus" (national) program and the international student teaching program. Student teaching centers for physical education majors are being established in certain locations such as Andover, Pittsfield, Newton, and Framingham.

Graduate Program. The highlight of the year in this program was the approval of the second doctoral specialty under the Ph.D. in Human Movement. This is a specialization in "sport studies." Five students have been admitted and will begin their studies under this program next fall. A master's degree specialization in sport administration was implemented in September, 1971. Eighteen students initially began study under this specialization. One of those students received his degree in May and five others plan to complete their work this summer. The sport administration specialization is offered under the master of science program in physical education. Students are not required to specialize at the master's level. Two students graduated in May under the general master's degree program offered by the Departments of Physical Education for Women and Physical Education for Men, and another four are expected to receive their degrees in September.

## e. Department of Recreation

A second annual department retreat of faculty, students, and selected alumni was held at a camp in New Hampshire. As far as known, this is the only one of its kind nationwide in park and recreation curricula. With some change in format it will be continued.

Building on discussions in the retreats, the department has revised certain course titles to reflect its growing concern with the broader sphere of leisure. For example, Introduction to Recreation became Man and Leisure. A proposal to change the name of the department to Department of Leisure Studies and Services has received all the necessary preliminary approvals and is scheduled for the June meeting of the Board of Trustees.

In December the first Northeast Regional Conference of the Society of Park and Recreation Educators was organized and conducted in the Campus Center. The concept and leadership originated in this department, another first, nationally. A desire was expressed by the participants to have us continue to call such a meeting annually. Concurrently, the first Northeast Regional Conference of the National Student Recreation and Park Society was held in the Campus Center, sharing a couple of speakers in separate sessions. As far as known, this project of our students was also a first.

Enrollment of majors, always a concern in the past, has reached the stage, with 130 at this writing, where it is becoming a liability.





## 7. Special Programs:

### Department of Exercise Science

The Sensorimotor Development Unit at Belchertown State School was instituted in conjunction with a faculty member from the Department of Exercise Science, Professor Robert James. The student population from course work in the Department forms the main working force at the present time for the Belchertown State School Unit. Affiliation between Belchertown State School and the Department of Exercise Science also includes several research projects in the areas of body image training, direct sense preference, static and dynamic balance, audio-visual feedback in sensorimotor development, and motor behavior and stress.

### Department of Physical Education For Women

In cooperation with Continuing Education, a workshop on "The European Approach to Movement: A Practical Workshop in Creative and Developmental Gymnastics," featuring Prof. Liselott Diem and Prof. Renate Scholtzmethner of Cologne, Germany, was held July 12-17, 1971. Professor Vendien chaired the workshop for the School of Physical Education.

## 8. Future Plans and Needs

### Department of Athletics

In connection with our future needs, athletic facilities such as an ice hockey arena and improved facilities in which to conduct basketball still appear to be the critical needs for the School of Physical Education in the future. Hundreds of students are turned away from hockey contests held at the Amherst Orr Rink and the limited capacity of the Cage along with poor seating arrangements, antiquated toilet facilities, inferior sound equipment, inadequate heating, etc., continue to inhibit the growth of these programs.

Future facility improvements in the planning stage include extending the banking adjacent to the track area in order to permit an installation of bleacher seats to accommodate one thousand persons; improvement of the drainage system around Earl E. Lorden baseball field; the construction of an archery range with appropriate safety fences and warning devices; delivery of water to the baseball dugouts; and replacement of damaged seats at Alumni Stadium.

### Department of Physical Education for Men

We noted earlier in this report that the accomplishments of the Department of Physical Education For Men also reflect the accomplishments of the Department of Physical Education For Women because the two departments offer joint curricula. Much the same situation exists with regard to future plans and needs.

The most pressing need at the present time is to establish policies and procedures for full implementation of the doctoral specialization in sport studies. Because 5 students will begin their study under this program next fall, it is necessary to provide specific policies and procedures to guide them through their work.



Department of Physical Education for Men (cont'd)

There is an obvious need to limit the admission of undergraduate majors in physical education. This need is recognized through an understanding of two conditions in the current situation. First of all, there is the critical problem of placement after graduation. With the market flooded with teachers, including physical education teachers, it seems unwise to continue to admit physical education majors at the rate in which they have been admitted during the past few years. Secondly, due to financial limitations within the University, the School of Physical Education does not have a sufficient number of faculty members to adequately teach the courses for undergraduate majors and still meet the other commitments within the School.

The general physical education requirement and program will again be studied by a committee within the School during the forthcoming year. At this point there is a definite need to employ both full and part time instructors who are qualified to teach those activities which provide for the contemporary needs and interests of students. Among these activities are yoga, scuba, judo, and karate.

Department of Physical Education For Women

Perhaps this matter of inadequate facilities for women in the Boyden Building and Hicks Gymnasium should be placed under Item 6, major accomplishments. The accomplishment, I believe, was the awareness of the conditions. Attention has been given to the matter and, if the present plans are implemented, the women should have appropriate facilities which are safe and large enough to accommodate the number of women using Boyden. A locker room for women with correct access to the pool and to other sections of Boyden has been projected. It is strongly recommended that this be given emergency priority. It is expected that adequate women's facilities will be a major consideration in the remodeling of the Curry Hicks Gymnasium.

Intercollegiate athletics for Women is increasing throughout the country. At present, the Department of Physical Education for Women is providing all of the coaching and administrative hours from their present faculty. In addition to the present seven sports we have had inquiries from women interested in track and field, fencing and crew. The total program, including administration and coaching should be given consideration as to additional personnel required.

Department of Recreation

Some means of limiting enrollment, and of imposing some form of selectivity is becoming essential. This problem will be worked on during the coming year.

The Northeast Regional Conference of the Society of Park and Recreation Educators will again be planned and conducted here.

Short courses are being developed for the coming year. One, for activity directors in the nursing homes of Western Mass., will be offered by Mr. Robb through Continuing Education. He will also coordinate a statewide course at a higher content level under the sponsorship of the U.S. Public Health Service. Mr. Willmann will coordinate a short course for municipal recreation executives with funds supplied by the Intergovernmental Personnel Act.



Department of Recreation (cont'd)

These courses represent one beginning effort in developing an array of services to the communities and their components throughout the commonwealth, as well as to other state agencies. Conversations with representatives of various agencies with whom cooperative activities might be developed are being pursued.

Finally, but not least in importance are the implications of the name change to Leisure Studies and Services. We recognize a need to begin contributing to the growth of a unique body of knowledge which is currently only in the infancy of its existence. To this end we anticipate development of courses and a specialization in leisure studies as a pure discipline. This will stand as a new emphasis contrasting with, but supporting, our existing program which is designed to prepare professionals for the leisure service agencies. It is expected that this leisure studies emphasis will find its greater expression at the graduate level.



## Appendix 1.

## School of Physical Education

## FACULTY by DEPARTMENT-FALL 1971

	<u>Professor</u>	<u>Associate Professor</u>	<u>Assistant Professor</u>	<u>Instructor &amp; Lecturer</u>	<u>Part-time No.</u>	<u>FTE</u>	<u>Total FTE</u>
Physical Education for Men	5	5	5	4	1	.25	19.25
Physical Education for Women	2	5	2	8	2	.75	17.75
Recreation	1	-	1	2	-	---	4.00
Athletics	1	1	1	3	-	---	3.00
Faculty Subtotal	9	11	9	17	3	1.00	44.00

\*The Department of Exercise Science was approved by the Board of Trustees on November 10, 1971. The six faculty members in this department were transferred from the Department of Physical Education for Men. This included 3 professors, 2 associate professors, and 1 assistant professor.





Appendix 2.

School of Physical Education

STUDENT MAJORS by DEPARTMENT

Fall of	Undergraduate				Graduate		
	'69	'70	'71		'69	'70	'71
Undifferentiated	---	---	---	D	55	50	76
	---	---	---	S	7	12	21
	---	---	---	T	62	62	97
Physical Education - Men	L 177	188	206	D	---	---	---
	U 206	248	258	S	---	---	---
	T 383	436	464	T	---	---	---
Physical Ed - Women	L 154	128	126	D	---	---	---
	U 118	146	135	S	---	---	---
	T 272	274	261	T	---	---	---
Recreation	L 26	19	32	D	---	---	---
	U 60	49	64	S	---	---	---
	T 86	68	96	T	---	---	---
School Subtotal	L 357	335	364	D	55	50	76
	U 384	443	457	S	7	12	21
	T 741	778	821	T	62	62	97

L: Freshmen and Sophomores, U: Juniors and Seniors,  
 T: Total, D: Degree Students, S: Other



## Appendix 3.

## School of Physical Education

## STUDENT CREDIT HOURS BY DEPARTMENT

Fall Semester of		1969	1970	1971
General	U	6,628	7,194	7,329
	G	315	360	588
Men's Physical Education	U	804	805	863
	G	---	---	---
Women's Physical Education	U	651	621	503
	G	1	---	---
Recreation	U	539	450	306
	G	---	---	---
School of Physical Education Subtotal	U	8,622	9,070	9,001
	G	316	360	588

U: Undergraduate including Stockbridge

G: Graduate





FOR MAIL  
BY REGISTERED MAIL  
THE HOLLINGER CORPORATION  
ARLINGTON, VIRGINIA







To: Concerned and Appropriate Officials

Thru: Secretary, University of Massachusetts

Subject: Annual Report, Department of Public Health  
University of Massachusetts, Amherst, July 1,  
1971-June 30, 1972

Submitted is the Annual Report of the Department of  
Public Health for the period, July 1, 1971--June 30, 1972.

This report reflects a compilation of information and  
reports submitted by the faculty. In an effort to maintain  
brevity, many of the individual efforts and contributions  
were not included.

The faculty and staff will be pleased to provide any  
additional information which may be useful.



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William A. Darity  
Professor of Public Health and  
Head, Dept. of Public Health



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## I. ACTIVITIES AND MAJOR ACCOMPLISHMENTS

### A. General

During the period under review there was continuous support by faculty, staff, and students in contributing to the growth of the department. Reorganization of both courses and curricula were carried out. Course sequential numbers have been established for each area of concentration. Two new courses were approved during the year: P.H. 773 Air Sampling and Analysis and P.H. 778 Statistical Survival Theory in Health and Science. Course proposals which have been completed and have been submitted for consideration are: Research Methods in Community Health Education; Organization and Management of Hospitals and Health Care Institutions; Health Program Evaluation; Chronic Disease Epidemiology; Communicable Disease Epidemiology; and Social Epidemiology. Courses which are under preparation are. Health and Parasitism; Research Methods in Public Health; and Special Topics in Public Health.

The increasing interest in public health as a major field of study which was illustrated during 1970-71 continued at both the undergraduate and graduate level during the 1971-72 year. At the end of the academic year there were 180 undergraduate majors in the department. The full-time graduate student enrollment which was 33 in 1970-71 increased to 60 during the academic year 1971-72. There were 185 applications for graduate study for the incoming academic year which was more than twice the number for the previous year. Therefore, the academic background of graduate students who have been accepted



for the academic year 1972-73 continue to demonstrate an improvement in quality. Students who have confirmed enrollment at the graduate level for the Master of Science degree beginning in September 1972 are from such schools as: University of Wisconsin, Villanova University, University of Massachusetts, Rhode Island College, S.U.N.Y. Buffalo, Smith College, Texas Christian University, Lincoln University, University of Bridgeport, Brown University, Keene State College, Union College, Mt. Holyoke College, John Fisher College, Morgan State College, Northeastern University, University of Navarre (Spain), Carleton College, St. Padjadjarden University (Indonesia), S.U.N.Y. Stoneybrook, University of Rochester, University of Indonesia, Salem State College, Moscow Friendship University, City College of New York, and University of Puerto Rico. Those entering for the M.A.T. degree are from Florida State University, S.U.N.Y. Stoneybrook, Lowell State College, University of Massachusetts and Massachusetts College of Pharmacy.

A new Allied Health Special Improvement grant was approved and funded for the present year and recommended funding for 5 years. The funding for the present year for faculty support, equipment and supplies amounted to \$80,130. The funds are specified as follows: \$29,391 for medical Technology training; \$9,888 for dietician training; \$11,772 for health environmentalist training and \$29,079 for community health education training.





The total support recommended for the entire period \$220,425.

B. Undergraduate

The program of study at the undergraduate level continues to be a very popular area for students. This program of study has been broadened to permit concentration in either environmental health, community health, and health education, and medical technology. The concentration in community health and health education has been divided into three major options: community health educator, health teacher preparation, and health program generalist. There were 105 students enrolled in the environmental health and community health or health education sequences and 148 enrolled in the medical technology sequences.

The National Environmental Health Association awarded seniors majoring in Environmental Health (one of six national awards) \$500.00 to support a research project on mercury pollution. Under the Senior Honors Program, Ellen C. MacDonald successfully completed her project. Her report will be published in the Journal of Environmental Health and she will present her paper on July 5th at the "1972 Environmental Health Conference" in New York City. Her project was interdisciplinary involving a faculty member from the Fisheries Unit and two faculty members from the Department of Public Health. The title of her project was "Mercury Concentrations in the Tissues of Fish from the Connecticut River."



The medical technology program is continuing to grow. The contract for affiliation with the Berkshire Medical Center was completed. As in the previous year, a small sum of \$100.00 was made available through the Allied Health Grant to each affiliated hospital school of medical technology for the purchase of teaching materials. These materials will be on loan to these hospital schools as long as they maintain an affiliation with the University of Massachusetts.

Revised agreements of affiliation, in compliance with suggestions from the Board of Schools of Medical Technology, were drawn and signed, and are filed with the American Society of Clinical Pathologists and the American Medical Association Council on Medical Education. The cooperative lecture series has been continued, and was supplemented again this year by a series of seminars and workshops, including a two-day Instrumentation Seminar attended by 135 students from all areas of New England. Courses in planning stages at this time are in areas of clinical laboratory instrumentation and nuclear medical technology.

The coordinator traveled extensively throughout the year attending meetings of the AMA Council on Medical Education, the Association of Schools of Allied Health Professions, New England Symposium on Medical Technology Education and national and state meetings of the American Society for Medical Technology.



The major continuing need for strengthening all programs in the department are: (a) more faculty, (b) creative research on health related problems, (c) adequate administrative funding, and (d) financial support for graduate students.

C. Graduate Studies

There were 3 major provisions which must be met in order to receive full accreditation: (1) the addition of another faculty by September 1971 in community health education, (2) adequate space provided for graduate students, and (3) an improvement in library acquisitions, particularly state and federal documentation. The additional faculty member joined our faculty in September 1971. The latter two conditions are still to be completely met. A new visit by the accreditation team will be made in the fall of 1972.

Full accreditation is important, not only for establishing and maintaining professional standards but it will make possible the continuous application to HEW for traineeships to support students studying in this curriculum. The first support was made through an award from HEW of four traineeships in 1971-72, six were made for 1972-73 and six were recommended for 1973-74.

In addition to traineeships awarded by the U.S. Public Health Service for support of graduate students in community health education, environmental health, and health statistics, support has been provided for the first time for students in



health administration. Funds have been provided to support six in community health education, four in health statistics, three in health administration, and four in environmental health for a total of seventeen students. Two environmental health graduate students will continue to be supported by Air Pollution Grant funds. These funds are from a cooperative endeavor with the School of Engineering. This cooperation has continued as a constructive viable endeavor.

Four graduate students were enrolled in the Health Laboratory Science sequence during the past year and another three have been accepted for the coming year. Eighteen students were enrolled in the health administration program of study. More cooperative efforts are planned with other departments, so that the health administration program will be strengthened.

There were seventeen students enrolled in the community health education option. Of those enrolled, fifteen will continue, one completed studies in February, and one will complete studies in August, 1972.

Three students were enrolled in epidemiology sequences and two students in biostatistics, twelve were enrolled in the Environmental Health program, and two in the air pollution program of study.

D. Research

During the period under review, research in the Depart-





ment, included studies in: (a) Attitudes and Barriers to Family Planning; (b) Administrative Pathways to Health Action in the Community; and (c) evaluation studies in health delivery systems are also being carried out, (d) Study of Mercury Levels in some selected towns in Western Massachusetts, (e) Study on Formaldehyde Levels in Fabric Stores, (f) Study on Ambient Hydrocarbons and Carbon Monoxide Levels Around the University of Massachusetts Campus. "Administrative Pathways to Health Action in the Community" was completed in October 1971. One thousand copies were printed and distributed to the 351 Boards of Health in Massachusetts, to all state agencies providing assistance to local public health officials, and to State and Community College libraries.

This publication attracted wide interest as a University service to communities in Massachusetts. Original funding under Title I has been exhausted. Supplemental funding for preparation and printing of updated edition, though needed, cannot be supported under Title I. Funds from other sources are being explored.

Not enough emphasis is placed on research by faculty members. Nevertheless the department's data bank is continuing to develop in order to support student research.

In addition to faculty research, graduate students carried out research in some of the following areas as a requirement for the Master of Science degree: The Male in Family Planning Process: An Inquiry; Study of Infant Mor-



tality Rates: As Assessment of the Influence of Radiation Exposure In-Utero; Fabric and Formaldehyde Levels; Hydro-Carbons and Carbon-Monoxide Levels; A Study of the Organization and Administration of Health Services in an Out Patient Hospital Department; Factors Contributing to the Microbial Contamination of Cold-Water Humidifiers; A Sex Knowledge and Opinion Study; An Assessment of Health Education Accompanying or Following a Mantoux Testing Program in a School and Industrial Setting; The Influence of Various Environmental Factors on the Heat Resistance of Escherichia Coli; and The Study of Health Needs of Aged in Waltham, Massachusetts.

E. Continuing Education and Special Activities

The Department is developing a training course in Principles of Health Agency Administration in cooperation with the Communicable Disease Center, U.S. Public Health Service, Atlanta, Georgia. Two courses will be offered in January 1973 to local health administrators, co-sponsored by the Department of Public Health and the Public Health Service.

The Department has agreed to assist in a cooperative agreement with Continuing Education and the Public Health Service to offer home study courses on a three-year trial basis. Specific courses thus available are Community Hygiene, Communicable Disease Control, Vector borne Disease Control, Water Borne Disease Control, Food Borne Disease Control, and Community Health Analysis.



The Department co-sponsored "Infection Control in Hospitals and Institutions" offered September 16-17, 1971 with The Leo F. Rettiger Society (Connecticut Valley Branch of the American Society for Microbiology). This was an outstanding conference from an interdisciplinary viewpoint including: hospital nurse, epidemiologists, laboratory directors, pathologists, executive housekeepers, and public health officials involved in problems of communicable disease control, legal aspects, surveillance, and environmental services.

A course was also offered by a faculty member in Human Sexuality and Sex Education during the second semester. A course will be offered in Health Administration during the fall by a faculty member.

A very important planning conference took place on May 5, 1972 with representatives from continuing education departments of community colleges. The result of this conference was the recognition for the need of coordinated counseling to students entering the higher education systems. Some students have immediate occupational goals and ultimate academic goals. These long-term plans were conceptualized under the Upward Mobility Education Program.

The Department support to Continuing Education has been through membership of a faculty member on the Faculty Senate Committee on Continuing Education. The same faculty member is also Departmental Coordinator of Continuing Education.



## II. NEEDS, ASSOCIATED RELATIONS AND PROJECTIONS

### A. Needs

The ever increasing need for professional public health personnel at all levels has been exhibited by the job opportunities for both undergraduate and graduate students. Leadership and directorship personnel has become critical because of the changing approach in the delivery of health services. The requests for personnel cannot be met by the Department. All personnel who have graduated from the Department of Public Health in the last five years who desired employment have been successful in securing appointments. The pressing need for qualified specialists at the graduate level continues at both the Masters and Doctorate levels. There has been an increasing demand for bachelor level graduates in the last year. Since the purpose and objectives of the Department of Public Health is to prepare personnel to serve in the public sector of health services at all levels, appropriate field training and suitable and applied research projects are necessary. Faculty with experience to provide such direction must be recruited.

Faculty. In order to meet objectives the department has established, additional faculty and supportive staff is critically needed. The incoming faculty members in September 1972 will provide considerable strength but in order for the public health program to be considered for accreditation as a School by the APHA, additional faculty are needed in Com-





munity Health Education, Health Administration, Environmental Health (Air Pollution), Epidemiology, Biostatistics, and Health Laboratory Science. It is recommended that one additional faculty member be employed in Biostatistics and one in Environmental Health during 1973-74.

The need in medical technology is the immediate recruitment of a Clinical Education Coordinator. A coordinator of clinical facilities and programs would allow much needed attention to be given to this facet of the program. With three hospital programs functioning next year, as well as the cooperative lecture series, it will be impossible for one faculty member to cover both pre-clinical and clinical aspects.

Maximum class sizes must be established, in accord with available spaces for the clinical year; priorities for admission to Option I must be delineated.

A model for interim session clinical experience is being developed in cooperation with our affiliated hospitals. Priorities for admission to this program must likewise be determined. The securing of a grant from NIH will permit this position to be filled right away.

Space. The pressing need for space in the department has been alleviated in a very small way. However, the present space arrangement still does not provide for good administration. Teaching faculty are presently located in Draper Hall and the Public Health Building. However, with incoming faculty all space will have been used to the limit.



There will be some space for graduate assistants, and graduate students which is better than it was in September 1972.

The planning office has been most cooperative and carried out a very extensive study of the Department's needs. It is felt that through their analysis arrangements are being made for better and a more economically administrative arrangement.

B. Financing and Budgeting

The operational budget of the Department for the year under review was \$41,190. The administrative and instructional budget was supplemented by trust funds in the amount of As indicated in the previous year in order for the Department to function effectively, a two year budgetary allowance for sufficient equipment, supplies, teaching support, travel, and rentals is necessary. After this, replacements only will be necessary. In order to attract first rate faculty, it is necessary to be able to commit some funds for administration, and research supplies, and equipment. The Departmental Head needs adequate funds for this purpose.

In order to meet the needs of the Department, an operational budget of at least 6 to 7 times the present budget is required.



### C. Clarification of Goals and Objectives

The faculty of the Department of Public Health has continued its discussions during the year with regard to the future of the Department. The goal which is to broaden the base of the Department and develop a School of Public Health and Health Science as an integral part of the University has been strengthened and has been reconfirmed. A conference was held in this connection. In addition to the public health sequences, which are air pollution, community health education, environmental health, epidemiology, health administration, health laboratory science and health statistics and biostatistics, administered in the Department, mechanisms must be developed which will permit more cooperative efforts in developing Public Health Nutrition jointly with the Nutrition and Foods Department of the School of Home Economics and working with the School of Nursing in the Community Health Nursing program. In both cases this cooperation can be similar to the Master of Arts in Teaching in Health which has been organized with the School of Education. Cooperation in Air Pollution Training continues with the School of Engineering.

### D. Staff

Staff support is necessary as faculty is added. In public Health, because of many laboratory courses, it is necessary to provide both administrative and technical support. With the addition of a technical assistant during



the last fiscal year, the program has functioned much better than previously. Two clerical administrative staff members are necessary almost immediately.

E. Faculty Status

Dr. Donald R. Read, Assistant Professor, resigned during the period under review. He will be replaced by Dr. Lillie R. Lynch, Associate Professor of Public Health on September 1, 1972. Other faculty members who have been recruited and will join the faculty on September 1, 1972 are: Dr. Joyce Goggin, Assistant Professor; Dr. Jesse Ortiz, Associate Professor and Dr. Paula Stamps, Assistant Professor.

F. Projections

Several Departmental faculty have joined with related faculty in offering their services to the town of Amherst as members of the Technical Advisory Committee to the Selectmen for evaluation of a proposed sewage treatment plant. Another committee is the Health Planning Committee which is chaired by a member of the faculty of the Department of Public Health.

