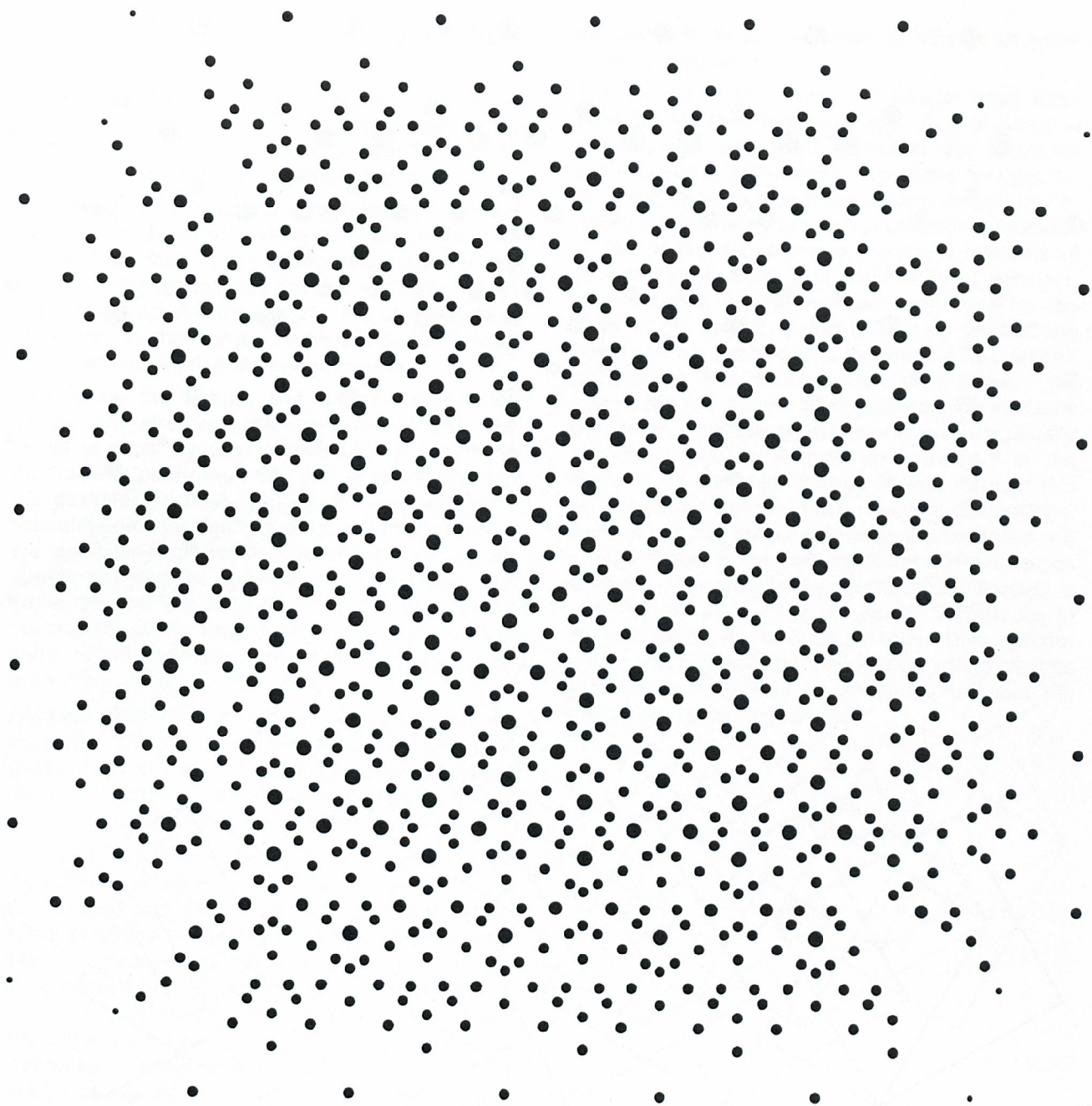
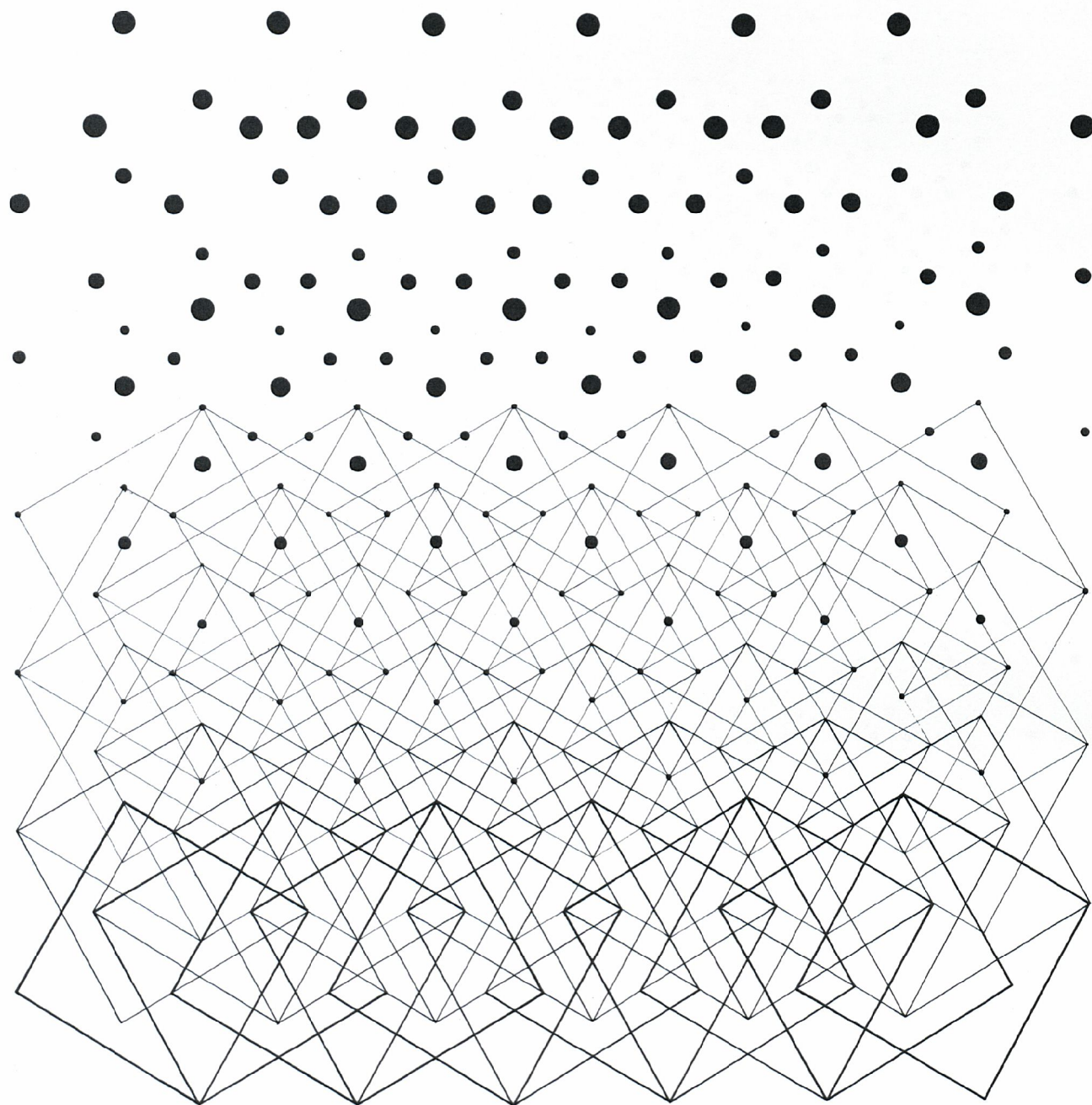