It is expected that such service will provide meaningful education opportunities for a variety of undergraduates and graduate students as volunteers under supervision, as professional aides, as health service internes, and as research assistants.





### III. OTHER

#### A. Grants

Grants in the amount of \$52,717 from NIH were made to the Department for educational improvement and student support.

A second year research grant in the amount of \$70,000 by NIH was made to the Department for family planning research.

Proposals for further research, student support and educational improvement have been made to NIH and other federal agencies.

A grant of \$7,200 was made available through the Massachusetts Board of Higher Education, Title I, for the project, "Administrative Pathways to Public Health Action in the Community." This project was completed in December 1971.



## IV. STUDENT ENROLLMENT

	<u>1969-70</u>	<u>1970-71</u>	<u>1971-72</u>
<b>a. Majors</b>			
1. Med. Tech.	110	88	148
2. Pub. Hlth.	36	62	105
3. Pub. Hlth. (Graduate)	21	38	60
TOTAL	<u>167</u>	<u>188</u>	<u>313</u>
<b>b. Students taught:</b>			
1. Univ. of Mass.			
1st semester	562	533	623
2nd semester	453	573	633
2. Stockbridge	93	88	85
TOTAL	<u>1113</u>	<u>1199</u>	<u>1348</u>



## V. APPROPRIATION

ACCOUNT	<u>1969-70</u> (Appropriations)	<u>1970-71</u> (Appropriations)	<u>1971-72</u> (Appropriations)
03	\$ 5700.00	\$ 6200.00	\$ 28,340.00
06	--	--	--
10	650.00	650.00	700.00
12	431.75	484.00	500.00
13	5550.00	6000.00	6400.00
14	400.00	400.00	50.00
14.1	1200.00	1000.00	2400.00
14.3	--	1200.00	800.00
15	<u>900.00</u>	<u>1000.00</u>	<u>2000.00</u>
TOTAL	\$14931.75	\$16934.00	\$ 41,190.00



## VI. PERSONNEL

18

	<u>1969-70</u>	<u>1970-71</u>	<u>1971-72</u>
Professor, Dept. Head	1	1	1**
Commonwealth Prof. (Part-time)	1	1	1
Professor (Part-time) (Acting Vice Chancellor for Student Affairs)	1	1	1
Associate Professor	-	2**	3**
Assistant Professor	3	4**	5**
Instructor	1	2**	1**
Lecturer (Part-time)	-	2	2
Adjunct Professor	1	1	1
Junior Clerk	1	1	1
Senior Clerk	1*	1*	-
Principal Clerk	-	-	1*
Senior Clerk Stenographer	1	1	1
Technical Assistant	1	2	2

---

\* Paid from HEW Allied Health Funds

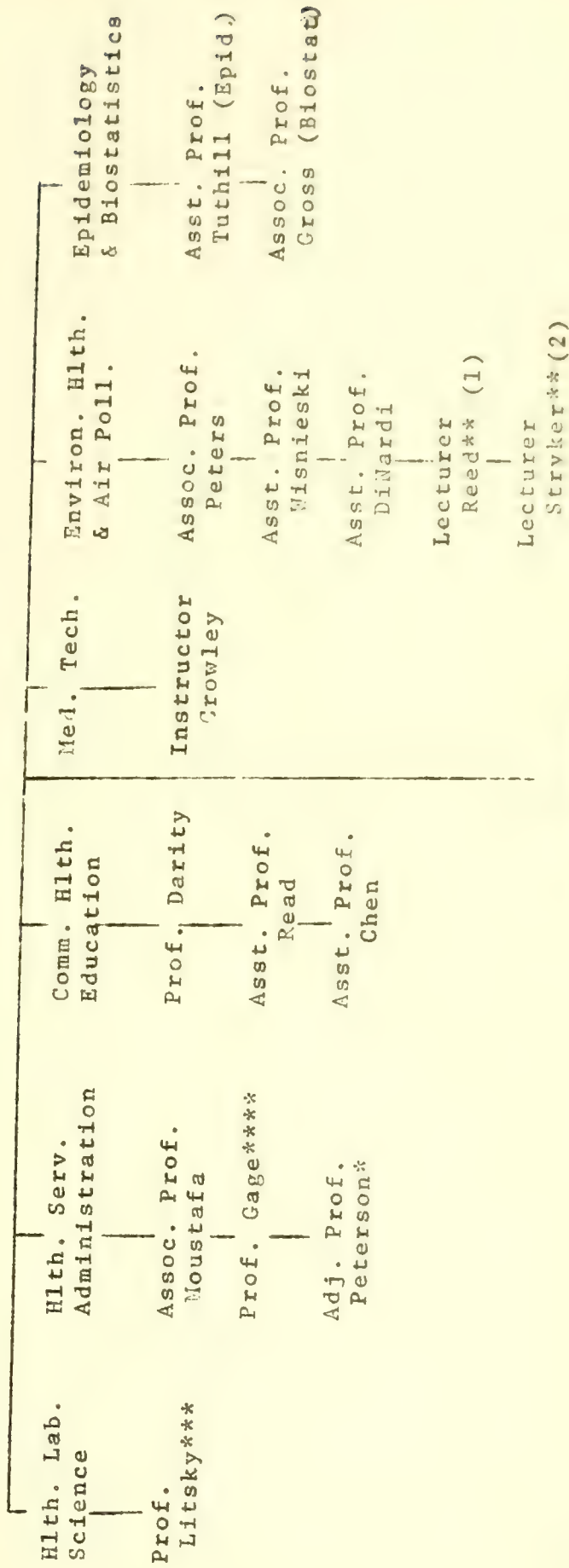
\*\* Full-time Faculty





VII. ACADEMIC PROGRAM AREAS

Dean - None  
 Head - Dr. Darity



Jr. Clerk - 1  
 Prin. Clerk - AH grant 1  
 Senior Clerk Steno. 1

\* Director, Western Regional Office, Massachusetts Department of Public Health. Serves as Adjunct Professor.

\*\* Staff Assistant, Environmental Health and Safety. Serves as Lecturer in Dept. - (1) teaches a section of P.H. 378/678; (2) teaches P.H. 337/637

\*\*\* Commonwealth Professor of Environmental Sciences. Taught P.H. 379/679 and P.H. 300/600. Directed graduate research.

\*\*\*\* Acting Vice Chancellor for Student Affairs.



VIII. FACULTY ACTIVITIES

APPENDIX



CHEN, TYZZ-LANG, Ph.D., M.P.H., Assistant Professor

Professional Organizations

American Public Health Association  
American School Health Association  
Chinese School Health Association  
Society for Public Health Education  
New England Health Education Association

Professional Meetings Attended

New England Health Education Association  
Massachusetts Public Health Association  
New England Smoking and Health Conference  
Regional Hearing on the President's Committee on Health  
Education

University Activities

Served on the University Drug Task Force

Community Activities

Consultation with Tri-State Regional Medical Program to  
study health needs of citizens in Adams, Massachusetts.  
Serve as a resource person to Amherst Health Planning Committee  
Invited to attend the Chinese Health Task Force Meetings at  
Boston Chinatown  
Invited to attend the Health Curriculum Planning Committee  
Meetings at Crocker Farm Elementary School, Amherst.

Departmental Activities

Courses taught: P.H. 301/601, 47 students  
P.H. 304/604, 125 students  
P.H. 702, 4 students  
P.H. 385/700, 8 students

Counseling: 6 graduate students; 18 undergraduate students  
Supervised students' practice teaching  
Supervised students' field training

Publications

- A Critical Review on Smoking Cessation Methods (Submitted to  
Health Education Journal for publication)
- A Smoking Cessation Method Adaptable to Various Health  
Settings (in preparation for publication)
- A Study of Health Needs of Citizens in Adams, Massachusetts  
(in preparation for publication)



CROWLEY, JUDITH A., M.S., Instructor

Professional Activities

Pioneer Valley Medical Technologists Association - Vice President

Mass. Association of Medical Technologists

Chairman, Nominations Committee

Member - State Council

Member - Legislation Committee

New England Symposium for Medical Technology Education

Recording secretary

Panel member - 11/70 - "University-Hospital Affiliation Agreements"

American Society for Medical Technology

Scientific Assembly - Technologists in Education

Education and Research Fund, Inc.

Board of Directors

Education Advisory Committee

Consultant in Allergic Mycology - R.J. Moriarty, M.D.,

Springfield, Massachusetts

Association of Schools of Allied Health Professions

Council on Baccalaureate and Higher Degree Programs

Department of Public Health - representative on Council of

Undergraduate Academic Deans

Chairman, Committee on Pass-Fail Option Policy

Member, Guidelines for Successful Advising of Undergraduates  
Committee

Ed.D. Candidate - University of Massachusetts

meetings and Conferences Attended

ASMT Annual Meeting - Minneapolis, Minnesota-6/9-17/72 (delegate)

AMA Council on Medical Education, Chicago, Illinois - 2/3-6/72

ASAHP - Atlanta, Georgia - 11/4-7/72

MAIT Semi-Annual Meeting, Worcester, Massachusetts - 11/20/71

NESMTE - 11/10/71 - North Andover, Massachusetts

5/5/72 - Springvale, Maine

Workshop faculty: Education Techniques for Medical Technology  
Educators, Amherst, Massachusetts - 3/27-28/72





DARITY, WILLIAM A., Ph.D., Professor of Public Health

## PROFESSIONAL ACTIVITIES

### Professional Organizations

#### National:

Ad Hoc Committee on Issues of Population and Ecology,  
National Urban League

Executive Committee and Board of Directors, Planned  
Parenthood Federation of America, Chairman, Personnel  
Committee 1971-present

Population Task Force, American Public Health Association

Board of Directors, National Drug Abuse Council

#### Meetings Attended:

American Public Health Association, Minneapolis,  
Minnesota, November, 1971

Society for Public Health Education, Inc., Minneapolis,  
Minnesota, November, 1971

American Association, Planned Parenthood Physicians,  
Detroit, Michigan, April, 1972

#### State:

Contract and Qualification Committee and Board of  
Directors, Massachusetts Tuberculosis and Respiratory  
Disease Association

#### Local:

President and Board of Directors, Hampshire County  
Public Health Association

Board of Directors, Hampshire County Community  
Action Commission, Connecticut Valley Health Planning  
Council

#### Within University

Chairman, Committee for Selection of Dean of the School  
of Nursing

Member, Committee for Collegiate Education of Black  
Students (CCEBS)



Darity, William A., continued

Board of Directors, Faculty Club

Member, Dean's Council Ad Hoc Committee for Study of  
Organization and Administration of Graduate Studies

Member, Committee for Evaluation of Research Involving  
Human Subjects

Taught courses: P.H. 312/612 - Public Health and  
and Family Planning

P.H. 302/602 - Community Development and  
Health Education

Also served on one dissertation committee and a number  
of masters thesis committees. Directed 3 masters  
students' research.

#### Public Service

Public Health Review Committee, P.H.S. - H.E.W.: Reviewed  
grant proposals in Washington three times during year.  
Made site visit to Review Proposals at University of  
Missouri Medical School.

Advisory Committee on Public and Environmental Health  
Technology, Massachusetts Board of Community Colleges

#### Speaker or Program Participant

American Psychological Association, September, 1971

American Association of Planned Parenthood Programs,  
Detroit, Michigan, April, 1972

Conducted seminars on Family Planning at the following:  
University of North Carolina; University of Michigan;  
Emory University Medical School, Yale University

#### Research

Study on Race Consciousness and Attitudes Toward Family  
Planning (grant NICHD); Principal Investigator, \$70,000  
for second year of two year study.

#### Publications

An Exploratory Study on Barriers to Family Planning:  
Race Consciousness and Fears of Black Genocide as the  
Basis. Advances in Planned Parenthood, Vol. VII, 1972.  
(with Castellano Turner and H.J. Thieboux)



Darity, William A., continued

Attitudes Toward Family Planning and Fears of Genocide  
as Function of Race Consciousness. Research in Education  
(abstract) November, 1971, No. 11, p. 14. (with C.  
Turner)

Attitudes Toward Family Planning and Fears of Genocide  
as Function of Race Consciousness. Catalogs of Selected  
Documents in Psychology, Vol. 1, Fall, 1971, p. 12.  
(with C. Turner)

Honors:

Who's Who in the East, 13th Edition, 1972-73.

Who's Who in America, 37th Edition, 1972-73.

Elected a Danforth Associate.



DINARDI, SALVATORE R., Ph.D., Assistant Professor

Professional Activities Outside University

Three day site visit to Environmental Protection Agency's research facility at Research Triangle Park, Raleigh, North Carolina, June 14-16, 1971.

Professional Activities Within the University

Summer of 1971 was devoted to establishing an air sampling and analysis and weather station on Marston Hall for use in the joint air pollution training program between Public Health and the School of Engineering.

Chairman of Core Curriculum Review Committee

Co-chairman of the Committee to Establish Guidelines for Advising of Undergraduate Students

Member of the Academic Review Committee

Consultant to the Curriculum Review Committee of the Environmental Engineering Division of the Civil Engineering Department

Conducted lecture and discussion on "The Present Status of Air Monitoring", C. Shultz, Southwest residential College course on the problems in our environment.

Program Co-chairman (Chairman, F.A. DiGiano, Environmental Engineering) for the fourth annual short course in Environmental Quality Control. (Continuing Education 72-54) - Monitoring and Analysis Techniques.

Courses Taught

Fall, 1971, Public Health 385B/700, The Environment and Public Health (two sections)

Spring, 1971, Public Health 773/Civil Engineering 773, Air Sampling and Analysis (with F.A.DiGiano)

Major Advisor to Student Research Projects

Stewart Farber, M.S.

Melvin Eddleston, M.S.

Edward Molloy, M.S.

Louis Legendre, M.S.

Ellen MacDonald (Senior Honors)





DINARDI, SALVATORE R., continued

University of Massachusetts Faculty Research Grants

"Ambient Levels of Organic and Inorganic Mercury in the Pioneer Valley and Its Environmental Health Effects", January 1, 1972 - December 31, 1972.

"Chemical Irritants in Fabric Shop Atmospheres and Their Occupational Health Effects", November 1, 1971 - October 31, 1972.

Papers Presented

"Exchange of Ethanol in Octahedral and Tetrahedral Cobalt (II) Complexes" presented at American Chemical Society Meeting in April 1972.



GAGE, ROBERT W., M.D., Professor of Public Health

Professional Activities - Outside University

American College Health Association - Chairman, Committee  
on Junior/Community Colleges 1971-72

- Representative to American Cancer Society Committee  
on Schools and Colleges
- Speaker - Annual Meeting, New York State College Health  
Association

Massachusetts Chapter Massachusetts Association Family  
Practice - 2nd V.P. 1971-72

Massachusetts Easter Seal Society - Member, Professional  
Advisory Committee

Professional Activities - Within University

Member, Faculty Senate

Personnel Committee - Department of Public Health

President's Working Group on Counseling, Advising, and Support  
Services

Community Service

Amherst Citizen Review Committee - Chairman

Publications

Editor: The Development of Health Programs for Junior and  
Community Colleges, ACHA 1971



GROSS, ALAN J., Ph.D., Associate Professor of Public Health  
(Biostatistics) First year

Professional Organizations

American Public Health Association  
American Statistical Association  
Institute of Electronic and Electrical Engineers (Associate  
Membership)  
Institute of Mathematical Statistics

Professional Activities (Outside University)

Attended Annual Meeting of the American Statistical Association  
in Fort Collins, Colorado, August, 1971. Presented the Paper  
(Jointly with Professor Virginia A. Clark of UCLA) "Estimation  
of Survival Parameters When One of Two Organs Must Function  
for Survival Part II: Censored Data."

Attended and Participated in "The First International Conference  
on Combinatorial Analysis". Held in Fort Collins, Colorado,  
September, 1971.

Former Consultant to the Veterans Administration Western  
Regional Support Center

University Activities

Member, Admissions Committee, Department of Public Health

Chairman, Review Committee, Review of First Year Graduate  
Students, Department of Public Health

Preparation of Prospectus for Biostatistics Graduate Program  
of Study

Revision of Prospectus for Health Statistics Graduate Program  
of Study

Preparation of Grant Renewal to Support four Graduate Students  
in Health Statistics

Design of New Public Health Course - P.H. 778 "Survival  
Theory in Health and Science"

Assisted Two Graduate Students with Statistics on Their  
Masters Theses. (Paul Schwartz, Miriam Britt)



GROSS, ALAN J., Ph.D., Associate Professor of Public Health  
(Biostatistics) First year

Professional Organizations

American Public Health Association  
American Statistical Association  
Institute of Electronic and Electrical Engineers (Associate  
Membership)  
Institute of Mathematical Statistics

Professional Activities (Outside University)

Attended Annual Meeting of the American Statistical Association  
in Fort Collins, Colorado, August, 1971. Presented the Paper  
(Jointly with Professor Virginia A. Clark of UCLA) "Estimation  
of Survival Parameters When One of Two Organs Must Function  
for Survival Part II: Censored Data."

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on Combinatorial Analysis". Held in Fort Collins, Colorado,  
September, 1971.

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Regional Support Center

University Activities

Member, Admissions Committee, Department of Public Health

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Students, Department of Public Health

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of Study

Revision of Prospectus for Health Statistics Graduate Program  
of Study

Preparation of Grant Renewal to Support four Graduate Students  
in Health Statistics

Design of New Public Health Course - P.H. 778 "Survival  
Theory in Health and Science"

Assisted Two Graduate Students with Statistics on Their  
Masters Theses. (Paul Schwartz, Miriam Britt)

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The following information is provided for your reference. This document contains details regarding the activities of the organization in the area of community development. The information is intended to be used for informational purposes only and should not be disseminated outside the organization without the express written consent of the Board of Directors.

The organization has been active in the area of community development for several years. Our primary focus is on providing financial assistance to individuals and families in need. We have established a number of programs to help our members meet their basic needs, including food banks, clothing drives, and job training programs. We are currently seeking additional funding to expand our services and reach more people in need. Your support is greatly appreciated and will help us continue our mission of serving the community.



Special Recognition and Accomplishments of Student Majors

James P. McLaughlin, a junior majoring in Public Health, presented a paper, "The Rapid Enumeration of Group D Streptococci from Water Sewage Employing PSE Agar with the Membrane Filter" at the annual meeting of the American Society for Microbiology, Philadelphia, Pennsylvania, April, 1972.

Mrs. Barbara Lewis, a graduate student in the Department of Public Health, presented a paper, "A Comparison of Three Media for the Rapid Group Identification of Group D Streptococci" at the above meeting.

Miss Ann T. Rogers, a graduate student, who received a M.A.T. degree, September 1971, received a second place award from the Massachusetts Association of Medical Technologists for her research paper entitled "hemophilus Species in Throat Cultures of College Students". This work was performed as an independent study project.

Sigma Xi: Christopher Libbey and Nancy Miller

Research projects

Chief Investigator, Environmental Protection Agency,  
"Fluorescent Antibody for Determination of Fecal Streptococci Source"

Chief Investigator, Glycerine Producers Assn. Fund, "Determine the Bactericidal and bacteriostatic activity of a chemical against selective microorganisms"

Chief Investigator, Kimberly Clark Company (Litsky),  
"Bacterial Shedding"

Chief Investigator, William S. Merrell Company, "Bacteriologic Evaluation of Cepacol"

Chief Investigator, 3M Company, "Heat Resistance of Various Bacterial Cultures"

Chief Investigator, New England Research Inc., "Microbiological Aspects of Water Quality of Selected Riverine and Reservoir Waters in Massachusetts"



Litsky, Warren (cont.)

Faculty Publications

Pavlova, M.T., W. Litsky and F. J. Francis. 1971. A comparative study of starch hydrolysis by fecal streptococci employing plate and tube techniques. Health Lab. Sci., 8:67-74.

Drollette, D., B. Y. Litsky and Warren Litsky, 1971. Pseudomonas profile of an ICU, J. Am. Hospital Assn. 45(16):91-96.

Green, J. H., I. George and Warren Litsky, 1971. Glycolytic pathway determination by Interval radiorespirometric technique for vegetative cells of clostridium botulinum and other Clostridia species, SIM Newsletter, 21:11. (Abstr.).

Pavlova, M. T., E. Beauvais, F. T. Brezenski and Warren Litsky. 1972. Fluorescent-antibody techniques for the identification of Group D streptococci: direct staining method, Appl. Microbiol., 23:571-577.

Lewis, B. L. and Warren Litsky. 1972. A comparison of three media for the rapid group identification of Group D streptococci. Abstrs. Annual Meeting ASM. Philadelphia, Pa.

McLaughlin, J. P., P. A. Garant and Warren Litsky, 1972. Rapid enumeration of Group D streptococci from water and sewage employing PSE agar with the membrane filter. Abstrs. Annual Meeting ASM, Philadelphia, Pa.

Pavlova, M. T., E. Beauvais, F. T. Brezenski and Warren Litsky. 1972. Fluorescent antibody techniques for rapid identification of fecal streptococci from water. Abstrs. Annual Meeting ASM, Philadelphia, Pa.

Extension

Kreplick, Litsky and Gunner. 1971. Engineering for the Environment. The proceedings of a conference cosponsored by the Technical Guidance Center, the Massachusetts Society of Professional Engineers, and the Massachusetts Audubon Society.

Litsky, Gunner and Kreplick, 1970. Second printing of the proceedings of a conference sponsored by the Technical Guidance Center.



Litsky, Warren (cont.)

Miscellaneous

Litsky, Warren and L. J. Thelen. 1971. A preliminary report on the "summer institute for study of water pollution control" in Environmental Quality: Now or Never. C. L. San Clemente, Editor, Continuing Education Service, Michigan State University, East Lansing. pp. 129-139.

Warren Litsky. 1971. Have microbiologists really progressed? An editorial, J. Envir. Health 34:265.

Offices and Committee Memberships

1970-1972 President - Connecticut Valley Branch of American Society for Microbiology

1972-1973 Member of the Governing Council, American Society for Microbiology

1971-1974 Member of the Council, Laboratory Section, American Public Health Association

1972-1974 Chairman, Committee on Education, Society for industrial Microbiology

Member of Hospital Environmental Committee of the American Association for Contamination Control

Member of the Sub-committee on Standard Methods for the Analysis of Water and Waste Water, 14th Ed.

Member of the Publication Committee, Food Protection Committee and the Committee on Microbial Contamination of Surfaces, American Public Health Association

Member of Editorial Boards of: The Journal of Environmental Health, The Journal of Applied Microbiology, Journal of Health Laboratory Sciences



Litsky, Warren (cont.)

Special Recognition, Awards, Citations, Honors Awarded

Invited to give a paper at the 6th International Conference on Water Pollution Research, Jerusalem, Israel June 18-23, 1972. Dr. Pavlova, a co-author, will present the paper.

Invited to present an educational exhibit on skin degerming at the American Medical Association Meeting in San Francisco, California, June 18-23, 1972.

Invited as a consultant to the 7th National Shellfish Sanitation Workshop, Food and Drug Administration, Washington, D.C. October, 1971.

Appointed to Editorial Advisory Board of the Nation's Health.

Appointed Member of the Technical Advisory Committee, Sewage Treatment Plant and Related Facilities, Town of Amherst.

Appointed to the Environmental Advisory Committee of the Lower Pioneer Valley Regional Planning Commission.

Appointed to Research Grant Study Section, U.S. Environmental Protection Agency, Washington, D.C.

Appointed Special Consultant to Bureau of Hospital Facilities, Department of HEW, Washington, D.C.

Coordinated and moderated a Conference on Dishwashing Standards, Washington, D.C.

Presented a lecture on "Principles and Problems in Germicide Testing" for short course on Current Practices in Water Microbiology". EPA, Edison, New Jersey, December, 1971.