The University of North Carolina: William C. Friday, President. **North Carolina State University at Raleigh:** John T. Caldwell, Chancellor; Harry C. Kelly, Provost. **The School of Design:** Henry L. Kamp-hoefner, Dean; Robert Paschal Burns, Jr., Head of the Department of Architecture; Don Alan Masterton, Head of the Department of Product Design; Lewis J. Clarke, Acting Head of the Department of Landscape Architecture, 1967-68.

THE SCHOOL OF DESIGN | NORTH CAROLINA STATE UNIVERSITY AT RALEIGH





INTRODUCTION

The School of Design, as a statewide and regional design center, is devoted and dedicated to the development of a native design and its accompanying art forms for the southern region.

The school in its teaching recognizes the dangers inherent in a materialist-mechanistic civilization where there may be an over-reliance on the machine and the mechanical devices available to man in his constructions for shelter. We give attention, therefore, to that larger responsibility of design, the art of humanizing the environment.

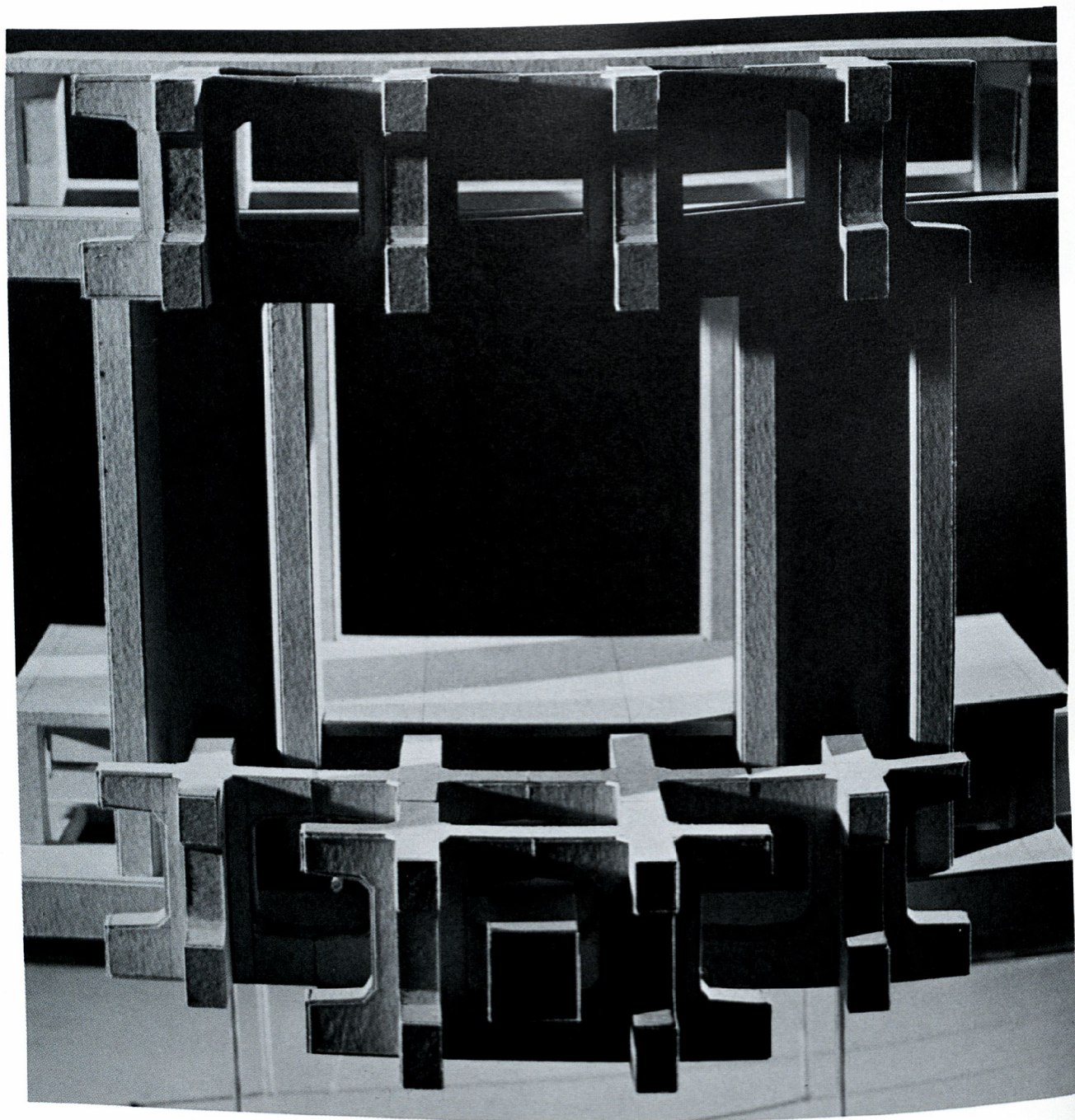
And, while the natural and organic aspects of design are stressed, the international and universal aspects are also respected and related to the humane patterns of life. We seek to integrate the designer as a social human being and as a scientist-engineer, and we encourage and nurture the designer-engineer as the coordinator of the structural dynamics in the overall patterns of life. While our first aim is to serve North Carolina and the regions of the South, we believe that our students will be equipped, through the teaching of the school, to work in any region.

Because character, a profound devotion, and an absolute professional commitment are prime ingredients of any creative activity where the social responsibilities are as vital as in design, we foster and cultivate the integrity of the individual.

Individual creative expression is emphasized as the epitome of good design, but teamwork is also encouraged and developed as a necessity of humane progress in the machine civilization of the day. We believe that the "prima donna" who isolates himself behind the intellectual barrier of his own self-sufficiency fails to recognize and understand the importance and necessity of the formal technique of compromise as a dominant factor of design as related to the social pattern of life, just

as nature in all her workings adjusts to all pressures and all tensions.

The faculty of the School of Design have been selected for their individual and diverse personal philosophies and their individual yet divergent professional qualifications. We have brought together creative personalities, willing in their teaching to subordinate their own professional interests to the pedagogically more important interests of their students. Here is a community of scholars, each working in his own way, searching for the truth as he sees it, giving the young student the benefit of his professional knowledge, his technical training, and his experience as a citizen. We encourage the student to sift and sort this diversity of opinion, even though in this process he is usually stimulated and sometimes confounded. In the end we are confident that he arrives through this process at an ability to shape his own conclusions. To combat the dangers of over-specialization we seek to develop the personality and character as a whole. The goal in the growth of the student is not only the mastery of the design techniques of the profession, but through the stimulation and development of the intellect and emotional capacities together, a readiness is developed to meet the challenge of any environment.



ARCHITECTURE

Architecture finds itself, upon entering the final third of the twentieth century, at a critical stage in its historical development. The architect's traditional problem of giving meaningful form to man's physical environment remains his chief concern, but this task has been vastly complicated by the forces of accelerating world urbanization and the technological revolution which is rapidly altering every facet of contemporary life. Social upheaval in the cities, ruthless mutilation of our landscape and natural resources, congestion and decay of our urban centers, obsolescence and inefficiency at every level of our transportation systems, the tendency toward giantism and anonymity in all of man's institutions—these are but a few elements in the complex condition of modern society with which the architect is confronted. The pastoral, the picturesque, the arrogantly lavish, and the purely esthetic have little relevance for a society whose design needs are so demanding that only the most broadly educated, intelligent, and creative professionals can hope to cope with them. It is this type of professional that the Department of Architecture attempts to prepare—individuals with a profound understanding of man and his cultural context, with a deep commitment to the ordering of the physical environment, and with the necessary tools for accomplishing these objectives.

Inherent in the architectural program is recognition of the evolving role of the architect. While individual creativity and decision-making abilities are no less important, it is clear that the architect increasingly functions as member and frequently as coordinator of a team of professionals—engineers, planners, political and behavioral scientists, economists, and others—who together are able to formulate the comprehensive programs ade-

quate to meet today's most urgent environmental problems.

It becomes obvious that no monolithic academic program can serve the requirements of architectural students of highly divergent interests and capabilities, nor indeed the varied needs of the present day architectural profession. The new curriculum in architecture, while providing a broad basic structure common to all students, encourages individual diversity through a major elective program of in-depth study in one of several design-related fields leading to expanded backgrounds in social and economic factors, technology, programming and analysis, regional planning, or humanities. Through interdisciplinary studies in the School and University and through the use of outside consultants, the interdependence of the architect with related professionals is strongly emphasized. The design studio is transformed into a working laboratory in which analysis and synthesis become real and meaningful activities to the students.

In terms of its larger responsibilities in the total preparation of the architect, the Department of Architecture acknowledges a divided but overlapping obligation with the profession. While office experience should extend the young architect's knowledge of technical aspects as well as judgmental maturity during the period of apprenticeship, it is the particular task of the Department and the University to develop fundamental abilities in conceptual and developmental design and to provide a philosophical and theoretical basis for creative life as an architect and as an individual.