Presented lecture on "The Biochemical Methods for identifying Enterococci" for short course on the "Characterization of Fecal Streptococci", EPA, Edison, New Jersey, May 15, 1972.

Invited to Present paper on Bacteriologic Studies of Surgical Hand Scrubbing Procedures at the 3rd Symposium on Control of Surgical Infections, American College of Surgeons, January 10, 11, 1972, Washington D.C.

Invited to present paper on Solid Waste Disposal, Florida Academy of Sciences, Winter Park, Florida, April 8, 1972.

Selected University Activities

Member of the Search Committee for Chancellor.

Member of President Wood's Academic Advisory Council.





Litsky, Warren (cont.)

Selected University Activities (cont.)

Member of the Advisory Council for the Institute for Man  
and His Environment.

Member of the Advisory Council of the Water Resources  
Research Center.

Cooperative Programs with other colleges and schools within  
and without the University

One student in Marine Science Program

One student in M.A.T. Program - School of Education

Advising 7 M.A. students in the Department of Public Health

Teaching P.H. 379-679 and 380-680.

Assisting Environmental Protection Group at Hampshire  
College.



Litsky, Warren (cont.)

Selected University Activities (cont.)

Member of the Advisory Council for the Institute for Man  
and His Environment.

Member of the Advisory Council of the Water Resources  
Research Center.

Cooperative Programs with other colleges and schools within  
and without the University

One student in Marine Science Program

One student in M.A.T. Program - School of Education

Advising 7 M.A. students in the Department of Public Health

Teaching P.H. 379-679 and 380-680.

Assisting Environmental Protection Group at Hampshire  
College.



MOUSTAFA, A. TAHER, M.D., M.P.H., DR. P.H., Associate Professor

Professional Activities (Outside University)

Membership:

American Hospital Association  
Health Application Section, Operation Research Society of  
America  
American Academy of Political and Social Science  
American Academy of Health Administration  
Egyptian Medical Syndicate  
Egyptian Public Health Association  
Sigma Xi  
Elected Fellow of the American Public Health Association  
Chairman: Advisory Council, Western Massachusetts Health  
Planning Council

Professional Meetings Attended

Institute In Review and Comment Criteria - Boston College  
Graduate School of Social Work, Jan. 28. 1972.

Medical Care Section, Massachusetts Public Health Association-  
Institute on the "Certificate of Need" Legislation in Massa-  
chusetts, February 24, 1972.

University Activities

Chairman, Department Long-Range Planning Committee

Chancellor's Committee on the Reorganization of University  
Health Services

Courses Taught

Public Health 383, Introduction to Public Health Practice  
Public Health 683, Introduction to Health Administration  
Public Health 384/684, Organization and Management of  
Community Health Services  
Public Health 783, Medical Care Organization  
Public Health 700-6, Seminar in Comprehensive Health Planning  
Public Health 700 Special Problems, Faculty Supervisor

Continuing Education

Coordinator: Workshop on "Medical Records in Nursing Homes"  
April 13-14, 1972.

Faculty Committee "Sumposium on New Towns", February 24, 25,  
1972.



Moustafa, A. Taher, continued

Publications and Papers Presented

"Controlling the Cost of Health Care Through Regulation of New Hospital Construction", presented at the Institute In Review and Comment, Boston College Graduate School of Social Work, January 28, 1972.

"Medical Records and Quality of Medical Care in Nursing Homes" presented at the workshop on "Medical Records in Nursing Homes", University of Massachusetts, February 24, 1972.

"A Basic Model for Health Maintenance Organization", in press to appear in Medical Care, November - December, 1972.





PETERS, HOWARD A., Ph.D., Associate Professor

Professional Activities (Outside University)

Member, Environmental Control Committee, Massachusetts  
Public Health Association

Member, Population Committee, National Environmental Health  
Association

Member, Executive Committee, Air Conservation Council of the  
Hampden-Berkshire TB-RD Association

Member, Massachusetts TB-RD Association Committee for the  
review of Massachusetts air pollution standards

Member, Executive Council, New England Chapter, Health  
Physics Society

Consultant, "Comprehensive Planning Review System for Power  
Systems", a research project for the U.S. Department  
of Housing and Urban Development, with Curran Associates,  
Inc.

Banquet Speaker for Hospital Infections Conference, Campus  
Center, September 16, 1971

Guest lecturer, Harvard University, School of Public Health,  
October 3, and November 8-9, 1971

Participated in high school careers fair, Fitchburg, November 1,  
1971

Attended Annual Meeting of the American Industrial Hygiene  
Association, San Francisco, May, 1972

Attended Annual Meeting of the National Air Pollution  
Control Association, Miami Beach, June, 1972

Professional Activities within University

Member, Graduate Council

Member, 1 Ph.D. Committee in Mechanical Engineering, 1 Ph.D.  
Committee in Civil Engineering

Directed three Master's Theses, served as member of four  
additional Master's Thesis committees. Directed three  
Master's special problems



Peters, Howard A., continued

Project Director, Environmental Health Training Grant, NIH

Co-Director, Air Pollution Training Grant, NAPCA (with Engineering)

Departmental Committees: Graduate Admissions, Core Curriculum, and Long Range Planning

Guest Lectures in School of Nursing and Department of Environmental Sciences Courses

Secretary-Treasurer, Phi Tau Sigma Honor Society

Public Relations Officer, Phi Kappa Phi Honor Society

Chairman, Faculty Foreign Travel Grants Committee,  
Sigma Xi Honor Society

Courses Taught

Public Health 331/631 Introduction to Occupational Health

Public Health 332/632 Introduction to Air Pollution

Public Health 361/661 Principles of Environmental Health

Public Health 362/662 Environmental Health Practices

Contributed to Public Health 386/700 The Environment



PETERSON, JEROME S., M.D., M.P.H., Adjunct Professor

Member of Board of Directors of Planned Parenthood League  
of Massachusetts

Member of Board of Directors of Easter Seal and a member of  
the Program Planning Committee

Served as consultant to United States Agency for International  
Development for evaluation of small pox-measles pro-  
gram in certain African countries.

Consultant in Public Health and Preventive Medicine, Cooley  
Dickinson Hospital, Northampton, and Franklin County  
Public Hospital, Greenfield

Chairman, Western Massachusetts Advisory Committee, Regional  
Medical Program

Member, Massachusetts Advisory Committee, Regional Medical  
Program

Member, Tri State Advisory Group, Regional Medical Program

Recipient, Lemuel Shattuck Award, Massachusetts Public Health  
Association

Designated as liaison between Massachusetts Public Health  
Association and Massachusetts Conference on Social  
Welfare serving on Executive Committee of Massachusetts  
Public Health Association and attending Directors meeting  
of Massachusetts Conference on Social Welfare.



REED, GEORGE H., JR., M.P.H., Lecturer

Professional Activities (outside University)

Attended 50th Annual Meeting of American College Health Association, Atlanta, Georgia, April 4-7, 1972.

Attended New England Public Health Association Meeting, Chicopee, May 24, 1972.

Attended New England College Health Association Meeting, Amherst, December 4, 1971.

Presented paper, "Animals in University Buildings?", American College Health Association, Environmental Health and Safety Section, April 5, 1972.

Chairman, Standards Committee, Environmental Health and Safety Section, American College Health Association.

Professional Organizations

Member, American College Health Association

Member, American Public Health Association

Member, National Environmental Health Association

Member, Massachusetts Environmental Health Association

Member, New England Public Health Association

Member, Campus Safety Association, National Safety Council

Professional Activities within University (Outside Department of Public Health)

Staff Assistant, Environmental Health and Safety, University Health Services

Attended Venereal Disease Seminar, Campus Center, December 18, 1971 1

Gave lecture and had informal discussion on Venereal Disease at Lewis House, Spring, 1972.

Community Activities

Invited to give lecture on "Venereal Disease Epidemiology" by Greenfield Community Service Forum, March 27, 1972.

Chairman, Education Committee, and Board Member, Hampshire Association for Mental Health





Reed, George H., Jr. continued

Courses Taught

Fall - Public Health 378/678, Epidemiology  
Guest Lecturer in P.H. 385, The Environment and Public  
Health

Spring - Guest lecturer in P.H. 385, The Environment and  
Public Health



STRYKER, JAY W., M.S., Lecturer (Health Physicist)

PROFESSIONAL ACTIVITIES

Professional Organizations (outside the University)

Massachusetts Department of Public Health, Nuclear Incident  
Advisor, consultant

New England Coalition on Nuclear Pollution, Inc., consultant

Health Physics Society, New England and National, member

Society of Nuclear Medicine, member

American Nuclear Society, member

American Public Health Association, member

American Association for the advancement of Science, member

Sigma Xi (Honorary Scientific Society), member

European Communities International Symposium on Radiology  
Applied to the Protection of Man and His Environment,  
attended, September 1971

Amherst Environmental Concerns Committee, advisor

Professional Activities (within the University)

Radiation Use Committee, chairman

Graduate Admissions Committee, Department of Public Health,  
chairman

Orchard Hill Residential College, faculty fellow

Department of Public Health, lecturer

Cobalt Irradiator Facility Committee, member

Campus Survey for Handicapped Students, advisor

R.O.T.C., guest lecturer

Chemistry, guest lecturer

Physics Department, guest lecturer

PUBLICATIONS, RESEARCH PROJECTS, GRANTS, AND REPORTS

"Handicapped Person's Cart", Faculty Research Grant  
#FR-WW1-(71) for \$750



TUTHILL, ROBERT W., Ph.D., Assistant Professor (Epidemiology)

Professional Activities Outside University

Chairman-elect, Epidemiology and Health Laboratory Section  
of the Massachusetts Public Health Association.  
Presentation on Cervical Cancer to the Hampshire County Unit  
of the American Cancer Society.

Professional Activities Within University

Faculty Senate Representative  
Ad Hoc Future of the University Committee on the Relationship  
of Amherst Campus Programs to those of Other Campuses of  
the University.  
Biomedical Sciences Support Grant Fund Review Committee

Activities Within the Department

Library Liaison Officer  
Organized Departmental Participation in a "Health Careers  
Fair" in Fitchburg, Mass.  
Core Course Committee  
College of Human Resources Exploratory Committee  
Student Orientation Program Committee.

Courses Taught

P.H. 378/678 Principles of Epidemiology (2 sections)  
P.H. 372/672 Epidemiological Investigation  
P.H. 700 Section 1. Problems in Public Health (2 semesters)  
P.H. 700 Section 3 Social Epidemiology  
P.H. 706 Advanced Epidemiology  
P.H. 782 Supervised Field Training

Lectures in other Courses

Fall:

Nursing 301 Nursing in the Community; What is Epidemiology?  
Public Health 362/662 Environmental Health Practices; Accident  
Epidemiology  
Public Health 385 The Environment and Public Health; Accident  
Epidemiology

Spring:

Nursing 301 Nursing in the Community; What is Epidemiology?  
Public Health 361/661 Principles of Environmental Health;  
Accident Epidemiology  
Public Health 385 The Environment and Public Health; Accident  
Epidemiology



### Master's and Ph.D. Committees

Member of Ph.D. committee for Arnold Rose in Anthropology  
Member of Ph.D. committee for Jack Watts in Industrial Engineering and Operations Research  
Special Problem (Master's) Aija Ronis, Public Health (Epidemiology)  
Member of M.A. Thesis Committee David Edell, Public Health (Environmental Health)  
Member of M.A. Thesis Committee Nancy Miller, Public Health (Health Laboratory Science)  
Methodological advice to three other Master's students

### Advanced Education

Attended a three week summer institute on advanced graduate education in Epidemiology held at the University of Minnesota June 20 - July 10, 1971.

### Professional Meetings Attended

American Public Health Association - Houston, Texas  
Massachusetts Public Health Association - Waltham, Mass.  
New England Public Health Association - Chicopee, Mass.

### Research Activities

Chief investigator - Peer Status and Health Experience. A project to test the hypothesis that a child's sociometric standing among his school peers influences his health state. Funded under a University of Massachusetts faculty research grant.

Co-investigator - Acceptability of a Nurse-Midwife in a Private Obstetrical Group Practice, a joint project with the School of Nursing. The proposal was completed and submitted to the Department of Health Education and Welfare with a decision on funding to be made in May, 1972.

Consultant and Member of Technical Advisory Board of a study, "Assessment of Franklin County Health Needs. A comprehensive evaluation of the health status and current health needs of Greenfield County. The study is being carried out by Western Massachusetts Health Planning Council, Inc. ("B" agency) under a grant from the Massachusetts Department of Public Health.

Co-Principal-Investigator - "Community Maintenance of the 'Chronic' Psychiatric Patient: An Evaluation of a Community Care Center Approach." The study is designed to measure the effectiveness of a new treatment approach for the chronic mental patient. A joint proposal with the Massachusetts Department of Mental Health, Region 1 a preliminary draft of which has been submitted to the National Institute of Mental Health.





Tuthill, Robert W., Continued

Community Activities

Town Meeting Representative, Amherst  
Health Planning Committee, Amherst



WISNIESKI, KAROL S., M.P.H., Assistant Professor

### Professional Societies

Massachusetts Public Health Association, Member  
New England Public Health Association, Member  
American Public Health Association, Fellow  
Massachusetts Health Officers' Association  
Massachusetts Environmental Health Association, Board of  
Directors  
National Environmental Health Association (Formerly, National  
Association of Sanitarians) Member of National Accredita-  
tion Council for Undergraduate Curricula in Environmental  
Health.  
Secretary, National Council on Sanitarian Intern Programs  
American Intersociety for the Certification of Sanitarians,  
Inc., Founder Diplomat.

### Speaker and Program Participant

"Chlorine - The Humanistic Chemical" presented to biology  
teachers at Regional Seminar in Humanistic Biology, April  
22, 1972, South Hadley High School.

### Community and State-wide Activities

Member, Board of Health, Amherst  
Technical Advisory Committee to the Selectmen of  
Amherst.  
Select Committee on Growth (Amherst)  
Health Planning Committee  
Consultant, Massachusetts Division of Civil Service  
Member, Review Committee for Comprehensive Health Planning,  
Massachusetts, assisted in review of 8 P.L. 89-749,  
Section 314 (b) regional grant applications.

### University Activities

Member, Faculty Senate Committee on Continuing Education  
Personnel Committee, Dept. of Public Health  
Chief Advisor, Environmental Health (undergraduate)

### Publications

"A Basic Syllabus on Administrative Pathways to Public Health  
Action in the Community". This syllabus includes 15 units in  
two major parts, totaling 243 pages. It is designed to inform  
community health agencies on the options available to them  
for public health action.



Wisniewski, Karol S., continued

Publications continued

"Undergraduate Two-Year Programs in Environmental Health"  
Journal of Environmental Health, Vol. 34:2, Sept./Oct, 1971.

Courses Taught

Public Health 263/563 - Institutional Hygiene and Sanitation.  
Public Health 399, Senior Honors, Chairman of Committee.  
Bacteriology S-1, S-3 (I & II).











PER MAIL

THE HUNGER FOR RELATION  
ARLINGTON, VIRGINIA

DEPARTMENT OF MILITARY SCIENCE  
 UNIVERSITY OF MASSACHUSETTS  
 AMHERST, MASSACHUSETTS 01002

30 June 1972

ANNUAL REPORT OF THE DEPARTMENT OF MILITARY SCIENCE

1. <u>APPROPRIATIONS</u> - by fiscal year (FY):	<u>FY 1969-70</u>	<u>FY 1970-71</u>	<u>FY 1971-72</u>
03 Service, Non-employee	\$ 200.00	\$ 200.00	\$ -- - -
04 Food for persons	50.00	40.00	-- - -
06 Dry Cleaning	- -	- -	- -
10 Travel & Automobile Expenses	75.00	75.00	-- - -
12 Maintenance & Repairs	100.00	100.00	100.00
13 Special Supplies & Expenses	300.00	300.00	300.00
14 Office & Administrative Expenses	150.00	150.00	- -
14-1 Telephone	1,000.00	1,000.00	1,000.00
15 Equipment			
	<hr/>	<hr/>	<hr/>
TOTALS	\$ 1,875.00	\$ 1,865.00	\$ 1,400.00
2. <u>PERSONNEL</u> - As of September of:	<u>1969</u>	<u>1970</u>	<u>1971</u>
Professor of Military Science/Colonel	1	1	1
Ass't. PMS/Maj/Cpt	3	4	3
Lecturer/Maj	0	0	1
Enlisted	5	5	4
Senior Clerk, Grade 6	1	1	1
Principal Clerk, Grade 9	1	1	1
Armorer Artificer, Grade 5	1	1	0
3. <u>ORGANIZATIONAL CHART</u> - See Inclosure 1.			

PERMALLITE

THE HUNGERFORD CORPORATION  
ARLINGTON, VIRGINIA

DEPARTMENT OF MILITARY SCIENCE  
UNIVERSITY OF MASSACHUSETTS  
AMHERST, MASSACHUSETTS 01002

30 June 1972

ANNUAL REPORT OF THE DEPARTMENT OF MILITARY SCIENCE

1.	<u>APPROPRIATIONS</u> - by fiscal year (FY):	<u>FY 1969-70</u>	<u>FY 1970-71</u>	<u>FY 1971-72</u>
	03 Service, Non-employee	\$ 200.00	\$ 200.00	\$ -- --
	04 Food for persons	50.00	40.00	-- --
	06 Dry Cleaning	--	--	-- --
	10 Travel & Automobile Expenses	75.00	75.00	-- --
	12 Maintenance & Repairs	100.00	100.00	100.00
	13 Special Supplies & Expenses	300.00	300.00	300.00
	14 Office & Administrative Expenses	150.00	150.00	--
	14-1 Telephone	1,000.00	1,000.00	1,000.00
	15 Equipment			
	TOTALS	\$ 1,875.00	\$ 1,865.00	\$ 1,400.00
2.	<u>PERSONNEL</u> - As of September of:	<u>1969</u>	<u>1970</u>	<u>1971</u>
	Professor of Military Science/Colonel	1	1	1
	Ass't. PMS/Maj/Cpt	3	4	3
	Lecturer/Maj	0	0	1
	Enlisted	5	5	4
	Senior Clerk, Grade 6	1	1	1
	Principal Clerk, Grade 9	1	1	1
	Armorer Artificer, Grade 5	1	1	0
3.	<u>ORGANIZATIONAL CHART</u> - See Inclosure 1.			



4. STUDENTS OR CLIENTELE SERVED SY 71-72.

a. Number of Majors (ROTC Cadets)	MILITARY SCIENCE CLASS OF			
	'75	'74	'73	'72
College of Agriculture	8	5	2	4
College of Arts and Sciences	9	3	6	4
School of Business Administration	3	-	1	2
School of Education	-	-	-	1
School of Engineering	1	3	4	-
School of Physical Education	1	-	-	-
Department of Public Health	1	-	-	-
Graduate School	-	-	4	3
5-College Students	<u>11</u>	<u>1</u>	<u>-</u>	<u>-</u>
	34	12	17	14

b. Number of Students Taught (Majors and Others):

	<u>SY 69-70</u>			<u>SY 70-71</u>			<u>SY 71-72</u>		
	<u>As of</u>			<u>As of</u>			<u>As of</u>		
	<u>Sep69</u>	<u>Feb70</u>	<u>May70</u>	<u>Sep70</u>	<u>Feb71</u>	<u>May71</u>	<u>Sep71</u>	<u>Feb72</u>	<u>May72</u>
Freshman Courses	53	46	44	38	34	33	27	39	39
Sophomore Courses	26	16	16	31	24	22	16	12	11
Junior Courses	23	21	21	17	16	15	22	18	18
Senior Courses	<u>50</u>	<u>45</u>	<u>45</u>	<u>21</u>	<u>21</u>	<u>20</u>	<u>15</u>	<u>14</u>	<u>14</u>
TOTALS	152	128	126	107	95	90*	80	83	82**

\* Includes 3 - 5-College students

\*\* Includes 14 - 5-College students

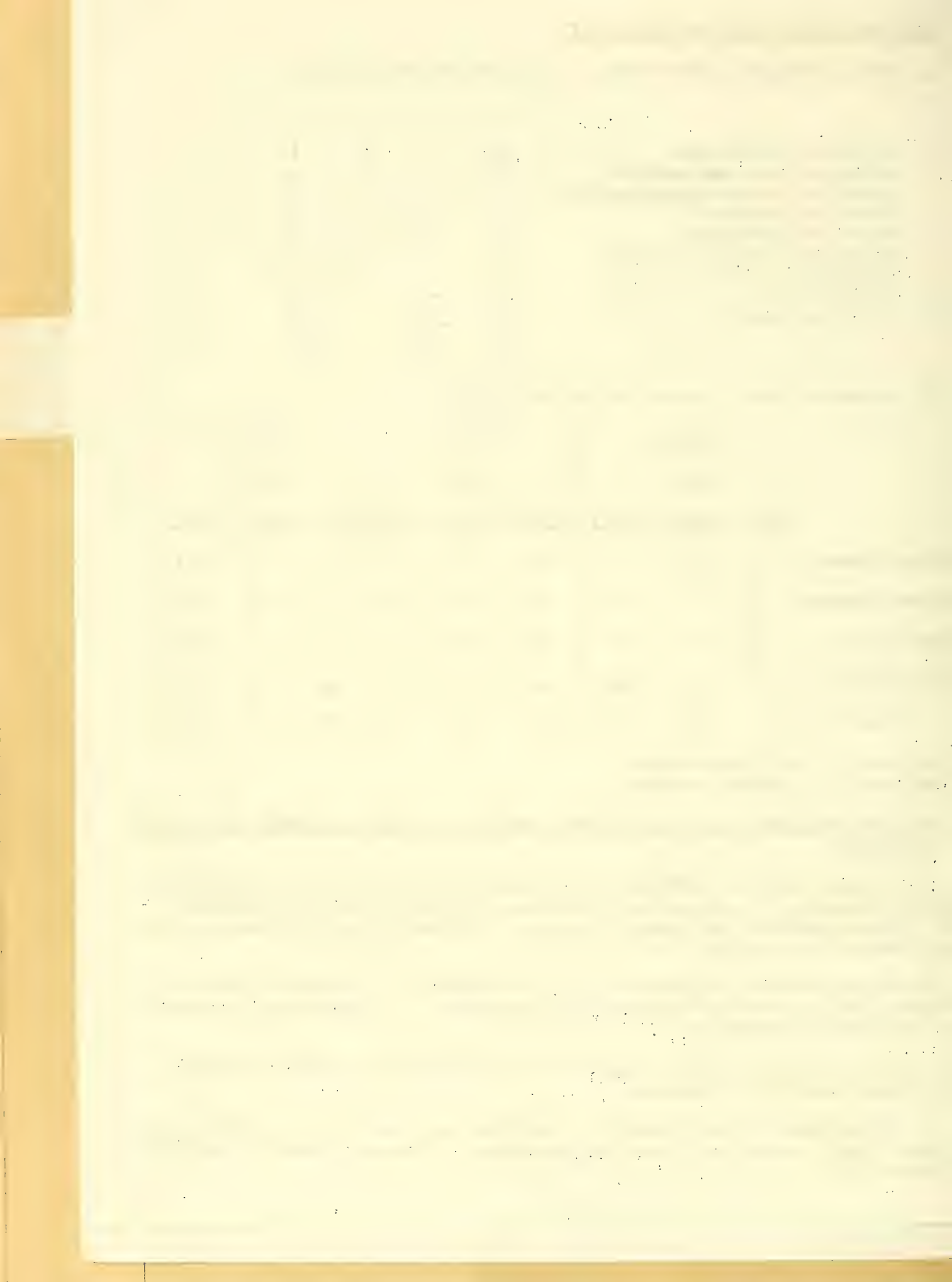
5. FACULTY PUBLICATIONS, RESEARCH GRANTS, RESEARCH PROJECTS, AND OTHER PROFESSIONAL ACTIVITIES.

a. Colonel George I. CONNOLLY, Jr., Professor of Military Science attended the National Strategic Information Center Workshop at Valley Forge, PA in September 1971. He also attended the Annual Professor of Military Science Conference at Fort Meade, Maryland in October 1971.

b. Major Richard P. BRENNAN will join the department in September 1972 as a Lecturer. He is currently completing the requirements for his Masters in Education from the School of Education.

c. Major James C. FAISON, Assistant Professor of Military Science continued work towards his PhD in Chemistry.

d. Major Thomas W. BEST joined the Department as a Lecturer in July 1971. He attended a ROTC Instructor Orientation Conference at Virginia Polytechnic Institute in August 1971.