ARCHITECTURE CURRICULUM

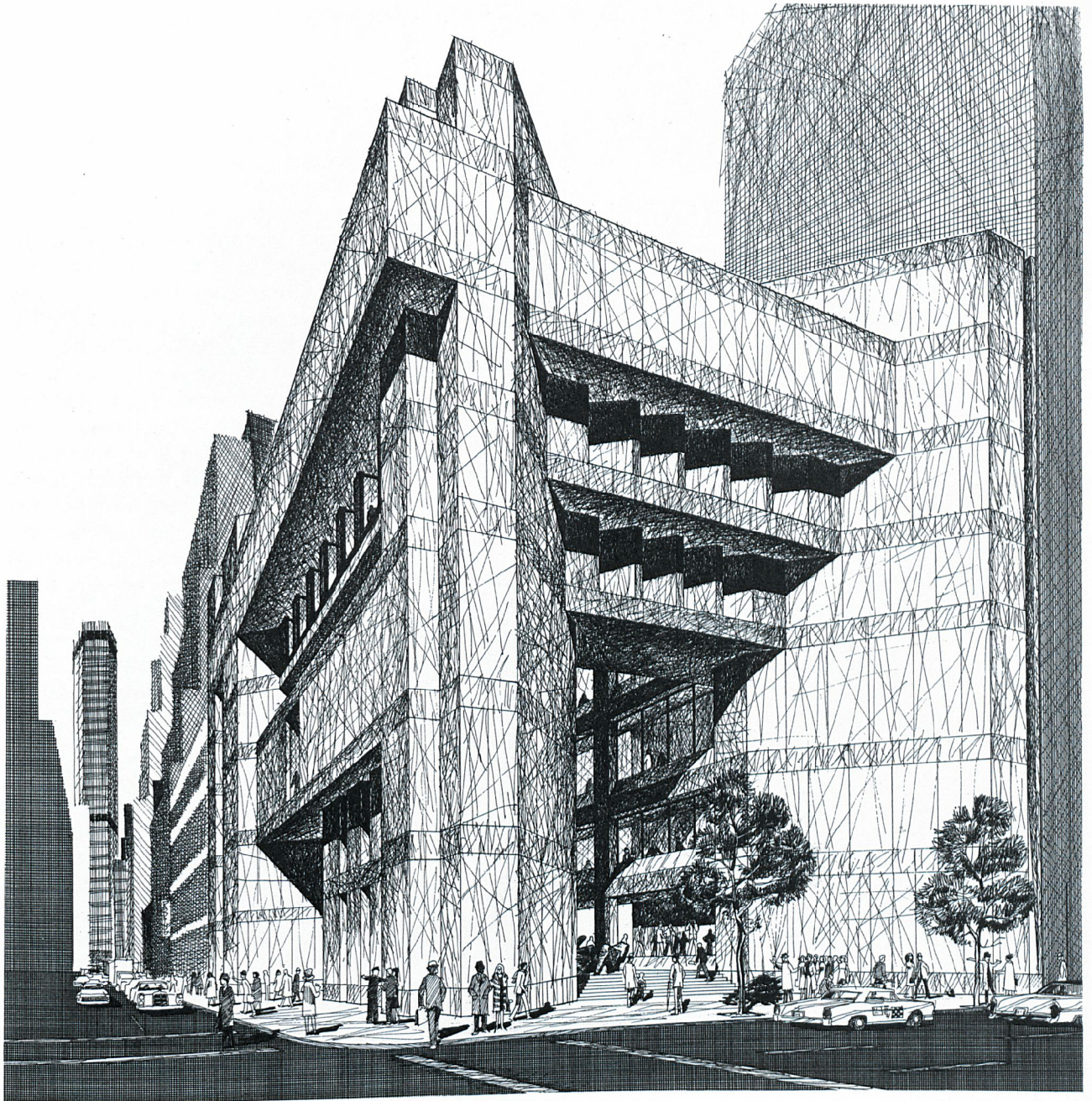
FALL		SPRING	
	Credits		Credits
DN 101 Environmental Design I	4	DN 102 Environmental Design II	4
DN 111 Perception and Communication I	2	DN 112 Perception and Communication II	2
ENG 111 Composition and Rhetoric	3	ENG 112 Composition and Reading	3
HI 101 History of Civilization	3	HI 102 History of Civilization	3
MA 114 Topics in Modern Mathematics	3	MA 112 Analytic Geometry and Calculus A	4
PE Physical Education	1	PE Physical Education	1
	16		17
DN 201 Environmental Design III	4	DN 202 Environmental Design IV	4
DN 211 Visual Communication I	2	DN 212 Visual Communication II	2
PY Physics Elective	5	BS 100 General Biology	4
PE Physical Education	1	PE Physical Education	1
Path Elective*	3	Path Elective*	3
Free Elective	3	Free Elective	3
	18		17
ARC 301 Architectural Design I	4	ARC 302 Architectural Design II	4
ARC 331 Building Technology I	2	ARC 332 Building Technology II	2
DN 321 History of Design I	3	DN 322 History of Design II	3
EM 211 Introduction to Applied Mechanics	3	EM 212 Mechanics of Engineering Materials	3
Path Elective*	3	Path Elective*	3
	15		15
ARC 401 Architectural Design III	4	ARC 402 Architectural Design IV	4
ARC 431 Building Technology III	2	ARC 432 Building Technology IV	2
ARC 300 Historic Architectural Research	2	ARC 441 Design Methods	2
CE 338 Structures I	4	CE 339 Structures II	4
Path Elective*	3	Path Elective*	3
Free Elective	3	Free Elective	3
	18		18
ARC 501 Architectural Design V	6	ARC 502 Architectural Design VI	6
ARC 511 Professional Practice I	2	ARC 512 Professional Practice II	2
ARC 521 Structures III	3	ARC 522 Structures IV	3
ARC 531 Advanced Building Technology I	2	ARC 532 Advanced Building Technology II	2
Path Elective*	3	Free Elective	3
	16		16

REQUIRED ELECTIVES: A total of thirty-six credit hours of electives is required. Fifteen hours shall be free electives.