## 6. MAJOR ACCOMPLISHMENTS DURING THE YEAR.

A major departmental effort continued this year to develop a more academic and flexible curriculum to meet University requirements for academic acceptance and approval. Concomitantly, every effort was made to increase faculty academic qualifications and to innovatively improve instruction. Academic content was significantly increased in six modified courses. Also cooperation and guidance was obtained from faculty members of other departments in modification and agreement to presentation of between 25-35% of the instruction in these courses.

The modified courses developed were: MS 111 American Military History I, MS 112 American Military History II, MS 135 Concepts and Application of Military Theory I, MS 251 Military Leadership and Management II, MS 252 Concepts and Applications of Military Theory II and MS 379 Defense Organization and Management.

Two new courses, MS 136 Military Leadership and Management I and MS 378 Military Law, were developed to increase the academic content of the overall departmental curriculum and to provide instruction more relevant to student interest, the needs of society and officer education. Of great significance was the enthusiastic cooperation of faculty members from other departments in the planning and eventual presentation of instruction. In the case of MS 136 Military Leadership and Management, as much as 50% of the course will be taught by members of other departments, whereas MS 378 Military Law will be taught principally by a faculty member of another department.

In accordance with University policy, course proposals were prepared for all modified and new courses. Beginning in November 1971, these proposals were submitted to the Military Affairs Sub-Committee of the Academic Matters Committee for review and later to the Faculty Senate for approval. All courses were accepted and approved. However, on April 27, 1972 the Faculty Senate passed a motion denying credit for courses taught by the Department of Military Science. This motion was accepted and concurred on by the University Board of Trustees on May 10, 1972. Therefore, beginning in September 1972 academic credit will not be granted for either modified or new courses taught by the Department of Military Science regardless of their academic content.

## 7. SPECIAL PROJECTS OR PROGRAMS OPERATED BY THE DEPARTMENT OF MILITARY SCIENCE 1971-72.

a. The Department continued development of its leadership laboratory portion of the program. The objective of this development is to present instruction which will be progressive and competitive and meet the goals of the University, at the same time developing the leadership skills required of an Army officer. The drill and ceremony instruction has been reduced to only that which is necessary to familiarize cadets with the requirements of individuals in the leadership positions of military units and to initiate the development of self confidence of individuals when placed in a leadership position. In lieu of the traditional drill and ceremony, the Department presented the following:

(1) Seminars were conducted by Army officers presently attending the University's Graduate School. The officers discussed their particular branch of the Army, its role, and the role they have played during their careers.



(2) Leadership Seminar conducted by the campus group of "The Vietnam Veterans Against the War".

(3) Field trips to the Mt Toby Reservation in November and April during which the cadets were given leadership reaction tests and competed in Orienteering Events. Orienteering is a relatively new sport in the United States. It involves the orienteer in environmental awareness, physical fitness, map reading, compass proficiency, mental acuity, and competition with others. As such it is ideal for ROTC leadership training.

(4) A weekend orientation trip to Fort Devens, Massachusetts had to be canceled due to the Student Strike and protests against ROTC.

(5) Distinguished Visitors Program which brought Dr. Edmund Gullion, Dean, Fletcher School of Diplomacy, Tufts University, to the campus in November, and jointly, with the Department of Air Science, sponsored the appearance of Dr. Samuel Huntington, noted author and Professor of Government, Harvard University, in April.

b. Three seniors completed the Army ROTC Flight Training Program which was conducted by the Pioneer Aviation Corporation, Turner Falls, Massachusetts.

c. Five seniors attended a Junior Officer Leadership Workshop at the United States Military Academy, West Point, New York, in May.

d. Three juniors and one senior attended three-day orientation trips to the United States Military Academy, West Point, New York.

e. Two juniors and three seniors attended the United States Army Airborne School, Fort Benning, GA. and qualified as parachutists.

f. One junior attended an orientation conference at the United States Army Infantry Center, Fort Benning, Georgia, in April.

g. The Department continued to sponsor The Bay State Special Forces as an extra-curricular activity for those students who desire more rugged and diversified training than that provided in the leadership laboratory and field trip portion of the program. Activities of this group concentrate on improving the physical fitness of the participants and training in the individual skills of an outdoor profession i.e., mountain climbing and rappelling, stream crossing, hand navigation, and survival.

h. A 15-hour NCO Academy was offered as an extra-curricular activity for those cadets who wanted more drill and ceremonies than offered in leadership laboratory. The instruction was given by senior cadets and was well received by the underclassmen.

i. The Annual Military Ball, sponsored jointly by the Departments of Air and Military Science was held at Westover Air Force Base in May 1972.

j. The Annual ROTC Awards Ceremony, jointly sponsored by the Departments of Air and Military Science was held in May 1972. Organizations sponsored awards to cadets in the Army and Air Force ROTC programs.



k. The 101st Army ROTC Commissioning Exercises were held on May 27, 1972. Dr. Robert Wood, University President was the principal speaker.

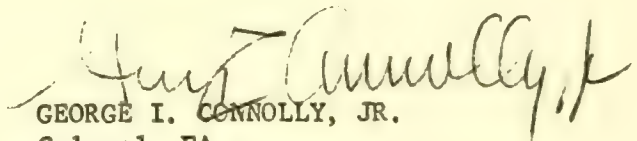
l. Thirteen students completed the campus ROTC requirements for commissioning as second lieutenants in the United States Army Reserves. Nine of the group received their commissions on May 27th. The remaining four will be commissioned later in the summer after completion of their University degree requirements or after attendance at the ROTC Advanced Camp. These individuals were given their choice of active duty service, two years or three months for training only. Eleven requested and received two years active duty. The two that requested it plus the one involuntarily assigned will serve on active duty for three months of training, only. There were seven Distinguished Military Graduates (DMG), all of these individuals took advantage of the option given DMG and applied for a Regular Army commission. To date six have been accepted into the Regular Army and the seventh should be forthcoming after successful completion of the Advanced ROTC Summer Camp. Eleven of the thirteen received their first choice of branch assignment in the United States Army Reserves, the remaining two received their second choice. However, due to the requirements of the Regular Army, only two of the six accepting Regular Army commissions to date, received their first choice. Three received their second choice and one his fifth choice. Those not receiving their first choice had all wanted to be commissioned in the Infantry branch.

#### 8. FUTURE PLANS AND NEEDS.

The Department of Military Science will continue to improve its curriculum and improve the quality of instruction to fulfill the academic requirements of the University. It is planned that this be accomplished by maintaining the present academic qualifications of military instructors, and solicitation of increased cooperation from members of other departments in the planning and presentation of instruction in their areas of academic expertise. (However, it is a suboptimum utilization of academic and professional expertise to use military personnel with Masters degrees to teach courses sans academic credit.)

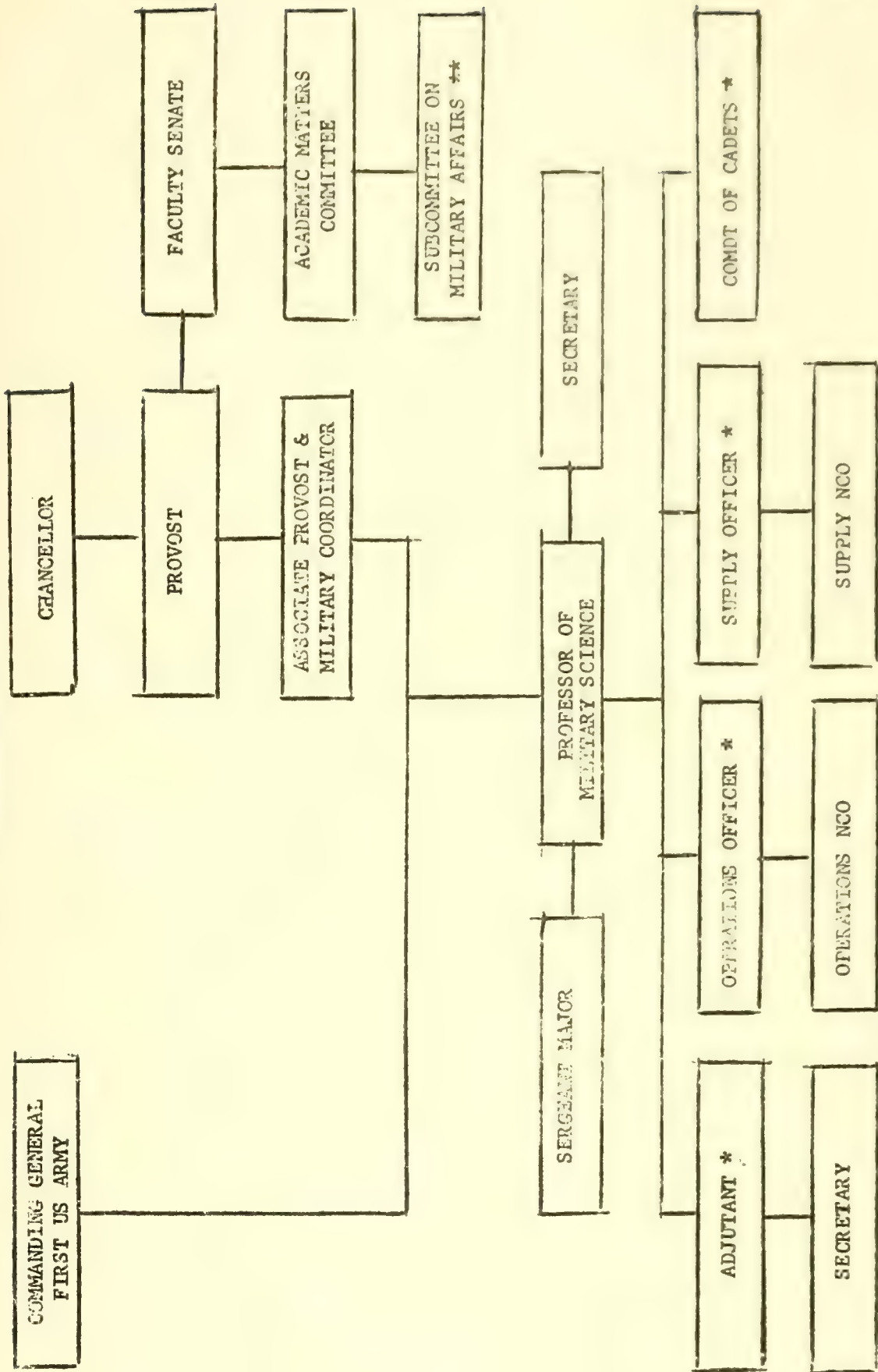
Every effort will be made to insure that the Department of Military Science remains a viable and productive department fulfilling the academic and professional needs of interested students.

1 Incl  
Organizational Chart

  
GEORGE I. CONNOLLY, JR.  
Colonel, FA  
Professor of Military Science



DEPARTMENT OF MILITARY SCIENCE  
 UNIVERSITY OF MASSACHUSETTS, AMHERST, MA. 01002  
ORGANIZATIONAL CHART



\* Full time instructors, and Military Science class advisors.

\*\* On all academic and curriculum matters and qualifications of officers nominated for assignment to department.





DEPARTMENT OF THE AIR FORCE  
 DETACHMENT 370, AIR FORCE ROTC (AU)  
 UNIVERSITY OF MASSACHUSETTS, AMHERST, MASSACHUSETTS 01002

ANNUAL REPORT OF THE DEPARTMENT OF AIR SCIENCE

APPROPRIATIONS - by fiscal year (FY)	FY 69/70	FY 70/71	FY 71/72
01 Salaries, Permanent Positions	\$7,670.00	\$7,932.25	\$8,125.00
03 Services, Non-Employees	200.00	200.00	-
04 Food	50.00	30.00	-
10 Travel & Automotive Expense	100.00	100.00	-
12 Repairs & Alterations	100.00	100.00	100.00
13 Special Supplies & Expenses	450.00	500.00	500.00
14 Office & Administrative Expenses	35.00	-	-
14-1 Telephone	815.00	782.00	800.00
TOTALS	<u>\$9,420.00</u>	<u>\$9,644.25</u>	<u>\$9,525.00</u>

PERSONNEL - as of September	<u>1969</u>	<u>1970</u>	<u>1971</u>
Colonel	1	1	1
Lt Colonel	0	0	1
Major	0	1	0
Captain	2	2	1
TSgt	2	2	1
SSgt	1	1	2
Principal Clerk (Grade 9)	1	1	1
TOTALS	<u>7</u>	<u>8</u>	<u>7</u>

ORGANIZATIONAL CHART - See Attachment #1.

STUDENTS OR CLIENTELE

a. Number of Majors -- None.

b. Number of students taught -- September	<u>1969</u>	<u>1970</u>	<u>1971</u>
Air Science 1	110	52	30
Air Science 2	42	22	16
Air Science 3	32	20	14
Air Science 4	34	29	20
TOTALS	<u>218</u>	<u>123</u>	<u>80</u>

FACULTY PUBLICATIONS, RESEARCH GRANTS, RESEARCH PROJECTS, AND OTHER PROFESSIONAL ACTIVITIES

a. Hayes, Robert E., Lt Colonel, "Getting All of Us Together -- A Simulation exercise on Race Relations in the Air Force," pending publication in AFROTC Education Bulletin: AFROTCRP 50-1, Maxwell AFB, Alabama.

THE UNIVERSITY OF CHICAGO  
DEPARTMENT OF CHEMISTRY  
PHYSICAL CHEMISTRY LABORATORY

REPORT OF THE PHYSICAL CHEMISTRY LABORATORY

BY  
J. H. VAN VLECK  
AND  
H. E. MERVILL

1931

Published by the University of Chicago Press  
Chicago, Illinois

b. Duto, Michael D., Major, has completed 27 hours' graduate education past a Master's during his two years at the University of Massachusetts and has been accepted as a candidate for a Certificate of Advanced Graduate Studies by the School of Education.

#### 6. MAJOR ACCOMPLISHMENTS

a. The Department of Air Science commissioned 19 students during FY 1972.

b. The College Scholarship Program, formerly the Financial Assistance Grant Program authorized by "The ROTC Vitalization Act of 1964," which provides tuition, fees, and books for those students selected for the program, has been successful. Following is the number of scholarships this department has received since Academic Year 1966/67:

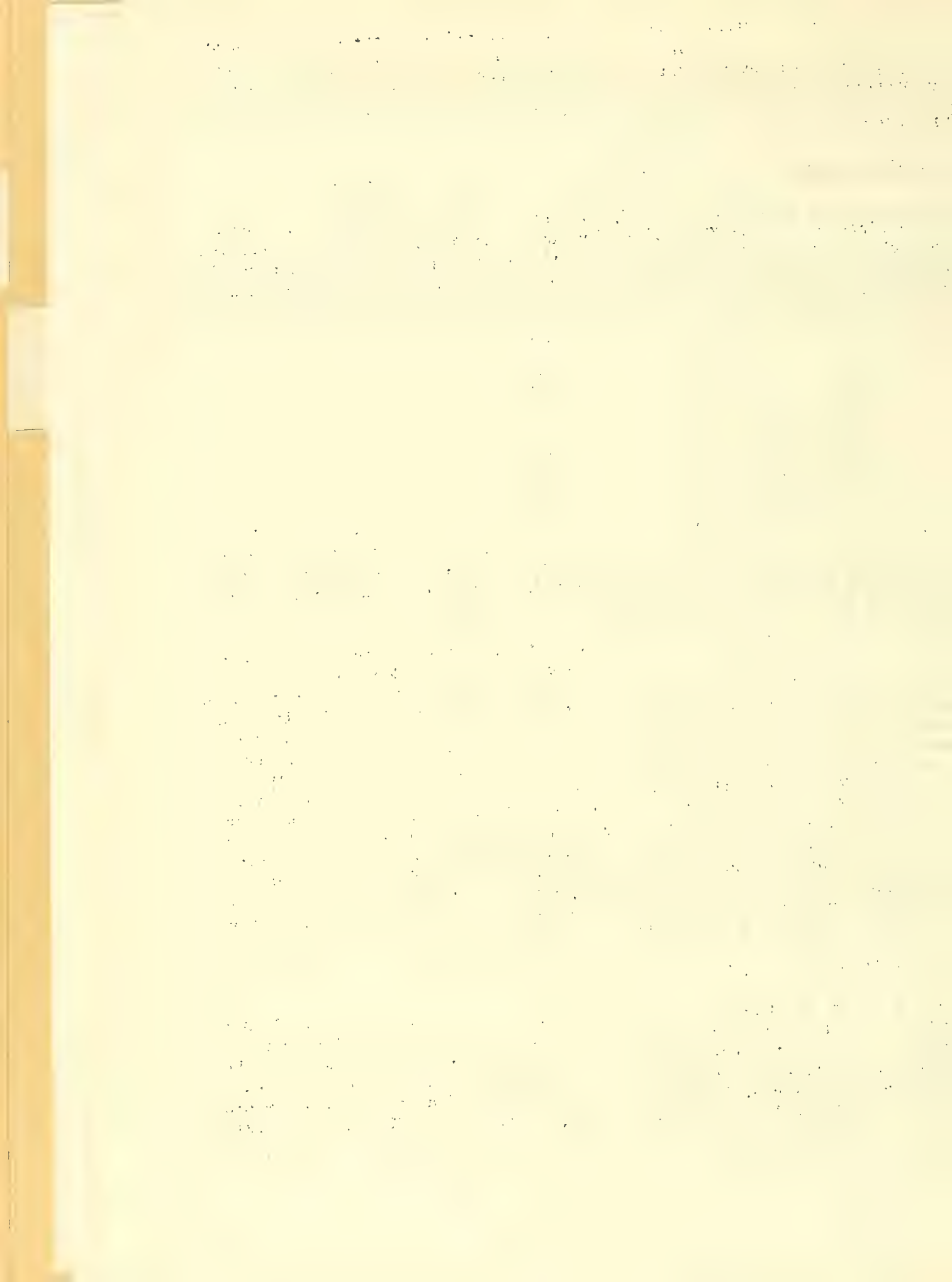
<u>Year</u>	<u>Number</u>
Academic Year 66/67	7
Academic Year 67/68	9
Academic Year 68/69	21
Academic Year 69/70	15
Academic Year 70/71	17
Academic Year 71/72	17

c. Flight Instruction Program. Three students successfully completed the Flight Instruction Program during Fiscal Year 1972. There are now eight students enrolled for the FY 1973 program and we expect that in the future 70 percent of AFROTC graduates will be either pilot or navigator candidates. In previous years 70 percent have been non-flying candidates.

d. As of Academic Year 1971-72 the Department had forwarded ten course proposals to the Military Affairs Subcommittee, Academic Matters Committee, and Faculty Senate for review and approval. Six of these proposals have been approved by the Faculty Senate on January 28, 1972. However, on April 27 the Faculty Senate voted to abolish credit for all courses taught by ROTC personnel, a motion later concurred in by the Board of Trustees on May 10. Four additional course proposals had already been submitted to the Faculty Senate and were reviewed at the two final meetings in May. Chancellor Bromery has indicated that ROTC courses will carry no credit effective September 1972. If this proposal persists, then students who wish to become officers via the ROTC program would be required to take up to 19 academic hours overload because they opt for a service used by society during a period when the military is unpopular. The ROTC contract is due for renegotiation prior to June 30. A decision on whether the Air Force will continue to offer AFROTC on campus, given the current policy of no credit, will be made during the negotiations.

#### 7. SPECIAL PROJECTS OR PROGRAMS:

a. The University of Massachusetts Allan B. Bunce Squadron of the Arnold Air Society (AAS), a cadet honor society, had a remarkable resurgence of interest during the year. Eight new pledges almost doubled the size of the squadron. The members served as ushers at University of Massachusetts football games and used proceeds for a variety of charitable causes and to help defray expenses of sending members to a National Conclave in Dallas, Texas, 27-31 March 1972. A campus raffle



was held to collect slightly under \$200 to assist University of Massachusetts volunteers at the Belchertown State School.

b. The University Angel Flight, affiliated with the Allan B. Bunce Squadron, also benefited from increased interest. Members visited local nursing homes on weekends, and made Christmas toys for Belchertown State School residents. The flight provides an opportunity for University of Massachusetts girls (not in AFROTC) to serve the community while developing leadership skills.

c. Members of the AFROTC Junior Class ran a candy sale which netted over \$700.00 for a Sickle Cell Fund drive. The exercise not only benefited unfortunate victims of this disease but also provided an excellent vehicle for teaching management and leadership skills.

8. FUTURE PLANS AND NEEDS:

The Department will continue to develop its curriculum and teacher qualifications to insure the maintenance of an educational program that meets the requirements of students, the University, and the United States Air Force.

During the past year several significant changes have occurred which affect AFROTC at the University of Massachusetts.

a. Effective November 14th, 1971 AFROTC students on scholarships and all those in the last two years had their subsistence increased from \$50 to \$100 monthly. A comparison of benefits received by University of Massachusetts cadets over the past two years follows:

	<u>AY 1970-71</u>	<u>AY 1971-72</u>	<u>AY 1972-73 (Projected)</u>
Number Students	51	37	35
Subsistence Payments	\$25,331.81	\$28,586.65	\$38,500.00
Flight Training	5,600.00	2,100.00	4,900.00
Tuition/Fees	8,561.00	6,772.50	6,400.00
Books	1,275.00	1,275.00	1,200.00
<b>TOTALS</b>	<u>\$40,767.81</u>	<u>\$38,734.15</u>	<u>\$51,000.00</u>

b. During the year the Air Force requested we realign the number of students admitted into the advanced program (last two years) from 70 percent non-rated (those who will serve on active duty as engineers, chemists, business majors, etc.) and 30 percent rated (pilots and navigators) to a 70 percent rated/30 percent non-rated mix. Thus, we will be able to accept into the advanced program in Fall 1972 only eight students who are not qualified to fly (contrasted to 21 in previous years). Since there is no quota for flyers we have refocused and increased our advertising program. We feel that the more applicants (both categories) we have, the better quality officer we can select and educate for a smaller Air Force. For our Nation to have fully competent officers manning an all-volunteer service we feel active University of Massachusetts administration support and encouragement are equally as essential as increased pay and benefits.

*Robert G. Fisher, Lt Col USAF*

PAUL H. FISHER, Colonel, USAF  
Professor of Air Science

1 Atch  
Organizational Chart

1. The first part of the document discusses the importance of maintaining accurate records of all transactions and activities. It emphasizes that this is essential for ensuring transparency and accountability in the organization's operations.

2. The second part of the document outlines the various methods and tools used to collect and analyze data. It highlights the need for consistent data collection procedures and the use of advanced analytical techniques to derive meaningful insights from the data.