***PATH ELECTIVES:** Twenty-one hours of electives are required from prescribed groups of courses designated as "paths". These are designed to provide students an opportunity to study in depth a field related to design activity. A minimum of six credit hours of the path electives shall be in the Social Sciences.

SUMMER REQUIREMENTS: Two weeks on Historic Architectural Research; eight weeks of approved construction work, office experience, or foreign travel.

TOTAL CREDIT HOURS FOR THE BACHELOR OF ARCHITECTURE: 166.

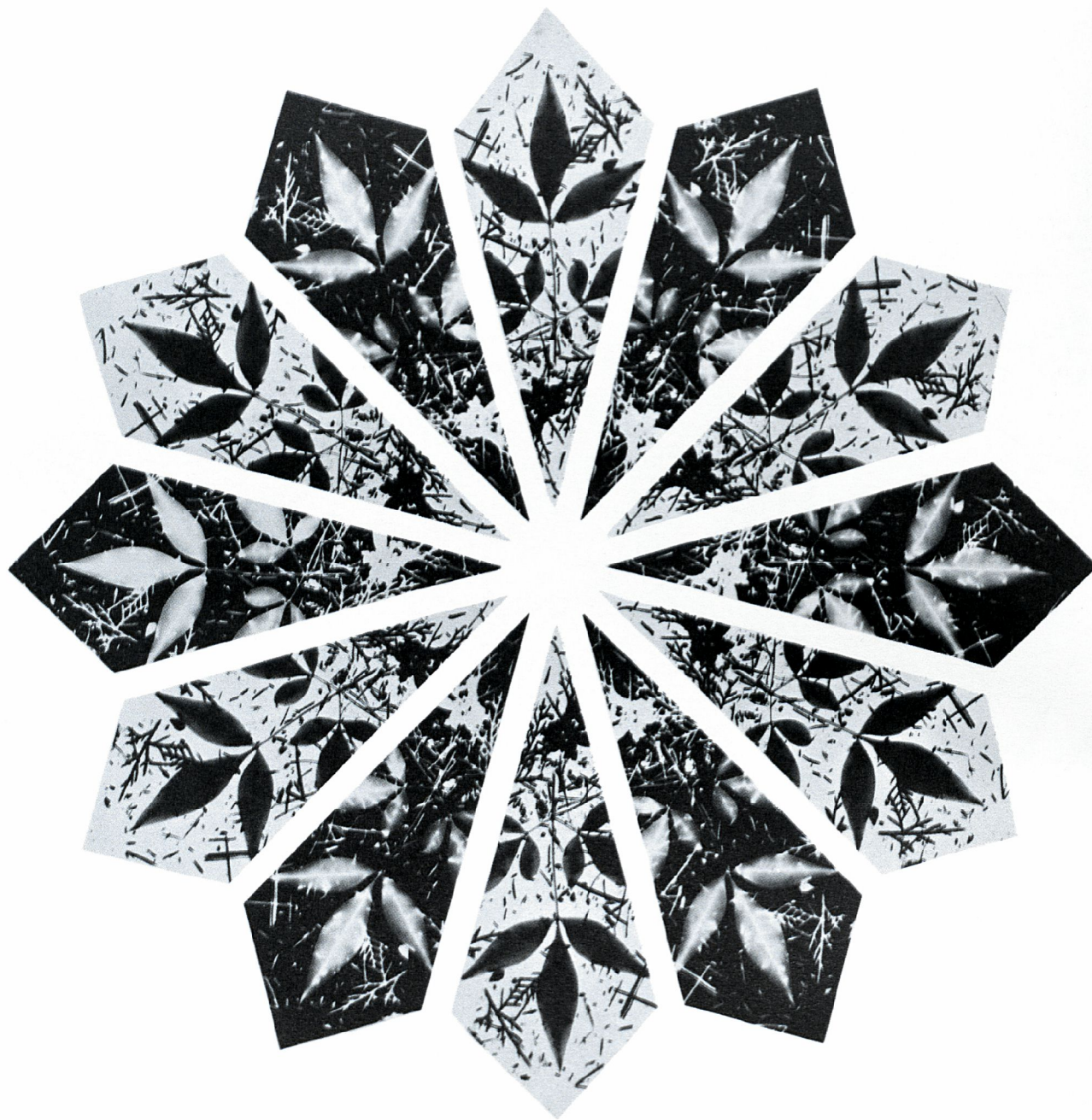


LANDSCAPE ARCHITECTURE

Landscape Architecture, beginning in ancient times and continuously developing to the present, is now defined as the design of outdoor space for the benefit, protection, use, and enjoyment of people. Never before have the challenges to this profession been so great, diverse, and complex. It is to their solutions that this department is directed. One such challenge is the design of landscapes with architectural character, scale, and size, such as those associated with the city, town, park, and garden. Another challenge is the designed development of the earth's resources in landscapes of varying character, from coast to mountain, from desert to pasture. Such land areas, large in scale and size, must be designed indigenously and ecologically. Unlike many art forms time is an essence of the design, and long periods are often necessary before it has grown to completion. Architectural and engineering materials are used together with those materials that have life, the plants and trees. These latter materials have a continuous cycle of growth and movement, closely coupled with the forces of nature. The profession is both an art and a science, depending concomitantly upon logic and technology.