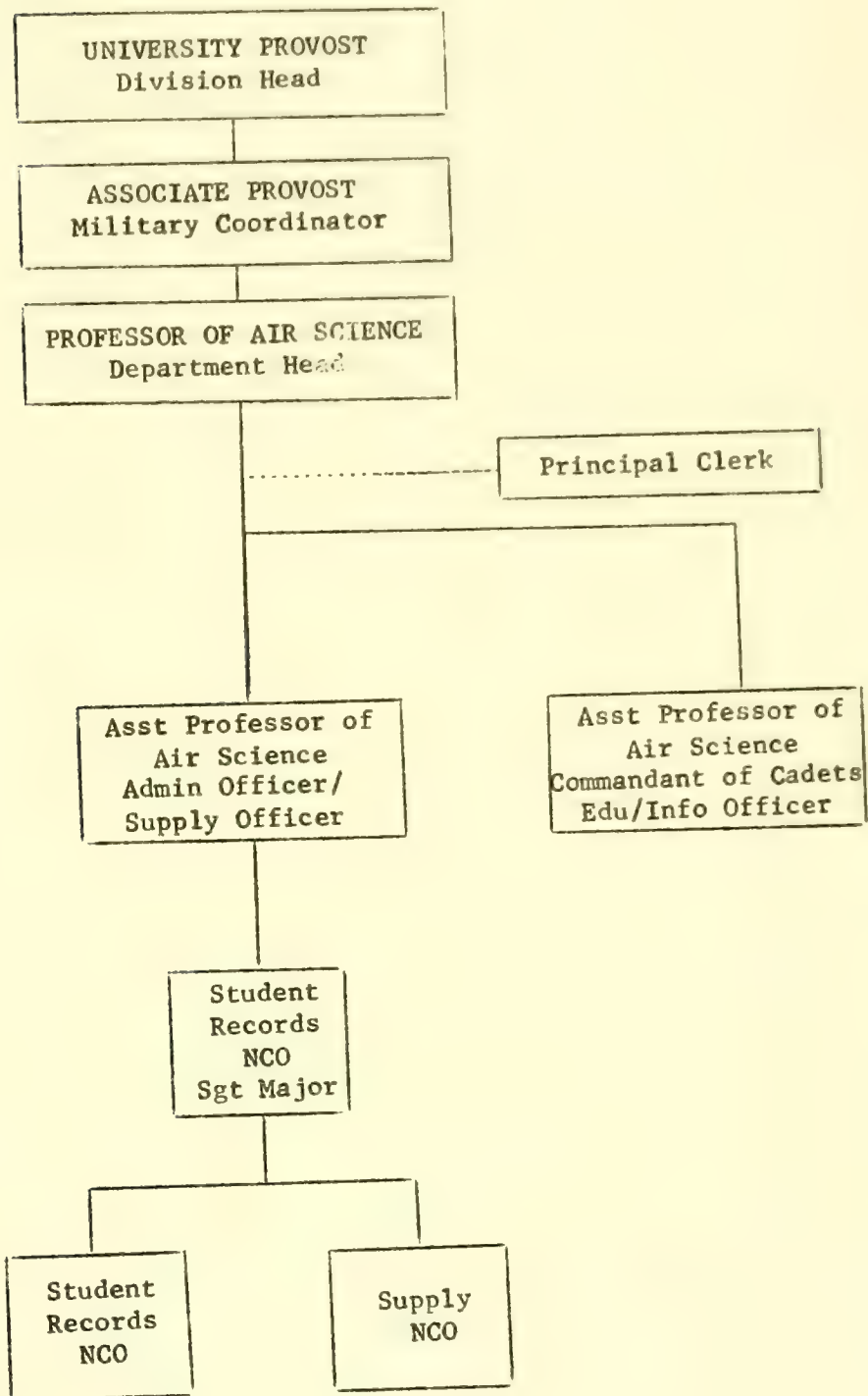
3. The third part of the document focuses on the role of technology in data management and analysis. It discusses how modern software solutions can streamline data collection, storage, and processing, thereby improving efficiency and reducing the risk of errors.

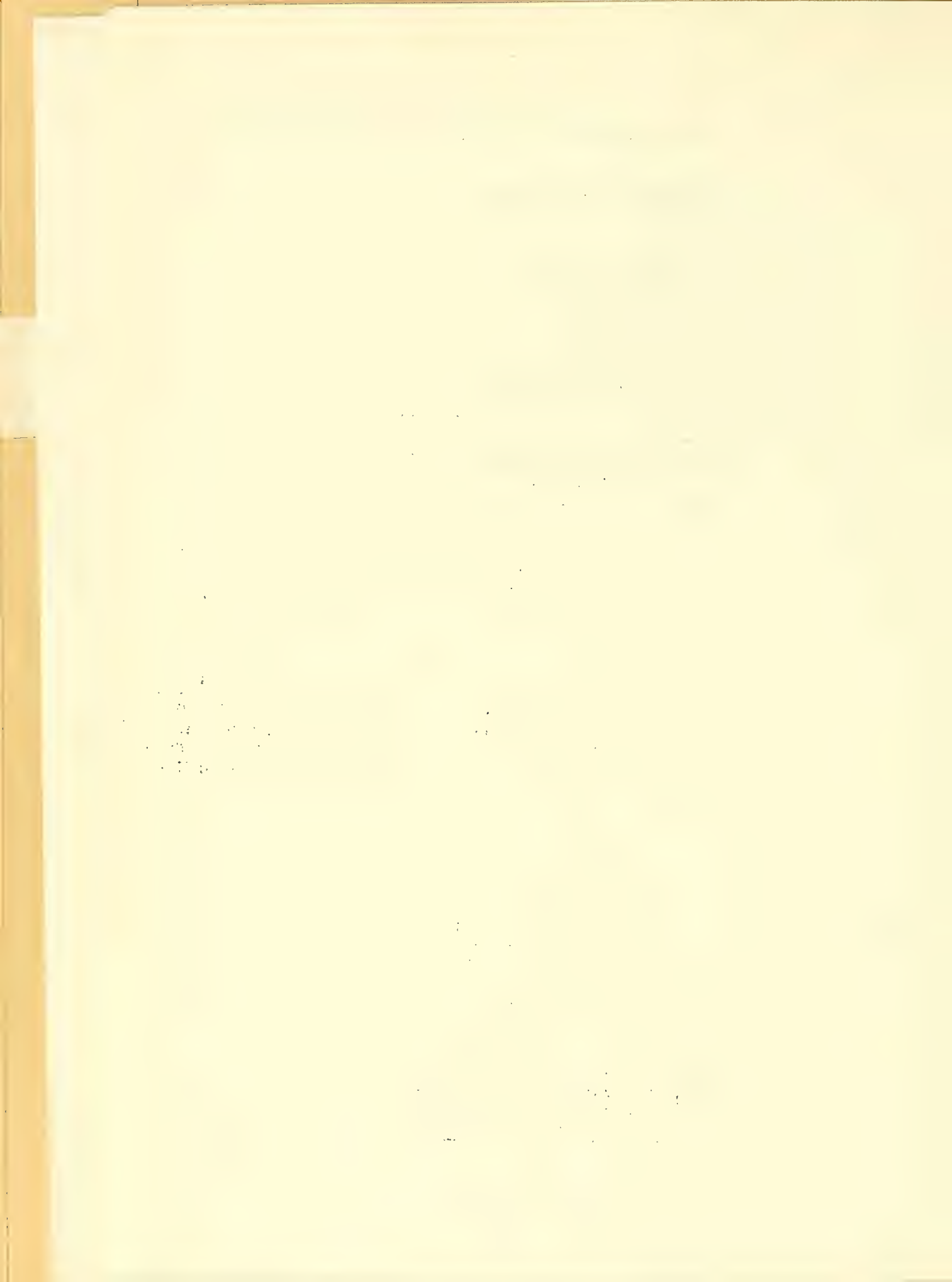
4. The fourth part of the document addresses the challenges associated with data security and privacy. It stresses the importance of implementing robust security measures to protect sensitive information and ensure compliance with relevant regulations.

5. The fifth part of the document provides a summary of the key findings and recommendations. It concludes that a comprehensive data management strategy is crucial for the organization's success and suggests several areas for further improvement.

ORGANIZATIONAL CHART

DEPARTMENT OF AIR SCIENCE







ANNUAL REPORT  
AUDIOVISUAL CENTER - UNIVERSITY OF MASSACHUSETTS  
. Raymond Wyman - July 1972

This will be my last report as director of the Audiovisual Center at the University of Massachusetts. I have made annual reports since 1950.

On July 1, 1972 the Audiovisual Center will be transferred administratively to the University Library from the School of Education. I wholeheartedly support this move. The University Library has traditionally served the print needs of all faculty and students. It can now serve the media or non-print instructional needs of the faculty and the media or non-print learning resources for students. It is logical to acquire, catalog, store and retrieve all educational materials in one comprehensive center on campus. Appropriate financial support for an expanded service should be possible through a large and clearly identified campus wide academic service agency.

Details concerning the anticipated new organization, personnel and facilities have not yet been worked out. I certainly hope that such details can and will be tended to in the immediate future.

The Center has had a busy year. This is a time when instructors are increasingly concerned about improved instruction, and the wider and wiser use of media inevitably are considered. Due to static personnel and resources, we have been unable to advertise our services at departmental or school meetings. We have been pushed to capacity simply by the faculty who hear about our services and who travel to our center.

This is also a time when students are increasingly concerned about producing audio-visual responses to course requirements as alternatives or supplements to formal written reports. Our "do it yourself" media laboratory has been very busy with a great variety of students doing a great variety of mediated projects.

Our technical staff maintains and repairs most of the AV equipment on campus, whether it is on AV Center or departmental inventory. This service makes our very limited equipment available almost 100% of the time and it also eliminates high off-campus service charges.

The general lack of instructional hardware all over campus necessitates much packing, transporting and setting up of equipment. We keep two vehicles going almost constantly. We also operate equipment for many special functions.

The film library continues at a low level. No University funds have been put into expansion or even replacement of films for teaching or individual study. The cooperative library of films purchased by the schools that use them continues to expand at a moderate rate. Repairs and maintenance of films and other software are done constantly. Several small special libraries of films purchased by others are serviced by the Center. Arrangements for the use of films by many departments continue to be made.



Demand for graphics production and 2x2 slide preparation is far greater than we can handle. This service needs to be expanded in order to improve particularly the large group presentations that are so common on campus.

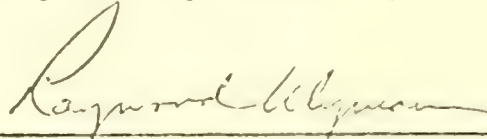
Extemporaneous conversion of paper materials to overhead projection transparencies is done constantly in our office and media laboratory. This service needs to be available in every major academic area on campus, and it should be tied to our Xerox duplicating centers.

The AV Center has been housed in Thompson Hall with the Northeast Regional Media Center for the Deaf and the Media Specialist Program. Much sharing of resources has been necessary. There seems to be agreement that the AV Center should move to level three of Goodall Library as soon as possible and that new and appropriate facilities should be constructed.

The AV Center budget for 1971-72 has been identical to the previous year except in travel which was reduced to 40%. This has meant no expansion during a period of increased emphasis on and interest in media.

My twenty-two years as part-time director of the AV Center have been pleasant, productive and rewarding. It is now time for a new full-time professional to take charge and develop a center more appropriate to a great State University.

Respectfully submitted,



Raymond Wyman, Director

RW/rg



BUDGET APPROPRIATIONS

	<u>1968-69</u>	<u>1969-1970</u>	<u>1970-1971</u>
03 Services, Non-Employees	\$ 1,900	\$ 13,690	\$ 18,000
10 Travel	550	578	600
11 Advertising & Printing	400	-	-
12 Maint. & Repairs	4,000	4,140	4,000
13 Spec. Supp. & Exp.	6,500	7,768	7,000
14 Office & Admin. Exp.	1,350	1,710	1,200
15 Equipment	4,000	2,023	5,000



Sept.-1970

Sept.-1969

Sept.-1968

PROFESSIONAL

2

2

2

NON-PROFESSIONAL

5

6

6

PART-TIME

2

3

4





Audiovisual Center Personnel to Library on July 1, 1972

Full Time State Employees

1. Donald Curtis - Assistant Director
2. Nathan Tilley - Staff Assistant
3. Louise Dziuba - Senior Clerk
4. Ruth Groghoski - Junior Clerk
5. William Bates - Audiovisual Equipment Technician
6. Edward O'Neil - Audiovisual Equipment Technician
7. Thomas Lansner - Technical Assistant
8. Richard Guerdon - Senior Technical Assistant
9. Louis Musante - Senior Technical Assistant

Part Time Employees

1. Ruth Williams - Departmental Assistant
2. Diane Plosia - Departmental Assistant
3. Alan McArdle - Departmental Assistant
4. Ira Miller - Departmental Assistant



AUDIOVISUAL CENTER  
UNIVERSITY OF MASSACHUSETTS  
June 1972

Dean  
SCHOOL OF EDUC.  
D. Allen

Director  
AV CENTER  
R. Wyman

Ass't. Dir.  
D. Curtis  
Photo & Graphics (Pro.)

Staff Ass't.  
N. Tilley (Pro.)

D. Plosia  
Grahics  
(03)

L. Musante  
Photo  
(Gr. 10)

L. Dziuba  
Office  
(Gr. 6)

W. Bates  
Equipment  
(Gr. 11)

R. Growhoski  
Jr. Clerk  
(Gr. 3)

R. Williams  
Film Insp.  
(03)

E. O'Neil  
(Gr. 11)

J. Carr  
(Gr. 10)

R. Guerdon  
(Gr. 8)

T. Lansner  
(03)



ANNUAL REPORT

Labor Relations & Research Center

Fiscal Year Ending June 30, 1972

University of Massachusetts

Amherst



## INTRODUCTION

Fiscal Year 1972 was a year of developing guidelines, goals and objectives for the Labor Relations & Research Center. A special report by a committee of faculty and students, chaired by Dean Gentile, suggested areas of emphasis for the Center. President Wood responded to these suggestions and in conjunction with Professor Friedman, goals and procedures were established. Fiscal Year 1973 administratively will see the re-establishment of the Advisory Council and a thorough curriculum reform.

Relationships with the Institute for Labor Affairs were formalized and field work was established through that Institute.

Professor Friedman was appointed Director of the Center on September 1, 1971 and on May 30, 1972 Mr. David Bloodsworth joined the staff as Assistant Director. His experience in disputes settlement, both in the labor field and in other areas of social concern will prove invaluable as the Center progresses.

The Center continues to cooperate with projects developed on a campus-wide, university-wide, community-wide and state-wide basis including areas of economic development, gerontology, disputes settlement, industrial accidents and state government reorganization.





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I.  
APPROPRIATIONS

Fiscal Year	Total Appropriation
1970-1971	\$170,173
1971-1972	\$117,708

II.  
PERSONNEL

1970-71	1971-72
Acting Director*	Director**
	Assistant Director***
Research Coordinator****	Research Coordinator****
Principal Clerk	Principal Clerk
Senior Clerk Steno	Senior Clerk Steno
Clerical Assistant	Clerical Assistant
Librarians (2) (Part-time)	Librarians (2) (Part-time)
Research Assistants (6) (Students, Part-time)	Research Assistants (7) (Students, Part-time)

\*Harvey L. Friedman, Associate Professor of Political Science

\*\*Harvey L. Friedman, appointed Director, September 1971

\*\*\*David Bloodsworth, appointed May 1972

\*\*\*\*Lecturer in the School of Business Administration



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III.

STUDENTS: GRADUATE

A. Majors (M.S. in Labor Studies Program):

SEMESTER	NO. OF STUDENTS
September 1971	26
February 1972	27

B. Courses Taught by LRRC Staff: Academic, Graduate & Undergraduate:

COURSE	NO. OF STUDENTS	CREDITS	TOTAL SCH*
LR 700 Research Practicum, I, II Mr. Brooke	13	6	78
LR 702 Labor History Mr. Laurie	26	3	78
LR 710 Seminar in Labor Mr. Friedman	6	3	18
LR 777 LR in Public Sector Mr. Friedman	32	3	96
LR 764 Gov't. of Unions Mr. Friedman	19	3	57
Pol. Sci. 222/522 Mass. Politics Mr. Friedman	22	3	66
TOTALS	118	21	393



## PROFESSIONAL ACTIVITIES

A. Publications

Harvey L. Friedman, Director

Contributing Author

Encyclopedia Americana. Grolier Society: New York, 1972, Vol. 10 on "Fair Employment Practices Act," p. 834; "Fair Labor Standards Act," p. 834-5; Vol. 17 on "Lockout", p. 651; "Luddites," p. 836-837; Vol. 22 on "United States Postal Service," p. 429-431.

Encyclopedia Americana Annual. Grolier Society: New York, 1972 on "The 4-Day Workweek on Trial," p. 391; "Postal Service," p. 554-555.

Encyclopedia Year Book. Grolier Society: New York, 1972 on "United States Postal Service," p. 553.

"An Inter Union Pre-Retirement Program; Results and Commentary" with John F. O'Rourke. Industrial Gerontology. National Council on the Aging: Washington, D.C., 1972. No. 13, Spring 1972 (14 pp.)

Research Note

"The University of Massachusetts Labor Relations & Research Center", 1971-72, in Industrial & Labor Relations Review. New York State School of Industrial & Labor Relations, Cornell University, Ithaca, New York, Vol. 25, No. 3, April 1972.

Milton Brooke, Research Coordinator

Articles

"Reforming Workmen's Compensation: Recommendations for Massachusetts," Harvard Journal on Legislation, Vol. 9, No. 1, November 1971, pp. 1-30.

Research Report

"A Study of Promptness of Payment in Both Litigated and Non-Litigated Cases and Adequacy of Voluntary Payments in the States of California, Florida, Massachusetts, New Jersey, New York, and Wisconsin," National Commission on State Workmen's Compensation Laws, Contract No. 113, 78 pp. 1972.





B. Contract Research Grants Sponsored by LRRC

FUNDED:

1. A Study of Promptness of Payment in Both Litigated and Non-Litigated Cases and Adequacy of Voluntary Payments in Selected States.

Research paper funded by National Commission on State Workmen's Compensation Laws, Contract No. 113. Prin. Invest., Milton Brooke.

\$5,000: Completed March 1972.

2. National Manpower Policies in O.E.C.D. Countries

Research grant funded by Manpower Administration, U.S., Dept. of Labor to report on manpower policies in O.E.C.D. countries.

\$22,854: Extended to December 1972. Prin. Invest., Solomon Barkin

3. Planning Grant

Funded by Manpower Administration, U.S. Dept. of Labor to plan a series of papers and studies to be presented to a seminar to discuss the interrelationship between economic and manpower policy.

\$14,904: Extended to December 1972. Prin. Invest., Solomon Barkin

C. Faculty Research Funded by LRRC for Summer 1972

Prof. Stanley Young, Management Department.

"Relation of Labor Officials to Research Efforts" \$2,400

Prof. Edward Feit, Department of Political Science

"Economic Forces & Racial Discrimination in South Africa: Its Effects on White Skilled Laborers" 500

Prof. Barbara F. Turner, Human Development Department

"Social-Psychological Correlates of Demand for Supportive Services in Housing for the Elderly," 200

\$3,100



D. University Committees

Harvey L. Friedman, Director:

Faculty Committee on Faculty Affairs  
Chairman, Sub-Committee on Legal Matters  
University Broadcasting Committee  
Chairman, Faculty Committee on Continuing Education  
University Ombudsman Search Committee  
School of Education Doctoral Committees (5)  
School of Business Administration Doctoral Committee (1)  
Anthropology Department Doctoral Committee (1)  
History Department Doctoral Committee (1)  
Political Science Department Independent Research Committee (3)  
Grievance Committee, Faculty of Social and Behavioral Sciences

Milton Brooke, Research Coordinator:

Search Committee for Director of Labor Relations & Research  
Center

E. Professional Activities: Paper (P); Speaker (S); Attended (A)

Professor Friedman

1971

July 6, 12; Sept. 14; Oct. 12, Nov. 18; Dec. 9 Jan. 18, July 27, 1972	New England Farm Workers Council Board Meetings (A) †
July 27-28	Service Employees Int'l Union Summer Institute, U/Mass at Amherst, (on "Grievance Handling in the Public Sector") (S)
Aug. 30, Sept. 24	Orchard Hill Consumer Survival Skills Course Preparation (A)
Aug. 30, Sept. 24, Oct. 15, Nov. 22, Dec. 22	Committee on Future Development of Western Mass. Meetings (A)
Sept. 16	Special State Commission on Collective Bargaining Meeting (A)
Sept. 30	University Year for Action (on community action) (S)



- Oct. 1-3 American Federation of Tech. Engineers Mid-West Conference, Gannon College, Erie, Pa. (on "Engineers & Collective Bargaining") (S)
- Oct. 6 Pittsfield Community Pre-Retirement Program, Keynote Speaker (on "So You're Planning to Retire") (S)
- Oct. 7-8 Mass. State Labor Council ~~Annual Convention, Boston~~ (A)
- Oct. 18-20 Conference on Economic Development for Western Mass., Chairman of sub-groups & commentator on Final Report (S)
- Oct. 25 Undergraduate Teaching-Evaluation Conference (A)
- Oct. 26 LRRC Colloquium, Daniel Murray, Exec. Vice President, Mass. State Labor Council, AFL-CIO (A)
- Oct. 28 U/Mass. Pre-Law Association (on preparing for law school)(S)
- Nov. 5 Worcester County Teachers Assoc., Worcester (on the role of the principal in the educational collective bargaining process) (S)
- Nov. 18 Governor's Commission(on Preparation for the White House Conf. on the Aging), Boston (A)
- Nov. 23 LRRC Colloquium, Attorney Sam Angoff (A)
- Nov. 28 - Dec. 2 White House Conf. on the Aging, Washington, D.C. (A)
- Dec. 7 Deans Council, U/Mass/Amherst (on faculty collective bargaining) (S)
- Dec. 9 Social Security Administration Training Course (on collective bargaining) (S)
- Dec. 15 School of Nursing Honor Society (on the White House Conference) (S)
- Dec. 16 WFCR one-hour program (on the White House Conf.) (S)
- Dec. 27-30 Industrial Relations Research Assoc. Annual Conference in New Orleans (A)



1972

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- Jan. 19, Mar. 27,  
April 11, May 1 State Commission on Collective Bargaining—(open)  
Meeting, Holyoke (A)
- Feb. 9 2d Conference on Economic Development for Boston  
Mass., Amherst (A)
- Feb. 12 Pioneer Valley AFL-CIO Annual Conference, Springfield (A)
- Feb. 16 Meeting with Secretary of Elderly Affairs, Educational  
Affairs & Manpower Affairs, Boston (on proposed  
projects) (A)
- Feb. 16 Boston College Economic Development Seminar (A)
- Feb. 17 Meeting with SUNY Graduate School of Public Affairs  
Team, Amherst (A)
- Mar. 3 Conference on the Assault on Equality (on equality  
in Economics) (S)
- Mar. 15 State Employee Leadership Conference on Collective  
Bargaining I (on strengths & weaknesses of State  
Employee collective bargaining), Waltham (S)
- Mar. 21 Gov. Sargent's address on the elderly and the swearing  
in of the Technical Advisory Committee, Boston (A)
- Mar. 25 Holyoke Community College Faculty Meeting, (A)
- Apr. 4 Industrial Relations Research Assoc. meeting, Boston (A)
- May 5 Visit of M. Kezer, Delegate from Israel Labor  
Federation (A)
- May 15 Visit of Secretary of Elderly Affairs to Amherst (A)
- May 30 U.S. Civil Service Commission, Boston (on Federal  
Employee Collective Bargaining) (S)
- June 8 Municipal Managers Assoc., (on "Labor Objectives  
in the Public Sector") (S)
- Milton Brooke
- May 10-12, 1972 Annual Meeting, University Labor Education Association,  
Washington, D.C. (A)
- Dec. 27-30, 1971 Annual Conference, Industrial Relations Research  
Association, New Orleans (A)





F. Other Professional Activities

Professor Friedman

Private Research

Resource Contributor, Ford Foundation Educational Leadership Project,  
School of Education

Government Support

State Commission on State Employee Collective Bargaining  
(Chairman, Subcommittee in Management Relations)  
Task Force on Collective Bargaining, State Board of Education  
Task Force on Training (White House Conference on the Elderly)  
Delegate, White House Conference on Aging

Consultative Services

To: Unions, governmental groups, religious orders, joint labor-  
management groups, etc.

On: Collective bargaining, labor-management relations, pre-retirement  
training, consumer problems, inter and intra-governmental  
relations, practical politics, etc.

University Support

Orchard Hill Consumer Survival Skills course preparation, August 19, 1971  
Center for Education Leadership, School of Education Orientation  
Seminar, August 31, 1971  
School of Nursing Senior Seminar on Collective Bargaining for Nurses,  
September 23, 1971  
Political Parties course, on party committees October 27, 1971  
School of Nursing Senior Seminar on Collective Bargaining for Nurses,  
February 24, 1972  
Center for Leadership in Education class on the Politics of Education,  
February 29, 1972  
Graduate Course in School Administration on the basis of Collective  
Bargaining, April 5, 1972, May 3, 1972  
Speech 165 on the Massachusetts Primary, April 19, 1972

Professional Memberships

Industrial Relations Research Association  
National Board, American Arbitration Association  
Boston Bar Association-Labor Management Board  
New England Political Science Association  
American Federation of Teachers



Mr. Brooke

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In-House Research

Completed a comprehensive study of the Massachusetts workmen's compensation law which resulted in an article entitled, "Reforming Workmen's Compensation: Recommendations for Massachusetts," published in the Harvard Journal on Legislation, Vol. 9, No. 1, November 1971, pp. 1-30.

Principal Investigator, Contract no. 113, National Commission on State Workmen's Compensation Laws: see Federal Research.

Consulted With

Leo Bouchard, trade union official re: workmen's compensation in Massachusetts, July 2, 1971

Edward G. Garvin, Assistant Regional Administrator, Occupational Safety & Health, U.S. Department of Labor, Boston, August 27, 1971  
re: Conference on Safety & Health scheduled for January 1972 at UM/Amherst

Angel Garcia, Migrant Education Project, OEO, re coverage of migrant workers under Massachusetts unemployment insurance and workmen's compensation laws, August 30, 1971

Larry Kimble, Raymond Mathey, trade union officials re: role of trade unions in industrial safety and health, November 30, 1971

Gerald Grady, Business Manager, UM/Amherst, re: coverage and record-keeping requirements under the Fair Labor Standards Act, December 3, 1971

Chairman & Executive Secretary of the Industrial Accident Board, Boston, January 6, 1972

U.S. Department of Labor Officials, Washington, D.C., re: workmen's compensation, May 10, 1972.

Professional Memberships

Industrial Relations Research Association  
University Labor Education Association  
American Association of University Professors



V.

ACCOMPLISHMENTS

As indicated in the introduction, the accomplishments of the Center included the consolidation of the academic program together with the beginnings of expansion in the areas of curriculum reform and interdisciplinary and community activities. The prime accomplishment of the Center was to "keep afloat" with a minimal staff --indeed, had it not been for their devotion to duty and high standards, major problems might have appeared. The Center continued to have high visibility both on and off the campus and its reputation continued to grow.

Again this year the Center was successful in placing students in internships, with 16 going to work for unions and government agencies starting in June 1972. Most significant, however, was the 100 percent placement of 1971 graduates: 11 went to work for labor unions, 9 to Government jobs and 1 to law school who is also teaching part time. Some of the organizations hiring LRRC graduates include the National Labor Relations Board, the Communication Workers of America, various state divisions of the National Educational Association, U.S. Civil Service Commission, Bureau of Labor Statistics, and the Manpower Training Office for Western Massachusetts. Reports from the field indicate that the work of these students has been of the highest quality and that the class of 1972 will have no problems with placement.

The number of students in the degree program totalled 27 during the fiscal year. In January 1972 three students graduated (one special student included) and in June 1972 two students received degrees with four others scheduled to graduate in September 1972. Completed applications reviewed numbered 58; to date 12 have been admitted for Fall 1972.

In the area of research, Professor Solomon Barkin, Research Associate in the LRRC, continued his project on manpower policies which is funded by the U.S. Department of Labor and sponsored by the LRRC.

Mr. Milton Brooke, Research Coordinator of the LRRC, conducted a study of promptness of payment in both litigated and non-litigated cases and adequacy of voluntary payments in the states of California, Florida, Massachusetts, New Jersey, New York and Wisconsin to determine methods of overcoming delays in first payments of workmen's compensation benefits and in the hearings process in controverted cases. This was a grant funded by the National Commission on State Workmen's Compensation Laws in Washington, D.C.

The LRRC's complement of Research Associates again includes Professors Stanley Young, Tim Bornstein and Max Wortman (School of Business Administration), Curt Tausky (Sociology), Solomon Barkin (Economics), George Sulzner (Political Science), and George Levinger (Psychology). The research associates constitute the research resource for the Center, bringing their expertise to bear on this important function. The broad knowledge of the research



associates regarding off-campus projects within the range of contacts now available to the Center.

The Labor Library again this year employed two skilled librarians on a part-time basis and is continuing its expansion. This year a Microfiche Reader was purchased and its implementation will provide a significant service both for the Labor Center and for general campus use.

The LRRC Reprint Series continued during the year with the issuance of the following:

- #30. "Project Step-up: A Systems Approach to Upgrading Laid-off Disadvantaged Workers," by Robert L. Bjorklund, David A. Gray and Max S. Wortman, Jr.
- #31. "Reforming Workmen's Compensation: Recommendations for Massachusetts," by Milton Brooke.
- #32. "Political Implications of Public Employee Bargaining," by Thomas M. Love and George T. Sulzner.

During the past three years the LRRC has been slowly developing a film library composed now of approximately 30 films in the areas of trade unionism, civil rights & civil liberties, community services, labor history, national issues, issues of social concern and others. This year, the films were used by more than 75 different organizations ranging from academic departments at colleges and universities, unions & employee associations throughout New England, social agencies (i.e., the Office of Economic Opportunity, Neighborhood Youth Corps, etc.), high school social science departments, the Institute for Labor Affairs and numerous other community organizations. These films are provided free of charge as a public service. The visibility of the LRRC has increased, the University has provided a most welcome service to the community and the visibility of the labor movement has been enhanced.

The Center has received several requests to conduct undergraduate courses in collective bargaining, labor relations, etc. We are planning to provide these services either under a special problems number or utilizing graduate courses that could effectively handle these students. As indicated in Section 6, the curriculum reform will be considering developing this undergraduate area.





## VI.

### Future Plans and Needs

In academic year 1972-73, it is anticipated that a thorough academic reform of the curriculum will be considered and developed. In addition, the undergraduate component of the program originally proposed in the Center's founding documents will be considered. Subject to these activities and the continued success in placement of graduates, it is believed that for Fiscal Year 1974 a new faculty member will be needed.

It is understood that the Center will leave its present facilities for a limited stay in a modular building prior to its permanent placement in a building suited to its mission. Because of the pending moves, it is not planned to purchase any new equipment; however, once the moves are completed, certain new equipment in line with expansion of the faculty and in replacement of older articles will be needed.



University of Massachusetts/Amherst  
University Library

August 1, 1978

LIBRARY REPORT, FISCAL YEAR 1978

With the move to the new 28-floor University Library, the long planned and awaited University Library System will be, with one exception, completed. The system consists of the main library (University Library) and three branches (Physical Sciences Library, Biological Sciences Library, and a new Fine Arts Non-Print Library to be established when the Fine Arts Center is completed). When the physics research facilities in the Graduate Research Center are complete, the Physics Library will be merged into the Physical Sciences Library. This system represents a consolidation of collections from the main collection (General) Library and 17 branch libraries which existed in 1969.

The University Library System serves all students, faculty and staff of the University of Massachusetts at Amherst. In addition, the Library System serves the students and faculty of the Boston and Worcester campuses of the University, the 28 public institutions of higher education in Massachusetts, Amherst College, Hampshire College, Mount Holyoke College and Smith College. Service is extended to these institutions through special arrangements with the administration of the individual schools. Citizens of Massachusetts are also permitted to use the libraries but do not have circulation privileges, and other services are limited. Full library privileges are extended to visiting scholars by special arrangement with their institutions or a department on campus.

Through interlibrary loans, a courtesy service among libraries, library materials are borrowed from and loaned to libraries throughout the world.

### Professional Staff Activities

To list in detail the professional staff activities beyond regular duties for a professionally alert staff is not possible in a report of this type. A selection of important highlights would include the following:

The Council on Library Resources awarded fellowships to three staff members; the first time that three fellowships were awarded to staff at a single library.

Spec. Proc.



During sabbatical leave Katherine Emerson used the fellowship to support her research on the "development of qualitative and quantitative measures of reference service in selected university research libraries, with particular emphasis on relations between varying staffing patterns and user satisfaction." Gordon Fretwell will study "programs of user support that a typical group of 15 U. S. colleges and universities provides graduate students in the humanities and social sciences through libraries and library-related services." Through funds provided by the fellowship, Fay Zipkowitz will use her sabbatical leave to study at the Institute of Library Research, University of California, Berkeley, and the Library of Congress' MARC Office.

Donald Hammer was elected president of the Information Sciences and Automation Division of the American Library Association. Other staff members serve on committees and actively participate in the American Library Association, American Society for Information Sciences, Special Libraries Association, Massachusetts Library Association, New England College Librarians, New England Library Association, Association of College and Research Librarians, New England Technical Services Librarians, and various other special subject oriented organizations.

Pauline Collins and Stanley Radosh taught courses at the University during the last year. Kenneth Greason, Robert Lynch and Fay Zipkowitz taught library science courses for the School of Library Science at the University of Rhode Island.

Stanley Radosh was joint compiler of a bibliography on the Russian author Aleksandr Isayenich Solzhenitsyn which was published in the Bulletin of Bibliography. This fall IBM will issue two technical reviews of this library's automation and the BCL Project. Administrative staff of the Library and Information Systems Division of the Library aided the IBM technical writers and editors in the preparation of the reports.

Richard Talbot and other staff members were active in giving formal and informal lectures at library schools and professional meetings. The library continues to be very active in the Massachusetts Conference of Chief Librarians of Public Higher Education Institutions. Although Merle Boylen is the primary representative to the Conference, other staff members have made substantial contributions to the work of the Executive Committee, Long-range Planning Committee, Non-print Committee, and Standards and Staffing Committee.

Siegfried Feller and John Kendall prepared a request for a HEW Title II-A grant. The result was a \$25,000 Special Purpose grant for library materials, one of 11 awarded to university research libraries.

Spec. Proc.



Merle Boylan gave one of the Five College Library Lecture Series and participated in a number of Five College library activities, including the Board of Directors of the Hampshire Inter-library Center (HILC) and the Five College Librarians Council.

## Special Projects and Programs

### Conferences

With Hampshire College, the Library was co-host to the Conference on the Library in an Era of Expanding Technology. Sponsored by the New England Technical Services Librarians, the New England College Librarians, and the New England Chapter of the American Society for Information Sciences, the two-day meeting explored the potential impact of telecommunication and instructional technology on libraries.

In May the Library was co-sponsor with the Organization of American States of the 17th annual Seminar on Acquisition of Latin American Library Materials (SALALM). Conferees to the five-day conference included representatives from libraries and research institutes in the United States and 18 foreign countries. Pauline Collins and Paula Mark, aided by many library staff members, were responsible for the organization of the program and local arrangements. The 18th annual meeting will be held in Trinidad.

### BCL Project

The Library continues to operate the BCL Project, which is a centralized library technical services center for the 23 public institutions of higher education in Massachusetts. The Project was initiated by the Massachusetts Board of Higher Education in an effort to bring the collections of the individual libraries to the level of the 1969 U. S. Office of Education/American Library Association standard. Continued annual appropriations from the Board of Higher Education have greatly improved the libraries' collections and developed a comprehensive technical services operation for the participants.

At the end of two years of operation (three appropriations) the Project has purchased, cataloged and distributed over 600,000 volumes, 33,000 units of microtext and 45,000 reels of microfilm. Library materials were selected by the individual libraries. The Project orders, catalogs and processes the





materials, which are distributed to the individual libraries in 9000 1/2 inch pockets, labels and catalog cards ready to file. Over 3, 000, 000 catalog cards have been produced. The Board of Higher Education appropriations to date have included \$5, 500, 000 for library materials and \$675, 000 for processing and system development. The use of computers and other non-conventional methods continue to keep the processing costs below \$1. 00 per volume.

### MARC Tapes

One of the few institutions in the country to effectively utilize, in a daily operational mode, the Library of Congress' bibliographic records on magnetic tapes (MARC tapes), the Library continues to expand its use of these valuable records. They are currently used in the BCL Project and the Library's technical services operation for selection, ordering and cataloging of library materials. Further integration of the MARC tapes into the library operations is planned for the next fiscal year. Since the Library of Congress is expanding their coverage to include foreign language materials, music scores and audiovisual materials, the value of the tapes has vastly increased. It is fortunate that the Library has already implemented systems for maximum use of these bibliographic records. Continued savings from use of the tapes can be expected.

### Pioneer Valley Union List

The collection and editing of data, and publication for each new edition of the Pioneer Valley Union List of Serials and Journal Holdings (Amherst College, Forbes Library, Hampshire Interlibrary Center, Mount Holyoke College, Smith College, University of Massachusetts) continues to be the responsibility of the University of Massachusetts Library. Although this is an extremely important and valuable publication, a major effort is required each time a new edition is published. During the year, plans were made for an expanded edition which would include all journal and serial (closed and active) holdings information, and a new format was developed. The computer programs were revised or rewritten to provide for a much more flexible system capable of extracting various types and arrangements of data from the file and easy constant updating of records. The publication of future editions should not involve the horrendous efforts of the past, and hopefully we will have CRT access to the latest holdings of each library.



### Hampshire Inter-Library Center (HILC)

The Hampshire Inter-library Center continues to be housed in the Physical Sciences Library. The Director of Libraries is a member of the Board of Directors of the Center, and other University of Massachusetts staff participate in various HILC activities. Although the Center fulfills a valuable function, the heads of the five associated libraries feel that it is time to re-examine and re-define the mission of HILC in line with current academic programs, library needs and budget allocations. During the next fiscal year, it is planned to establish a well-defined program for the HILC operation.

### Merrill Foundation Grant

At the request of the Friends of the Library, Merle Boylan prepared a request for a grant for the purchase of retrospective library materials to support the programs in business administration. The Merrill Foundation gave the Friends \$25,000 for the purchase of the materials, which were added to the collection during the past year.

### Friends of the Library

The Friends of the Library organized a solicitation for funds for the purchase of library materials. Over \$800 was contributed to the Friends for this purpose.

## Major Activities

### Physical Sciences Library

The Physical Sciences Library, located in the Graduate Research Center, was opened in September. The move to the new library required the merger of four branch libraries, relocation of the Education Library to the first floor of the new facility, and the transfer of 40,000 volumes from Goodell Library to the basement of the Physical Sciences Library. It also required merging the card catalogs and other library records of the four libraries, establishment of new procedures, and extensive training of new staff. The move was made under the most adverse conditions imaginable. Since the new building was

Spec. Procs



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available under the terms of partial occupancy, many things were unfinished or not operating. There was minimal custodial service; no air conditioning (the windows are sealed); painting was incomplete; telephones and electrical outlets were not installed; there was only one inadequate staging area for all activities related to the building, including the library move; alterations necessitated by change orders were in progress; and there was little provision for removal of debris, empty packing crates, etc. In addition, the installation of furniture and equipment did not meet the specified schedules. Thus, the major effort in planning and scheduling the move to provide for the week to organize and establish a fairly stable library operation before the fall semester was completely wasted. For two months, almost daily total scheduling was required. The move was finally completed two days before classes began, although much work remained to be done by various contractors, and this was accomplished only through the efforts of more than 400 student staff members who were relocated to the new facility at a time when preparation for the fall semester was at its peak in Goodell. Under these circumstances, the much publicized and anticipated expansion in library services never materialized. Even the greatly improved physical facilities of the new library were unable to be properly utilized. The result was a very poor library operation which was constantly criticized by many users, although the library had no control over many of the factors creating the situation. Months of planning to insure a good library operation before the fall semester could not overcome the obstacles which developed during the summer. The consequences of the lack of strong, organized, centralized control over all activities related to the new building will not be rectified by the Library for a long time.

### New University Library

During the year large amounts of time have been devoted to the final planning for the new University Library. Among the many factors which have contributed to making this work so complicated and time consuming are: the excessively long period between design and occupancy; the rapid expansion of academic programs, enrollments, faculty, and the demands for greatly increased library service; the very uniqueness of the new library building in size, format and programmatic design; escalating costs which required undesirable modifications altering the original program; the shortage of over \$300,000 for furniture and equipment; the indefinite occupancy date; and the lack of strong centralized control on all matters relating to the construction and occupancy of the building. To plan for optimal operations under these circumstances has required in-depth exploration of many more contingencies and possibilities than were originally intended or would normally be expected. The



planning will continue into the next fiscal year, during which we hope to occupy the building. Planning on the building has been done almost exclusively by the professional staff of the library whose assignments still include their regular workload. In several cases, the time spent on planning for the building has almost doubled an individual's workload. Over five man years of effort have gone into planning this year.

### Automation

The cost effectiveness demonstrated previously by the Library's computer applications was more fully realized this year. Continued implementation of computer, machine and manual systems, plus improvement of existing systems, permitted utilization of existing resources that were definitely measurable. Through the use of MARC tapes, the MOBE, and various other data compilations, many processing steps were simplified. Expansion of the present system will continue, and it seems certain that early in the next fiscal year additional savings will be realized. Cost effectiveness has not been gained through reduction in service to library users. It has actually improved services, moving many types of materials through acquisition and cataloging cycles at a speed rarely equaled by academic libraries.

Although the Library's "automation" has produced results that qualify it as successful, this should not be interpreted as meaning that the library has an operational automated system. That we have developed one of the most successfully operating library computer applications in academic libraries is certainly true, but it is still an application, not a full fledged operational system. There remains a huge record conversion project and much systems work to be done before a truly efficient "automated" library system is established and the full benefits realized.

### Collections

Identification of library resources which needed to be organized or reorganized for greater utilization has resulted in the initiation of a number of major projects relating to documents, serials, maps, archives, microtext, national bibliographies, scores, and technical reports. Because of the extremely crowded conditions in Goodell Library, some of the work must be delayed until the move to the new library building. However, preliminary studies have taken place and in some cases the actual inventory, data acquisition, reorganization and cataloging or recataloging are in process. In addition, certain areas of the collection were





inventoried or counted this year to establish a better statistical base for the collection in its current status. These projects often create temporary but sizeable service problems during the interim between the old and new systems. Since some of the projects will take several years to complete, these inconveniences will continue. However, the greatly improved access to library resources will more than compensate for the temporary problems created.

### Millionth Volume

With the addition of the millionth volume to the collection, the University of Massachusetts Library achieved a significant landmark in the development of the University. Representing the millionth volume, a Library staff gift of a first edition (Boston, 1754) of Jonathan Edwards' Freedom of the Will . . . was presented to the Library at a reception held in Memorial Hall.

### Future Plans and Needs

For the immediate future the Library has two very urgent and complex problems. First, the move to the new University Library and development of a service-oriented library system that is compatible with the programmatic structure of the building and responsive to the needs of the campus is a major undertaking that will not be stabilized for over a year. Second, solving the Morrill Library's critical need for additional space must receive very high priority. Merging of many branch collections into the Morrill Library was predicated on the basis that Morrill V would be completed for occupancy in the mid-1970's. This is no longer realistic. The Morrill Library, which needs a seating capacity of between 200 and 300, actually has 87 seats. Stacks can no longer accept the more than 12,000 volumes added annually, and staff work areas are inhibitive crowded. Additional space for this highly used library must be acquired and be functional during the first half of the next fiscal year.

Future planning for the Library also includes a number of programs essential to the development of the capabilities of anticipating and meeting service requirements of the University community. A more stable base for the acquisitions program must be developed through increased dependable funding, so that collection development may proceed in a well planned, efficient manner which will insure adequate coverage of current academic programs. Evaluation of the



August 1, 1972

existing collection and its organization for greater accessibility must become a continuing high priority program. Library automation projects must continue to be implemented as rapidly as practical within the limitations of equipment and funds. As more activities are automated and integrated into the master system, it will become more effective, with an even greater record of cost effectiveness and improved service. The expansion and improvement of services must produce a highly effective system of interrelated services. Instructional programs for library users and careful consideration of the special needs of undergraduates must be given high priority in the next several years.



LIBRARY

State Accounts	1970 Operating Budget	1971 Operating Budget	1972 Operating Budget
03	\$193,961	\$206,000	\$143,000
10	2,750	2,750	3,000
11	14,000	20,088	10,000
12	2,206	1,776	2,500
13	16,550 (88,400)*	26,735 (76,148)*	39,500 (60,500)*
14-T	7,500	15,250	19,000
15	5,300	25,000	5,000
16	9,000	25,000	8,700
T o t a l	\$251,267	\$322,599	\$230,700

\* Books



ORGANIZATION CHART  
1971/72

M. Boylan

DIRECTOR'S STAFF  
Programs and  
Planning  
Personnel  
Budget  
Security

TECHNICAL SERVICES  
R. Talbot

EXECUTIVE OFFICER  
R. Lynch

MONOGRAPHIC Acquisitions  
V. Conrad

CATALOGING  
I. Kavanaugh

RESERVES  
F. Zyzanski

LIBRARY ZEPHYRUS  
S. Brynleben

LIBRARY AND INFORMATION SYSTEMS  
D. Hammer

EXECUTIVE OFFICER  
D. Koslow

LIBRARY SYSTEMS  
J. Sokolowski

RCL  
G. Wright

BIBLIOGRAPHY  
S. Feller

BRANCH LIBRARIES  
G. Kenigs

Education  
I. Ashison

Marine  
J. Craig

Music  
A. Hough

Library  
I. Feltz

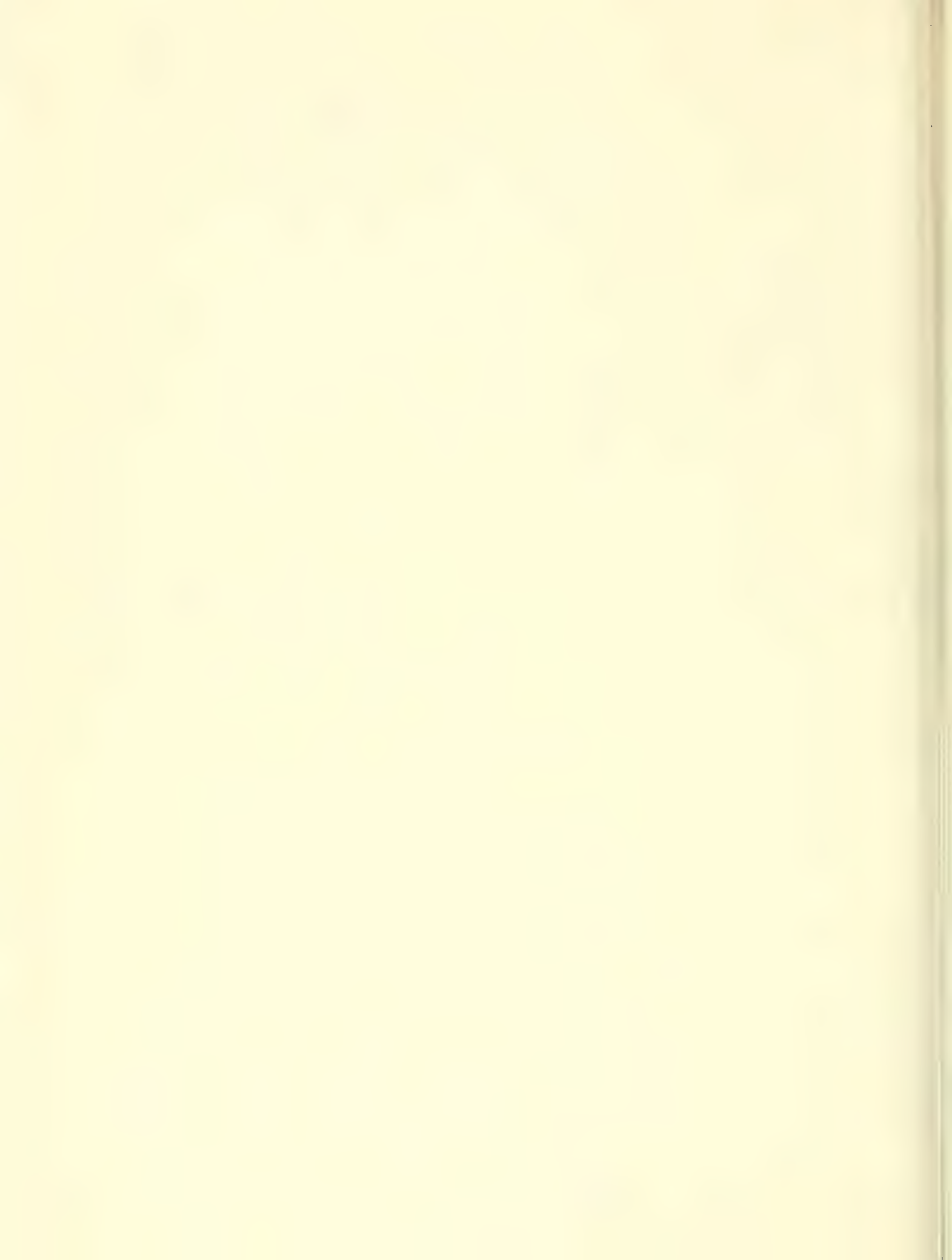
PUBLIC SERVICES  
G. Fretwell

STUDIA  
R. S. S. S.