A student in the Department is in continual association with allied fields, such as architecture, engineering, painting, sculpture, horticulture, botany, geology, and ecology. In spite of the necessity for assimilation of such specialized requirements, he must possess a background from which to design. For this reason he is given a sound and thorough analysis of the past through the study of historical examples. With the rapid growth of the world's population and the increasingly intensive use of land, it is imperative that the student have both ability and clarity of purpose if he is to develop and design landscapes that are beautiful, useful, productive, and of continuing value.





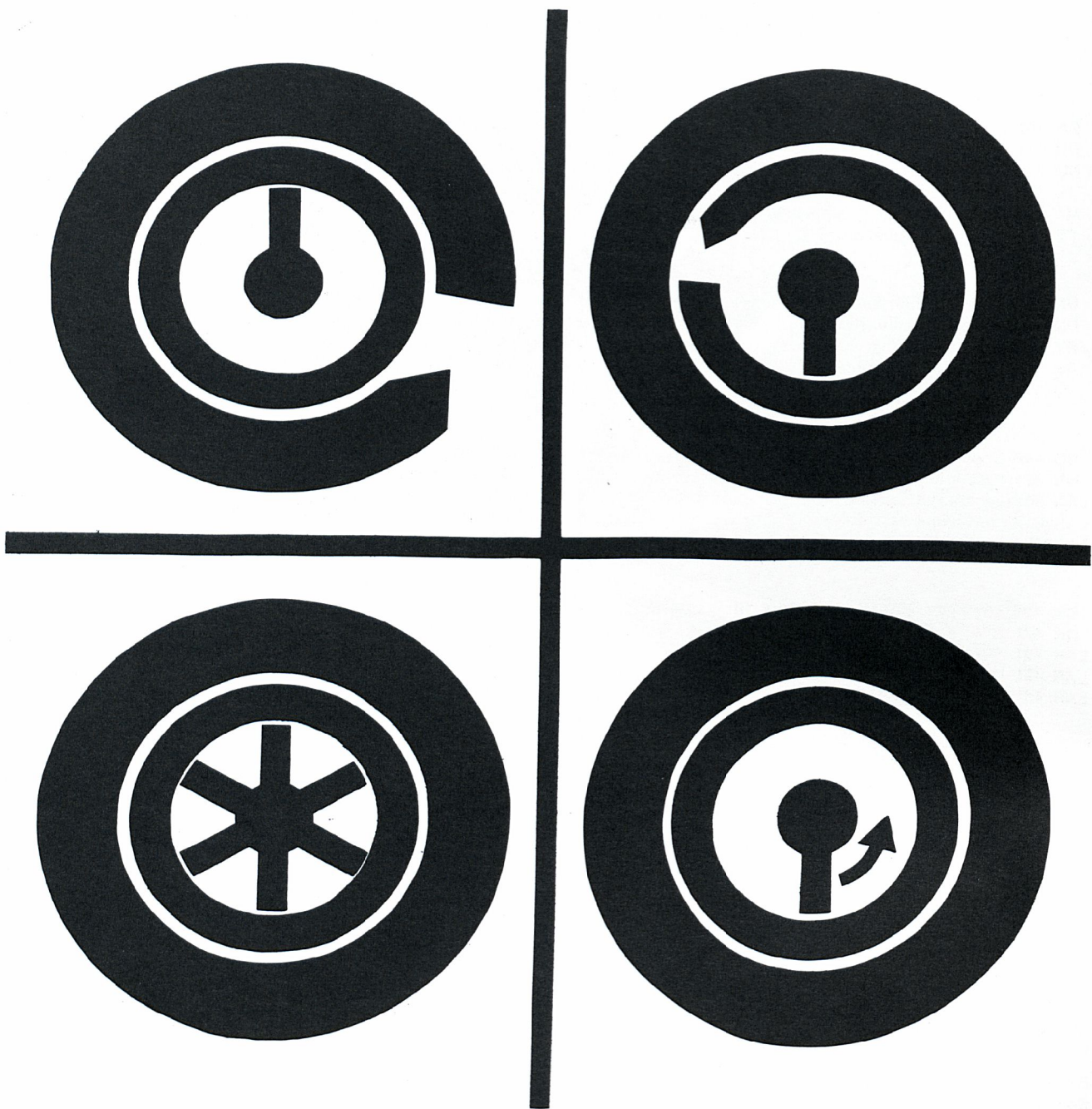
LANDSCAPE ARCHITECTURE CURRICULUM

FALL			SPRING			
		Credits			Credits	
DN 101	Environmental Design I	4	1	DN 102	Environmental Design II	4
DN 111	Perception & Communication I	2		DN 112	Perception & Communication II	2
ENG 111	Composition & Rhetoric	3		ENG 112	Composition and Reading	3
HI 101	History of Civilization	3		HI 102	History of Civilization	3
MA 114	Topics in Modern Mathematics	3		MA 112	Analytic Geometry and Calculus A	4
PE	Physical Education	1		PE	Physical Education	1
		16			17	
DN 201	Environmental Design III	4	2	DN 202	Environmental Design IV	4
DN 211	Visual Communication I	2		DN 212	Visual Communication II	2
PY	Physics Elective	5		BS 100	General Biology	4
PE	Physical Education	1		PE	Physical Education	1
	Electives	6			Electives	6
		18			17	
BO 442	General Ecology	4	3	MIG 208	Physical Geography and Meteorology	3
DN 321	History of Design I	3		DN 322	History of Design II	3
LAR 301	Landscape Design I	4		LAR 302	Landscape Design II	4
LAR 311	Landscape Technology I	4		LAR 312	Landscape Technology II	4
LAR 321	Landscape Materials I	2		LAR 322	Landscape Materials II	2
		17			16	
DN 411	Advanced Visual Laboratory III	2	4	DN 412	Advanced Visual Laboratory IV	2
DN 421	History of Design III	3		DN 422	History of Design IV	3
LAR 401	Advanced Landscape Design I	4		LAR 402	Advanced Landscape Design II	4
LAR 421	Landscape Technology III	2		LAR 422	Landscape Technology IV	2
LAR 431	Landscape Materials III	2		LAR 432	Landscape Materials IV	2
	Elective	3			Elective	3
		16			16	
DN 511	Advanced Visual Laboratory V	2	5	DN 512	Advanced Visual Laboratory VI	2
LAR 501	Urban and Regional Design I	6		LAR 502	Urban and Regional Design II	6
LAR 591	Special Projects	4		LAR 592	Special Projects	4
	Elective	3			Elective	3
		15			15	

SUMMER REQUIREMENT: Eight weeks of approved construction or office experience, or foreign travel.

REQUIRED ELECTIVES: A minimum of nine hours in the Social Sciences.

TOTAL CREDIT HOURS FOR THE BACHELOR OF LANDSCAPE ARCHITECTURE: 163.



PRODUCT DESIGN

Product Design, or Industrial Design, has in the last thirty-five years grown into a profession of eminent importance in the cultural and economic life of this country. While originally concerned solely with helping industry to create mass-produced consumer products of good appearance, the profession has during the last two decades begun to play an increasingly important part as a synthesizing force not only in the consumer products field, but also in the fields of industrial equipment, medical and military hardware and farm equipment; and it is playing an even more important part in product planning, product research and total product development. This means that the education of the product or industrial designer also has shifted from the education of a stylist concerned only with outside appearances to the education of a designer concerned with such varying disciplines as psychology, engineering, applied sciences, marketing and distribution, art and human engineering.

The Department of Product Design offers the student the opportunity to learn to understand these many facets and their relationship to each other and to intelligently correlate their relative importance. It encourages him to solve a total problem instead of only one part of a problem. The Department endeavors to convey to the student the importance of the interrelationship of all professions concerned with the creative control of man-made environment and thus makes him aware of the magnitude of his future professional responsibilities.

PRODUCT DESIGN CURRICULUM

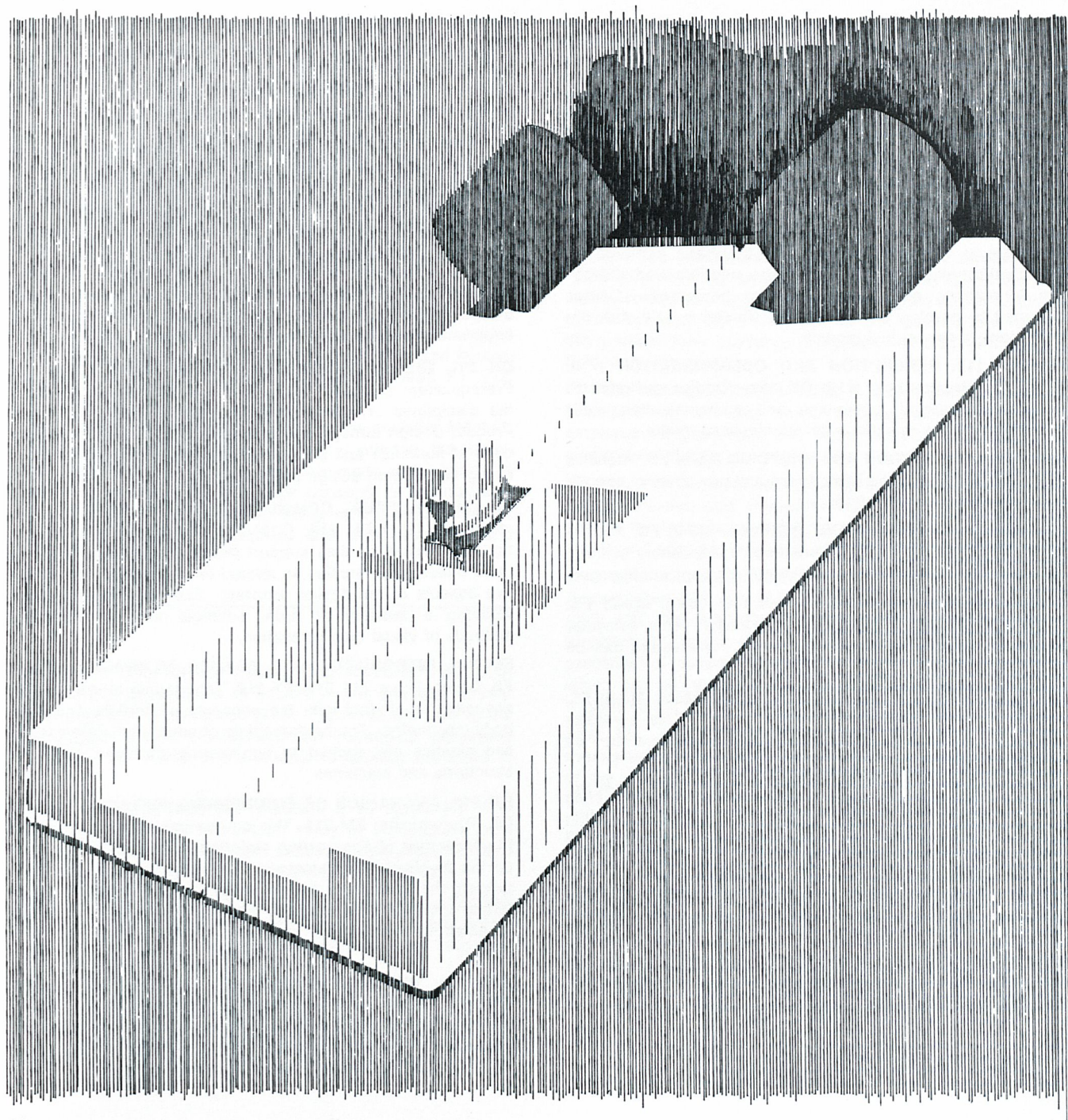
FALL		CREDITS		SPRING		CREDITS	
DN 101	Environmental Design I	4	1	DN 102	Environmental Design II	4	
DN 111	Perception and Communication I	2		DN 112	Perception and Communication II	2	
ENG 111	Composition and Rhetoric	3		ENG 112	Composition and Reading	3	
HI 101	History of Civilization	3		HI 102	History of Civilization	3	
MA 114	Topics in Modern Mathematics	3		MA 112	Analytic Geometry and Calculus A	4	
PE	Physical Education	1		PE	Physical Education	1	
		16				17	
DN 201	Environmental Design III	4	2	DN 202	Environmental Design IV	4	
DN 211	Visual Communication I	2		DN 212	Visual Communication II	2	
PY	Physics Elective	5		BS 100	General Biology	4	
PE	Physical Education	1		PE	Physical Education	1	
	Path Elective*	3			Path Elective*	3	
	Free Elective	3			Free Elective	3	
		18				17	
EM 211	Introduction to Applied Mechanics	3	3	EM 212	Mechanics of Engineering Materials	3	
PD 301	Product Design I	5		PD 302	Product Design II	5	
PD 311	Materials and Processes I	2		PD 312	Materials and Processes II	2	
PD 321	Colloquium I	1		PD 322	Colloquium II	1	
PD 331	Visual Design I	3		PD 332	Visual Design II	3	
	Path Elective*	3			Path Elective*	3	
		17				17	
PD 401	Product Design III	5	4	PD 402	Product Design IV	5	
PD 411	Materials and Processes III	2		PD 412	Materials and Processes IV	2	
PD 421	Colloquium III	1		PD 422	Colloquium IV	1	
PD 431	Office and Industrial Practice I	1		PD 432	Office and Industrial Practice II	1	
PD 490	Special Projects**	2		PD 491	Special Projects**	2	
	Path Elective*	3			Path Elective*	3	
	Free Elective	3			Free Elective	3	
		17				17	
PD 501	Product Design V	7	5	PD 502	Product Design VI	7	
PD 521	Colloquium V	1		PD 522	Colloquium VI	1	
PD 590	Special Projects**	3		PD 591	Special Projects**	3	
	Path Elective*	3			Path Elective*	3	
	Free Elective	3			Free Elective	3	
		17				17	