STUDIA  
S. S. S.

STUDIA  
K. S. S.

STUDIA  
S. S. S.





Library Personnel

	<u>1969/70</u>	<u>1970/71</u>	<u>1971/72</u>
<u>01 Professional Positions</u>			
Librarian I	7	7	7
Librarian II	14	13	14
Librarian III	14	12	12
Librarian IV	6	6	6
Librarian V	8	7	7
Staff Associate	0	0	0
Staff Assistant	<u>0</u>	<u>1</u>	<u>1</u>
Total	49	46	51
Vacancies	<u>3</u>	<u>6</u>	<u>6</u>
Total Positions	52	52	57

01 Non-professional Positions

Grade 3	19	21	19
Grade 5	0	0	7
Grade 6	7	11	12
Grade 7	28	30	34
Grade 9	19	19	24
Grade 11	<u>20</u>	<u>20</u>	<u>19</u>
Total	93	101	115

03 Positions

Non-professional	32.	22.	2.5
Students (FTE)	33.25	23.75	19.
Work-Study Students (FTE)	17.25	7.75	20.

BCL Project \*

Librarian I	0	2	3
Programmer/Analyst	3	3	2
Non-professional (FTE)	24	31.50	12.50

\* Funded by Massachusetts Board of Higher Education



UNIVERSITY OF CALIFORNIA  
LIBRARY  
STATISTICS FOR THE FISCAL YEAR  
ENDING 1972

Library Materials	Total 6/30/70	Dis- c/30/71	Acq- sition 1971- 72	Dis- posi- tion 1971- 72	Total 6/30/72
Books	523, 157	461, 387	11, 554	100	112, 324
Periodicals, bound	120, 175	144, 207	20, 200	500	102, 678
<b>TOTAL CATALOGED VOLUMES</b>	<u>702, 760</u>	<u>605, 594</u>	<u>31, 754</u>	<u>1, 500</u>	<u>114, 992</u>
Documents	183, 137	202, 072	25, 802	2, 798	112, 169
Technical Reports*			12, 343		12, 343
Curriculum Guides	1, 230	1, 362			1, 362
Geological Surveys	1, 877	1, 877			1, 877
Phonograph Records <sup>+</sup>	2, 886	2, 926	212		3, 198
Total Other Items	<u>189, 130</u>	<u>208, 237</u>	<u>38, 357</u>	<u>5, 598</u>	<u>241, 022</u>
<b>TOTAL VOLUMES</b>	<u>891, 890</u>	<u>1, 003, 831</u>	<u>125, 574</u>	<u>6, 644</u>	<u>1, 378, 704</u>
Reels Microfilm	<u>28, 246</u>	<u>44, 216</u>	<u>6, 060</u>		<u>50, 276</u>
Microcards		2, 604	524		3, 128
Microprint		3, 305	1, 283		4, 588
Microfiche	103, 321**	136, 233	18, 944		155, 177
Total Microtext	<u>131, 567</u>	<u>186, 358</u>	<u>26, 811</u>		<u>213, 169</u>
Maps*#			42, 995		42, 995
<b>TOTAL COLLECTION</b>	<u>1, 023, 475</u>	<u>1, 189, 968</u>	<u>195, 380</u>	<u>6, 644</u>	<u>1, 378, 704</u>
Serial titles received, not including periodicals	3, 290	5, 373	629	143	5, 859
Periodical titles received	8, 617	9, 587	677	258	10, 006
<b>TOTAL SERIALS</b>	<u>11, 907</u>	<u>14, 960</u>	<u>1, 306</u>	<u>401</u>	<u>15, 865</u>

° Document serials being bound and transferred to cataloged collection.  
 \* Categories of materials added to statistics during 1971/72.  
 \*\* Reported as total microtext units; separated into categories 1970/71.  
 + Inventoried 1971/72.  
 # Counted 1971/72.



University of Wisconsin - Stevens Point  
 University Library

Selected Library Statistics

	1969/70	1970/71	1971/72
<u>Reference Questions</u>	<u>54,854</u>	<u>53,739</u>	<u>51,111</u>
Goodell	34,140	42,619	38,778
Branches	20,714	16,120 <sup>1</sup>	25,066
<u>Circulation</u>	<u>511,735</u>	<u>609,485</u>	<u>705,613</u>
Goodell	172,818	226,746	251,111
Branches	86,271	93,517	103,906
Goodell (Reserves)	192,890	212,415	233,293
Branches (Reserves)	59,756	76,807	109,030
<u>Interlibrary Loan Transactions</u>	<u>7,950</u>	<u>9,667</u>	<u>10,552</u>

\* Basis for recording statistics changed 1970/71.

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DEPARTMENT OF MILITARY SCIENCE  
UNIVERSITY OF MASSACHUSETTS  
AMHERST, MASSACHUSETTS 01002

30 June 1972

ANNUAL REPORT OF THE DEPARTMENT OF MILITARY SCIENCE

1.	<u>APPROPRIATIONS</u> - by fiscal year (FY):	<u>FY 1969-70</u>	<u>FY 1970-71</u>	<u>FY 1971-72</u>
03	Service, Non-employee	\$ 200.00	\$ 200.00	\$ -- - -
04	Food for persons	50.00	40.00	-- - -
06	Dry Cleaning	- -	- -	
10	Travel & Automobile Expenses	75.00	75.00	-- - -
12	Maintenance & Repairs	100.00	100.00	100.00
13	Special Supplies & Expenses	300.00	300.00	300.00
14	Office & Administrative Expenses	150.00	150.00	- -
14-1	Telephone	1,000.00	1,000.00	1,000.00
15	Equipment			
	TOTALS	\$ 1,875.00	\$ 1,865.00	\$ 1,400.00
2.	<u>PERSONNEL</u> - As of September of:	<u>1969</u>	<u>1970</u>	<u>1971</u>
	Professor of Military Science/Colonel	1	1	1
	Ass't. PMS/Maj/Cpt	3	4	3
	Lecturer/Maj	0	0	1
	Enlisted	5	5	4
	Senior Clerk, Grade 6	1	1	1
	Principal Clerk, Grade 9	1	1	1
	Armorer Artificer, Grade 5	1	1	0
3.	<u>ORGANIZATIONAL CHART</u> - See Inclosure 1.			





4. STUDENTS OR CLIENTELE SERVED SY 71-72.

a. Number of Majors (ROTC Cadets) MILITARY SCIENCE CLASS OF

	'75	'74	'73	'72
College of Agriculture	8	5	2	4
College of Arts and Sciences	9	3	6	4
School of Business Administration	3	-	1	2
School of Education	-	-	-	1
School of Engineering	1	3	4	-
School of Physical Education	1	-	-	-
Department of Public Health	1	-	-	-
Graduate School	-	-	4	3
5-College Students	<u>11</u>	<u>1</u>	<u>-</u>	<u>-</u>
	34	12	17	14

b. Number of Students Taught (Majors and Others):

	<u>SY 69-70</u>			<u>SY 70-71</u>			<u>SY 71-72</u>		
	<u>As of</u>			<u>As of</u>			<u>As of</u>		
	<u>Sep69</u>	<u>Feb70</u>	<u>May70</u>	<u>Sep70</u>	<u>Feb71</u>	<u>May71</u>	<u>Sep71</u>	<u>Feb72</u>	<u>May72</u>
Freshman Courses	53	46	44	38	34	33	27	39	39
Sophomore Courses	26	16	16	31	24	22	16	12	11
Junior Courses	23	21	21	17	16	15	22	18	18
Senior Courses	<u>50</u>	<u>45</u>	<u>45</u>	<u>21</u>	<u>21</u>	<u>20</u>	<u>15</u>	<u>14</u>	<u>14</u>
TOTALS	152	128	126	107	95	90*	80	83	82**

\* Includes 3 - 5-College students

\*\* Includes 14 - 5-College students

5. FACULTY PUBLICATIONS, RESEARCH GRANTS, RESEARCH PROJECTS, AND OTHER PROFESSIONAL ACTIVITIES.

a. Colonel George I. CONNOLLY, Jr., Professor of Military Science attended the National Strategic Information Center Workshop at Valley Forge, PA in September 1971. He also attended the Annual Professor of Military Science Conference at Fort Meade, Maryland in October 1971.

b. Major Richard P. BRENNAN will join the department in September 1972 as a Lecturer. He is currently completing the requirements for his Masters in Education from the School of Education.

c. Major James C. FAISON, Assistant Professor of Military Science continued work towards his PhD in Chemistry.

d. Major Thomas W. BEST joined the Department as a Lecturer in July 1971. He attended a ROTC Instructor Orientation Conference at Virginia Polytechnic Institute in August 1971.



## 6. MAJOR ACCOMPLISHMENTS DURING THE YEAR.

A major departmental effort continued this year to develop a more academic and flexible curriculum to meet University requirements for academic acceptance and approval. Concomitantly, every effort was made to increase faculty academic qualifications and to innovatively improve instruction. Academic content was significantly increased in six modified courses. Also cooperation and guidance was obtained from faculty members of other departments in modification and agreement to presentation of between 25-35% of the instruction in these courses.

The modified courses developed were: MS 111 American Military History I, MS 112 American Military History II, MS 135 Concepts and Application of Military Theory I, MS 251 Military Leadership and Management II, MS 252 Concepts and Applications of Military Theory II and MS 379 Defense Organization and Management.

Two new courses, MS 136 Military Leadership and Management I and MS 378 Military Law, were developed to increase the academic content of the overall departmental curriculum and to provide instruction more relevant to student interest, the needs of society and officer education. Of great significance was the enthusiastic cooperation of faculty members from other departments in the planning and eventual presentation of instruction. In the case of MS 136 Military Leadership and Management, as much as 50% of the course will be taught by members of other departments, whereas MS 378 Military Law will be taught principally by a faculty member of another department.

In accordance with University policy, course proposals were prepared for all modified and new courses. Beginning in November 1971, these proposals were submitted to the Military Affairs Sub-Committee of the Academic Matters Committee for review and later to the Faculty Senate for approval. All courses were accepted and approved. However, on April 27, 1972 the Faculty Senate passed a motion denying credit for courses taught by the Department of Military Science. This motion was accepted and concurred on by the University Board of Trustees on May 10, 1972. Therefore, beginning in September 1972 academic credit will not be granted for either modified or new courses taught by the Department of Military Science regardless of their academic content.

## 7. SPECIAL PROJECTS OR PROGRAMS OPERATED BY THE DEPARTMENT OF MILITARY SCIENCE 1971-72.

a. The Department continued development of its leadership laboratory portion of the program. The objective of this development is to present instruction which will be progressive and competitive and meet the goals of the University, at the same time developing the leadership skills required of an Army officer. The drill and ceremony instruction has been reduced to only that which is necessary to familiarize cadets with the requirements of individuals in the leadership positions of military units and to initiate the development of self confidence of individuals when placed in a leadership position. In lieu of the traditional drill and ceremony, the Department presented the following:

(1) Seminars were conducted by Army officers presently attending the University's Graduate School. The officers discussed their particular branch of the Army, its role, and the role they have played during their careers.



k. The 101st Army ROTC Commissioning Exercises were held on May 27, 1972. Dr. Robert Wood, University President was the principal speaker.

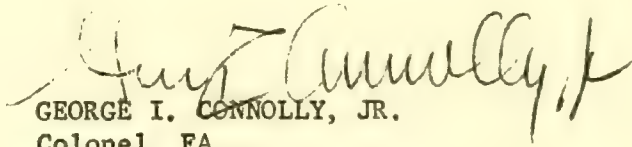
1. Thirteen students completed the campus ROTC requirements for commissioning as second lieutenants in the United States Army Reserves. Nine of the group received their commissions on May 27th. The remaining four will be commissioned later in the summer after completion of their University degree requirements or after attendance at the ROTC Advanced Camp. These individuals were given their choice of active duty service, two years or three months for training only. Eleven requested and received two years active duty. The two that requested it plus the one involuntarily assigned will serve on active duty for three months of training, only. There were seven Distinguished Military Graduates (DMG), all of these individuals took advantage of the option given DMG and applied for a Regular Army commission. To date six have been accepted into the Regular Army and the seventh should be forthcoming after successful completion of the Advanced ROTC Summer Camp. Eleven of the thirteen received their first choice of branch assignment in the United States Army Reserves, the remaining two received their second choice. However, due to the requirements of the Regular Army, only two of the six accepting Regular Army commissions to date, received their first choice. Three received their second choice and one his fifth choice. Those not receiving their first choice had all wanted to be commissioned in the Infantry branch.

8. FUTURE PLANS AND NEEDS.

The Department of Military Science will continue to improve its curriculum and improve the quality of instruction to fulfill the academic requirements of the University. It is planned that this be accomplished by maintaining the present academic qualifications of military instructors, and solicitation of increased cooperation from members of other departments in the planning and presentation of instruction in their areas of academic expertise. (However, it is a suboptimum utilization of academic and professional expertise to use military personnel with Masters degrees to teach courses sans academic credit.)

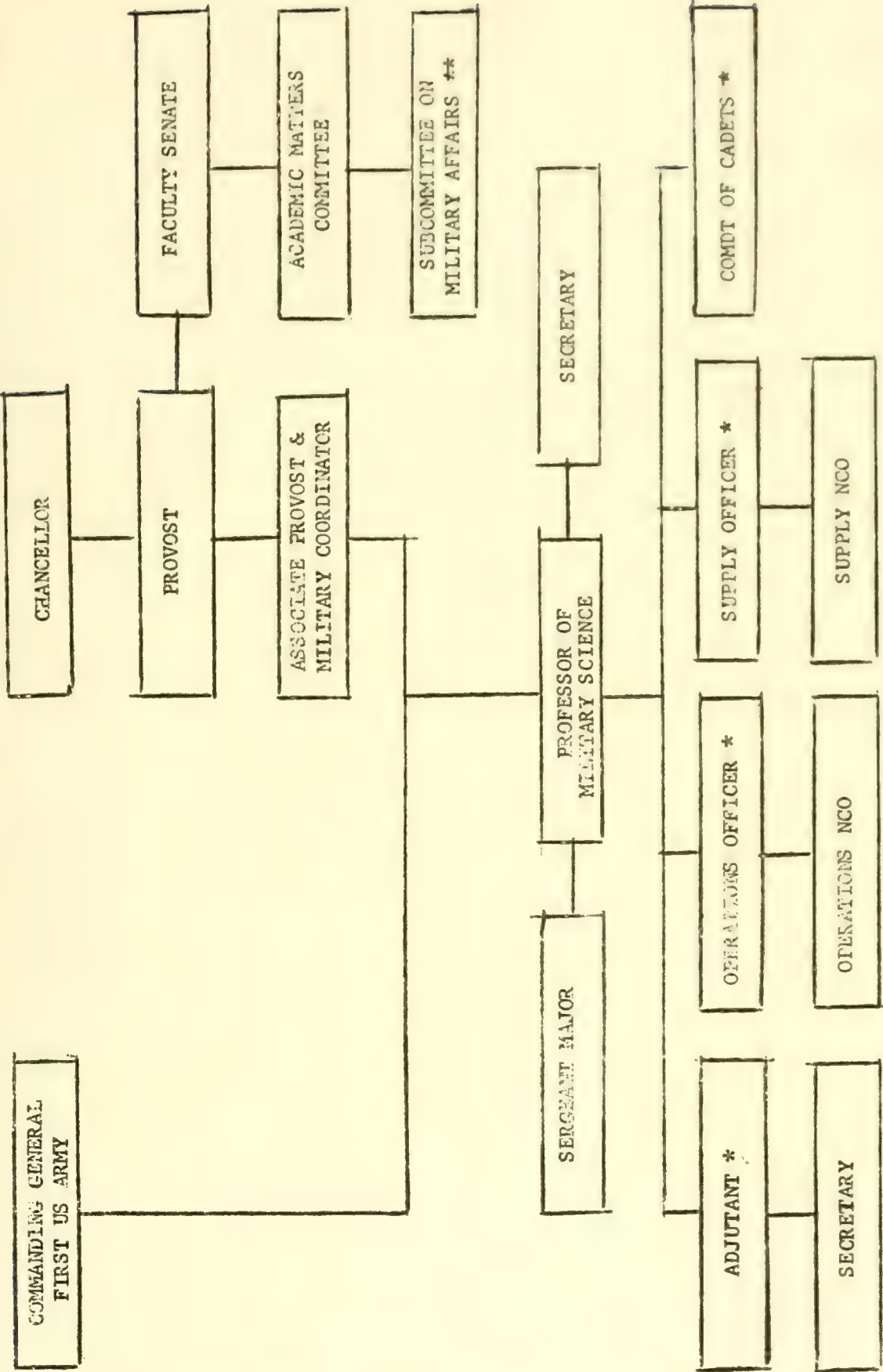
Every effort will be made to insure that the Department of Military Science remains a viable and productive department fulfilling the academic and professional needs of interested students.

1 Incl  
Organizational Chart

  
GEORGE I. CONNOLLY, JR.  
Colonel, FA  
Professor of Military Science

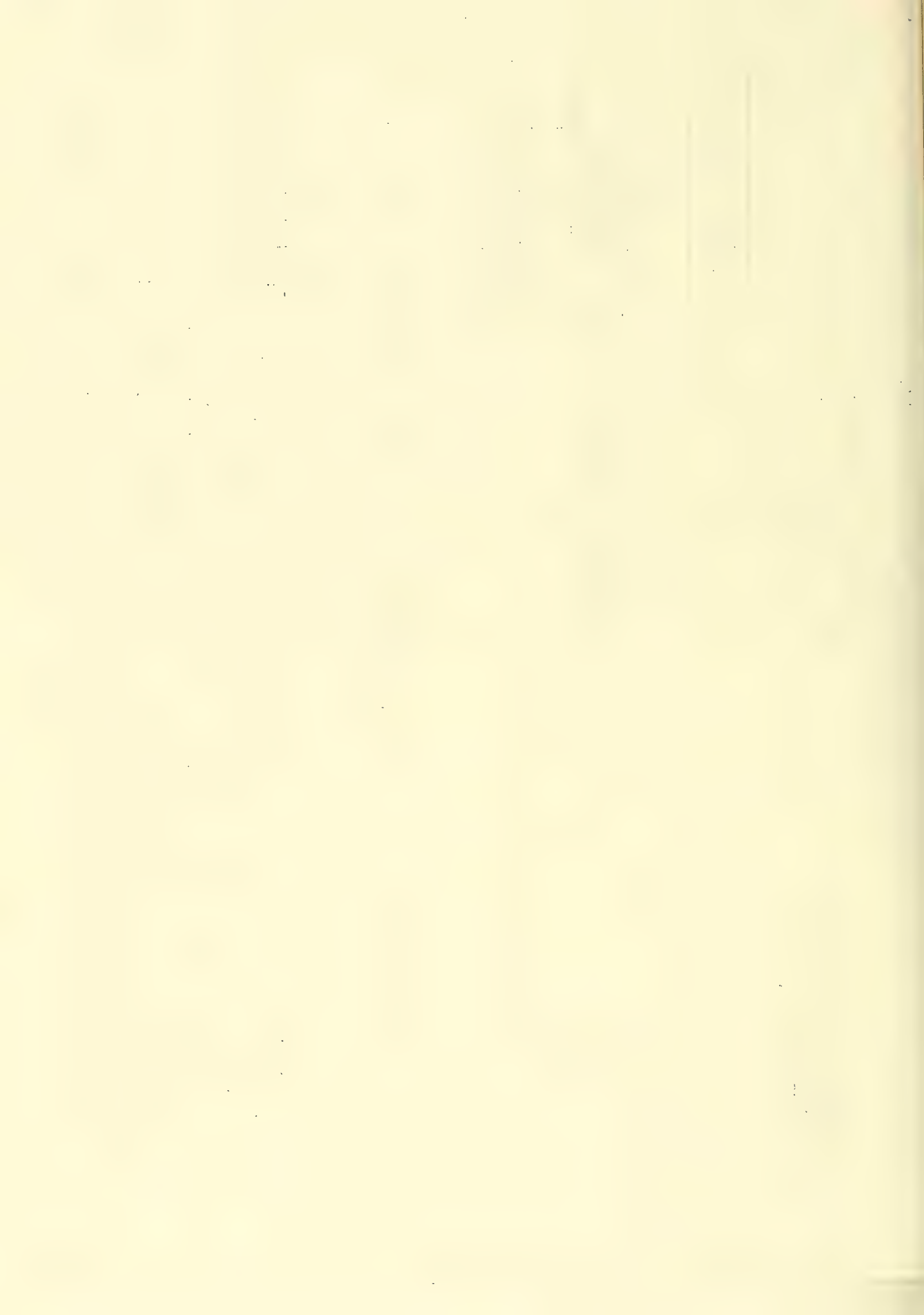


DEPARTMENT OF MILITARY SCIENCE  
 UNIVERSITY OF MASSACHUSETTS, AMHERST, MA. 01002  
ORGANIZATIONAL CHART



\* Full time instructors, and Military Science class advisors.

\*\* On all academic and curriculum matters and qualifications of officers nominated for assignment to department.







1878  
1879  
1880  
1881  
1882  
1883  
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UNIVERSITY OF MINNESOTA  
BACHELOR'S DEGREE WITH INDIVIDUAL CONCENTRATION

ANNUAL REPORT

JULY 1, 1972

1. Appropriations.

1969-70	None	
1970-71	03	\$ 2,000.
1971-72	03	\$ 3,500.
	13	300.
	14-1	150.
	14-3	200.
		<hr/>
		\$ 4,150.
	Trust Fund Interest	2,100.
		<hr/>
	Total Appropriation	\$ 6,250.

2. Personnel.

1969-70	No wage earning personnel.
1970-71	Two (2) part-time secretaries.
1971-72	One (1) Staff Assistant-3/4 time, effective January 30, 1972.

3. Organization of Unit.

The Bachelor's Degree with Individual Concentration Program is supervised by an interdisciplinary faculty committee rather than by a traditional department. There are three supervising committee members who represent diverse disciplines at the University. It is their responsibility to formulate basic policy and to be responsible for the program's operations.

4. Students Served.

The Bachelor's Degree with Individual Concentration Program is a four semester program which extends itself to any student at the University who has a desire to study an area not covered by a traditional department, and who can propose a unique, comprehensive major. This tailor-made program, which replaces a traditional major, leads to a B.A. or B.S. with Individual Concentration in the student's respective field.

Currently 185 students are participating in the BDIC Program. The maximum number of participating students in any one year will not exceed 500.



5. Not applicable.

6. Major Accomplishments.

In the past year the BDIC Program has recognized and isolated many new curricula that were not previously available to students at the University. Most importantly, it has been and is in the process of identifying recurrent student interests. Presently, BDIC is supervising a trial cluster group in the area of Human Services. Approximately twenty students are participating.

7. Special Projects.

See Item # 6.

8. Future Plans and Needs.

To operate effectively, BDIC needs to increase its personnel. A full-time Director and an administrative staff assistant are necessities, as well as a part-time secretary. BDIC is now occupying an office in Arnold House. Since the program is rapidly expanding and offering more opportunities for University of Massachusetts students, a larger office space is drastically needed.



## UNIVERSITY OF MASSACHUSETTS

## AMHERST

## MEMORANDUM

FROM.....Robert C. Hoopes, Associate Provost DATE..... July 28, 1972

TO.....Robert W. Wagner, Office of Institutional Studies

SUBJECT: Annual Report on University Undergraduate Honors Program

### Appropriations

Appropriation of state funds for Fiscal 72 and the immediately preceding year consisted of funds for one level 3 secretary. Additional assistance was provided in both years from federal funds to support and work-study student. Since all faculty members teaching honors seminars and assisting in advising students were on loan from their departments, or on over-ride, it may be said that varying percentages of faculty salaries, including those of the Acting Director and the Assistant Director, helped keep the Program afloat. In Fiscal 70, the Program's charter year, all operations were administered and handled by a Professor of English, on released time from his Department, and an English Department secretary who took on extra chores for no additional compensation. In that initial year the Program enjoyed no direct appropriations.

Beyond appropriated state funds, such as they are described above, the Program received additional support as follows:

- a. Direct annual grant of \$500 from UMass chapter of Sigma Xi, awarded to students engaged in writing Senior Honors Theses in the sciences (FY 70,71,72).
- b. Honors Program Trust Fund of \$1,000, awarded to students engaged in writing Senior Honors Theses (Annually, FY 70,71,72).
- c. \$5,000 from Provost's Office, administered by Honors Office in support of special student projects.

Special awards as listed above went characteristically in support of purchase of special materials, rentals, travel to gain access to libraries and materials, partial maintenance during field work, other equipment.

Apart from faculty on loan from departments to teach courses and counsel students, the entire personnel consists of the Director, the Assistant Director, and the Honors Office secretary.

FY 70: Professor Everett Emerson (English), Director.

FY 71: Professor Everett Emerson (English), Director (until January, 1971, resigned owing to illness).

Assistant Professor W. Brian O'Connor (Zoology), Assistant Director (until January, 1971; subsequently Acting Director).

Assistant Professor Robert Keefe (English), Assistant Director (from January, 1971).

FY 72: Assistant Professor W. Brian O'Connor (Zoology), Acting Director (until January, 1972; resigned in order to complete other projects).





Professor Robert G. Hoopes, Associate Provost (English), Acting Director (from January, 1972 to June 30, 1972; resigned upon an hug search committee's selection of permanent director).

Assistant Professor Robert Keefe (English), Assistant Director.

See #2, above.

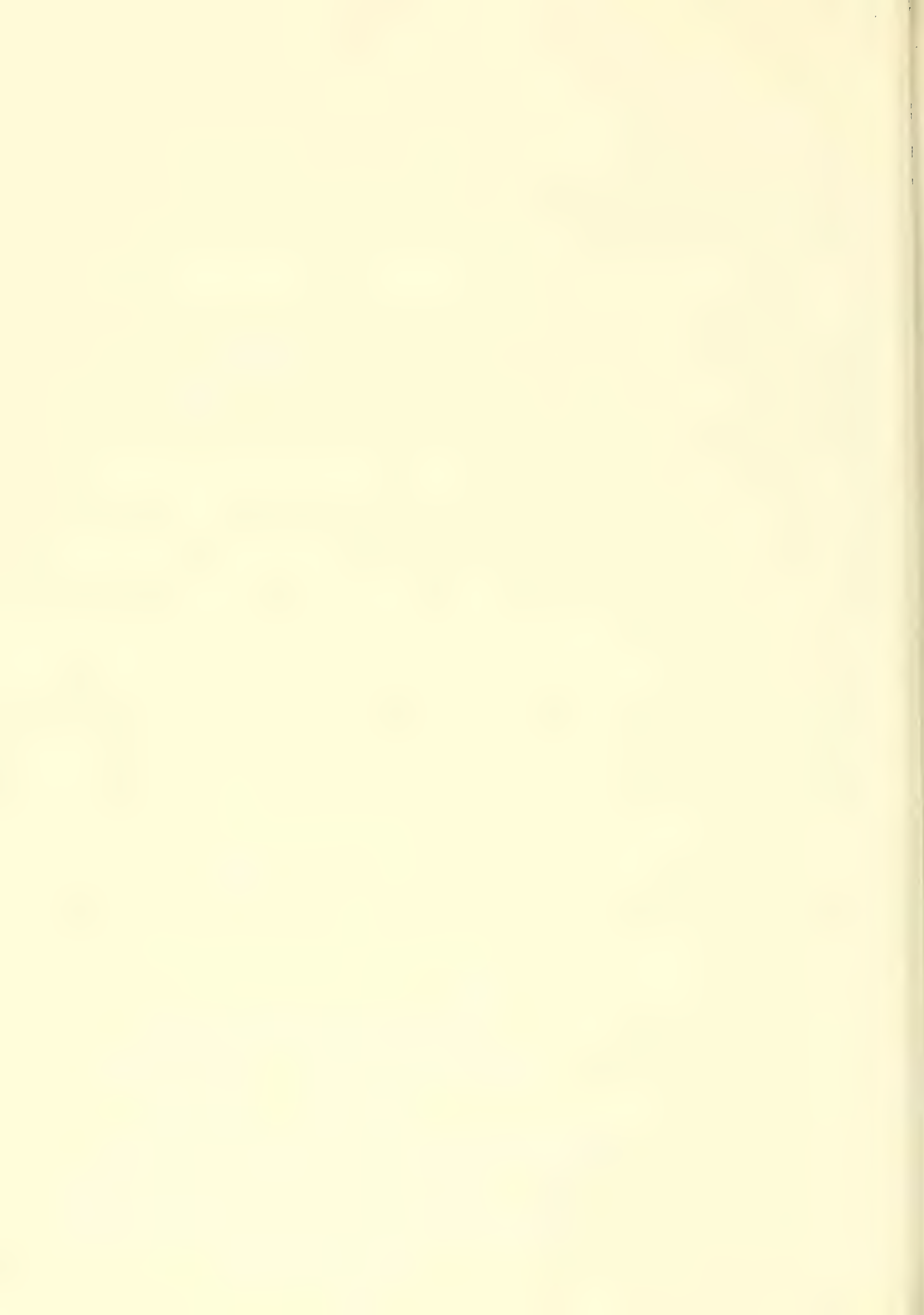
A total of 404 undergraduates were enrolled in honors seminars and special departmental honors sections during FY 72. The breakdown was as follows: Class of 72: 56 students; Class of 73: 101 students; Class of 74: 125 students; Class of 75: 122 students. A total of 17 honors courses were taught each semester by 36 faculty members, representing 20 departments (almost exclusively from the College of Arts and Sciences). In addition, 121 faculty members, representing essentially all disciplines in the University, served as Honors Program Preceptors.

In the special Honors Thesis program for Seniors, 113 students registered. Of these, 71 completed their projects and graduated with departmental honors. Twenty-seven seniors withdrew, and fifteen others are still pending.

Not applicable, save as participation in the program represents faculty commitment to special service beyond their normal departmental and personal scholarly obligations.

Upon Professor O'Connor's resignation from the Acting Directorship in January, 1972, Associate Provost Robert Hoopes was named Acting Director, with the understanding that he would assume this responsibility until a search had identified a "permanent" Director. The spring semester became, accordingly, a kind of holding operation. Nevertheless certain significant accomplishments may be reported during this transitional period, primarily modes of administrative reorganization that promise a less cliff-hanging operation in the future:

- a. Establishment of a new Honors Council as a permanent subcommittee of the Faculty Senate Academic Matters Committee. Composed of five faculty members and three students, representing both the College of Arts and Sciences and the professional schools (for the first time), this body gives witness to the translation of the Honors Program from a College to an all-University affair.
- b. Consistent with the above reorganization, Mr. Hoopes was encouraged to try for increased representation of the professional schools in honors seminar offerings planned for FY 73. That has been accomplished, and next year's honors schedule exhibits courses variously from Food and Natural Resources (née Agriculture), Physical Education, Business Administration, Engineering, Home Economics.
- c. During spring term of FY 72 a search committee, composed of four faculty members and two students, was established with the charge to identify a permanent Director. Out of 29 candidates nominated, six were interviewed for 2-3 hours each, and in early June Assistant Professor Cynthia G. Wolff of the Department of English was recommended unanimously to the Provost. Mrs. Wolff has since accepted the appointment and is already at her new desk



this summer. She will become a voting member automatically of the Academic Affairs Committee; Mr. Hoopes, in turn, will become a member of the Honors Council itself. Thus lines will remain formally and usefully open to both the Faculty Senate and the Provost's Office in the name of an all-University program committed to academic excellence.

7. See #6, above.

8. Future Plans

- a. Redefine "honors" as a department course(s) affiliated with a colloquium, i.e., an honors course becomes a designated departmental offering which a student takes for 4 instead of 3 credits, with the understanding that he will do extra work.
- b. By virtue of the above, a Commonwealth Scholar will be a self-selected (not pre-selected by recommendation and interview) student who agrees to take a specified proportion of his academic work in honors.
- c. Expand the whole notion of "honors" so that the program may serve the most gifted disadvantaged (i.e., bright but scholastically unprepared) students.
- d. Institute a double credit, 5-day-a-week course for disadvantaged (as above) freshmen in conjunction with the English Department's current program to train graduate students in the teaching of such students.
- e. Add options to senior honors thesis, e.g., field and community projects.

Withal, the goal will be to transform what is now little more than a device whereby enterprising students may escape core requirements into a meaningful honors program closely integrated with honors work throughout the departments. It will also represent an effort to eliminate the foolish redundancies that now embarrass us - a system in which a student may graduate with four sets of honors: (1) cum magna, or summa; (2) department honors; (3) honors in the honors program; (4) senior honors for senior thesis.

Future Needs

A Job Audit is attached, requesting one work-study student and one student paid with 03 funds. Last year the official allotment to the Honors Office called for two work-study students; in fact, only one was assigned. We realize that 03 personnel are more expensive and more difficult to obtain than work-study personnel, but we also feel very strongly that, given our increased activities, we may hope for requisite skills only if one of the two people assigned to work under the Honors secretary is hired after interviews. Our experience with assigned work-study people has been that they are incompetent to perform any but the simplest tasks.



JOB ADDIT

A. Work-Study Student - Honors Office (1972-73: suggest one student)

Routine filing.

Operate duplicating and sometimes mimeo machines.

Type simple lists in reply to requests from faculty and departmental offices.

Run errands and answer telephone.

Address envelopes. Keep current address list of Commonwealth Scholars.

Stuff envelopes for mailings which average two per month to over 400 students and 150 faculty.

B. Students paid with 03 Funds - Honors Office (1972-73: suggest one student)

Assist in counseling services.

Maintain class rosters for each course during pre-registration and registration. Assist in course changes.

Keep updated academic folders on each Honors student.

Maintain a file of information to be included in Honors Newsletter, which entails sifting through all other University and 5-College publications for information pertinent to Honors students. Arrange for publication and distribution of Newsletter.



MEMORANDUM

FROM Barbara E. Barn DATE July 20, 1972  
 TO Robert W. Wagner  
 SUBJECT Annual Report

Attached are the twelve copies of the annual report of the International Programs Office which you requested in your memorandum of June 13.

BBB/fa

*Barbara E. Barn*  
 Barbara E. Barn  
 Director  
 International Programs





# International Programs Office

Annual Report July 1972

## Introduction

During 1971-72 the International Programs Office expanded its operations in terms of staffing of the office, students and other clientele served, development of new programs and strengthening of existing programs, and total service to the larger campus and the university as a whole. These developments are detailed below.

## 1. Appropriations for the International Programs Office

From the time the office was established January 1, 1969 until last year, it was funded as part of the Provost's Office and had no separate office budget. State funds allocated to the International Programs Office for 1971-72 were \$12,000.

Other funds available for foreign programs in 1971-72 were:

\$ 3,000 from Student Senate for undergraduate scholarships  
7,400 from Max Kade Foundation for Freiburg Program  
1,000 from Five Colleges Inc. for Five College Flights costs  
11,500 from Graduate School for international programs  
10,120 from summer session funds for summer programs  
182,460 from student fees for foreign study programs  
10,600 from Provost's Office for Freiburg Program  
1,500 from UNIFE contract for administrative costs  
5,000 from Foreign Programs Administrative Trust Fund for  
Student Scholarships

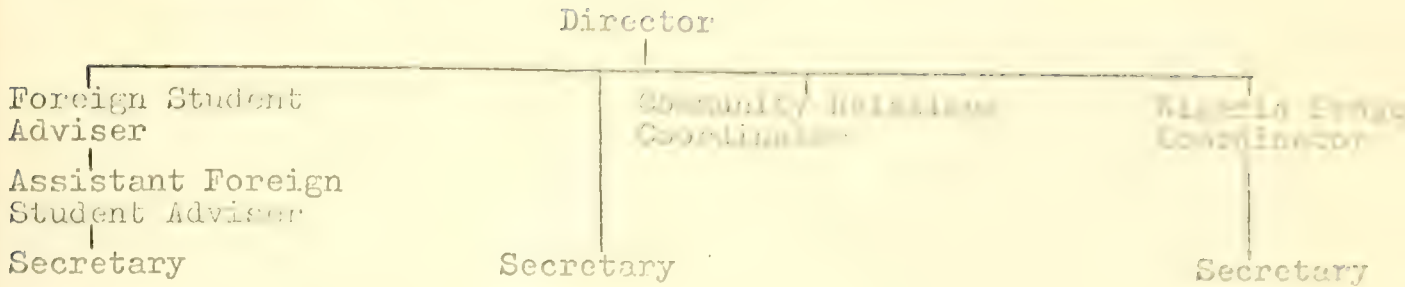
## 2. Personnel

	1969-70	1970-71	1971-72
Staff Associate	1	1	1
Staff Assistant	1½	1½	2 1/3
Classified Staff	2	2	2½
Administrative Intern	-	-	1

The above summary does not indicate total number of staff working on international programs. Specifically it does not include the numbers of faculty directing overseas study programs coordinated by the International Programs Office. Their number increased from five in 1969-70 to ten in 1971-72.



### 3. Organization Chart



### 4. Clientele Served

- a) the 700 foreign students and faculty at the Ashburn campus;
- b) American students studying abroad: about 385 in 1971-72;
- c) Students at the Amherst campus and to a limited extent at the Boston campus and at the private colleges in five colleges Inc. seeking information on overseas study, travel, work, scholarships, and related matters: impossible to estimate but some hundreds involved;
- d) Amherst campus faculty interested in research, teaching, consulting, and other activities abroad.

### 5. Professional Staff Activities

Ann Silva: participated in regional conference November 1971 Brattleboro, Vermont, and national conference May 1972 of National Association for Foreign Student Affairs (NAFSA) and was awarded a NAFSA grant to attend the national conference.

Judson Haverkamp: participated in NAFSA regional conference November 1971, Brattleboro, Vermont.

Arthur Boatin: participated in NAFSA regional conference November 1971, Brattleboro, Vermont, and NAFSA national conference May 1972. Appointed Massachusetts Representative for the New England Region of NAFSA. Participated in the third NAFSA-AID Workshop on Participant Training, February 1972, Washington, D.C.

Barbara B. Burn: participated in NAFSA regional conference November 1971 and NAFSA national conference May 1972; professional consultation with International Council for Educational Development, New York City, on comparative higher education developments, one day each November, January, March, May; attended annual conferences of American Council on Education, Association of American Colleges, and American Association for Higher Education; participated as one of twenty Americans in German-U.S. sponsored conference on



Higher Education in Germany June 11-23, Bad Nauheim, Germany; addressed Bryn Mawr College alumni on the status of women university administrators. Publications: Higher Education in Two Countries, McGraw Hill for the Carnegie Commission on Higher Education; "Dilemmas of the new movement", League Times Higher Education Supplement, October 28, 1971; "Status of women in American higher education," League Times Higher Education Supplement, January 14, 1972; "Comparative Patterns of Academic Services" in Women Education in Transition to be published by the Voice of America Fall 1972; "Comparisons Among Four University Organizations" in The University as an Organization, Janet A. Fovell, ed., League Bill for the National Commission to be published winter 1972.

#### 6. Major Accomplishments of International Programs Office 1971-72.

In the foreign student area the office continued to strengthen and improve administrative procedures for handling the needs of the expanding foreign student population. The Foreign Student Adviser played an increasingly active role in foreign student admissions, participated in developing more precise guidelines for handling requests for tuition payment deferments, consulted with directors of graduate programs in many of the departments enrolling significant numbers of foreign students, provided individual counselling to numbers of foreign students, and chiefly tried to cope with the vast numbers of requests and administrative matters directed to the Foreign Student Office. The Foreign Student Office received approximately 6,000 personal visits from individuals and handled over 7,000 incoming telephone calls.

In addition to the above activities the office devoted considerable effort to organizing the two-day International Fair, held in April. An estimated four thousand people attended this major social and cultural event. Critical support was given to it by the new Assistant Foreign Student Adviser.

In the area of community affairs the Community Relations Coordinator was active in strengthening and expanding various programs which facilitate contact between the foreign student population and the university and wider community. The program for foreign wives (Round-The-World-Wives) had a lively program of activities and enlarged participation. The Loan Closet expanded its operations, lending household equipment and furnishings to the foreign students. Although not all the requests of foreign students wishing to have a "host family" could be met, new families were recruited to the program and some seventy-five students gained from it. Cross-cultural workshops received particular emphasis during 1971-72 (see section 7).

New programs developed during the year offering U.Mass students the opportunity to study abroad included student exchanges with: the University of Keele, England; the University of Victoria, Canada; and the Centre de Formation de Professeurs d'Enseignement



General, Lille, France. The Int. Program Office was extended to provide for a semester's study at the University of Grenoble in the spring of 1972; some 60 students participated in this new undertaking. For the first time our students attended the Chelsea College of Physical Education in London through a cooperative arrangement worked out with that institution. Another program developed in 1971-72 to be implemented in 1972-73 provides for a student exchange with the University of Helsinki. Formal negotiations were undertaken for student exchanges with the University of the West Indies, the University of Kent in Canterbury, England, and the University of Lagos, Nigeria. The year 1971-72 also saw the final stages of negotiation of a partnership agreement with the University of Freiburg, Germany, setting forth principles for student and faculty exchanges. Including existing overseas study programs of the Amherst campus, students going abroad for study purposes totaled some 325, a substantial increase over 1970-71.

Other activities in which the International Programs Office has been involved in the past year included campus coordination of Rhodes and Marshall Scholarships, administration of the Five College Charter flights, participation in a review by a Faculty Senate sub-committee of overseas study programs, the development of a proposal to establish an international house on campus, participation in the preparation of a grant request to HEW for a new program in global survival studies, and the provision of information to numbers of students and faculty interested in international programs and activities of all kinds.

## 7. Special Projects and Programs

Apart from activities mentioned above the chief projects of the office have been cross-cultural workshops and the new technical assistance project with the University of Ife, Nigeria. With the support of the Associate Provost for Special Programs the Community Relations Coordinator developed a series of cross-cultural workshops, some lasting a weekend, some scheduled for one day only. Each of these workshops brought together about fifteen students, both American and foreign. Using various techniques of group interaction, the workshop leaders encouraged the students to participate in discussions and exercises aimed at facilitating an open examination and better understanding of cultural differences and the extent to which they inhibit cross-cultural communication. Next year it is hoped that the workshop program can be strengthened and expanded so that larger numbers of students are involved and the program can have a wider impact in promoting contact and understanding among foreign and American students.

The International Programs Office is responsible for the coordination of a technical assistance project in Nigeria. The project is a cooperative undertaking of the University of Massachusetts





the University of Connecticut, and the University of Ife, Nigeria, under a "host-country" contract funded by the United States Agency for International Development, for \$50,000 for two years. The contract came into effect in October, 1971. One University of Massachusetts and two University of Connecticut faculty members are now in Nigeria, conducting a series of 16-week courses in project analysis for Nigerian civil servants at the Institute of Administration of the University of Ife. One Nigerian faculty will come to the United States for doctoral study, and will be phased into the project during the second two years to replace the American faculty.

University of Massachusetts staff and faculty involvement in the Nigeria project is as follows: Professor John H. Bragg, Agricultural and Food Economics, is the U.Mass faculty member now in Nigeria. Professors John W. Lederle, John H. Foster, and Simon Rottenberg are the U.Mass members of the Consortium Committee which advises and evaluates the project. Barbara D. Burn is one of the three members of the Joint Secretariat. Jean M. Shepard is the coordinator of the project at U.Mass (part-time), assisted by a part-time secretary.

#### 8. Future Plans and Needs

Plans for remodeling an existing dormitory for use as an international house have been temporarily side-tracked by the failure of the General Court to act on Capital Outlay Budget appropriations. This project continues to have a high priority in the plans of this office.

The initial success of the cross-cultural workshops (see 7) indicates that expansion of this program will be fruitful.

The area studies programs of the University may receive greater administrative support if a part-time coordinator is recruited as anticipated. This office would support efforts to involve foreign students in the area studies programs.

This office will continue to explore opportunities for overseas study and for student and faculty exchanges. Particular effort will be made to expand opportunities for study and exchanges in developing countries especially those of Africa.

The most critical needs of this office are additional secretarial help and additional space. One full-time and three part-time secretaries are hard-pressed to keep up with the voluminous correspondence, while also serving as receptionists dealing with a stream of visitors and phone calls. The inquiries directed to this office are so varied that simple formulas of response are inadequate. An individualized answer is necessary in most cases and desirable in principle. The degree of competence and responsibility demanded of secretaries in this office is well above average.



There is an urgent need for one additional business office. Four part-time staff, whose schedules vary, occupy most of 144 square feet. When all four are present, as frequently happens, the density is almost four times greater than the norm of 100 square feet per staff and family member. The presence of frequent visitors exacerbates this situation, resulting in severely decreased efficiency. The remainder of the assigned space is fully utilized.