REQUIRED ELECTIVES: A minimum of eighteen credit hours in the Humanities and/or the Social Sciences.

**SPECIAL PROJECTS: These courses will be designed and staffed by petition and will include activities deemed significant by the faculty of Product Design, but not otherwise accounted for in the curriculum.

*PATH ELECTIVES: The intent of these courses is to provide an in-depth study area of specific meaning to an individual student. Paths must be chosen with the approval of the student's advisor.

TOTAL CREDIT HOURS FOR THE BACHELOR OF PRODUCT DESIGN: 170.



COURSE DESCRIPTIONS

BS 100. GENERAL BIOLOGY. 4(3-2) FS. A course designed to emphasize the unity of biology through study of the following concepts: (1) protoplasmic and cellular organization, (2) growth and differentiation, (3) genetic and ecological control and (4) current and past evolution.

DN 101, 102. ENVIRONMENTAL DESIGN I, II. 4(1-9) FS. Prerequisite: (102) DN 101. Investigation of the sensory environment as a design determinant. Emphasis centered on individual discovery by the student who must function in problem formulating and problem solving processes. Course designed to develop technical skills simultaneously with development of conceptual models.

DN 111, 112. PERCEPTION AND COMMUNICATION I, II. 2(1-3) FS. Prerequisite: (112) DN 111. Studies designed to increase perceptual awareness and communication skills through exercises in various communications media.

ENG 111. COMPOSITION AND RHETORIC 3(3-0) FS. Intensive study and practice in the basic forms and principles of expository communication; conferences.

ENG 112. COMPOSITION AND READING. 3(3-0) FS. Prerequisite: ENG 111. Continued practice in expository writing; introduction to literary types; collateral reading; conferences.

HI 101. HISTORY OF CIVILIZATION (TO 1650). 3(3-0) FS. History of Civilization since ancient times. This semester covers the ancient and medieval period. Semesters can be taken separately.

HI 102. HISTORY OF CIVILIZATION (SINCE 1650). 3(3-0) FS. History of Civilization since ancient times. This semester covers the modern period (since 1650). Semesters can be taken separately.

MA 112. ANALYTIC GEOMETRY AND CALCULUS A 4(3-2) FS. Prerequisite: MA 111 or equivalent completed in high school. A unified course in analytic geometry and calculus containing the following topics: brief discussion of set operations; the real plane is defined as the set of ordered pairs of $R \times R$ and graphs in two dimensions as subsets of $R \times R$; functions, limits, continuity, and definition of a derivative; applications of the derivative; differentiation of trigonometric and inverse trigonometric functions, introduction of anti-differentiation. Applications to the social, life and behavioral sciences are included where possible.

MA 114. TOPICS IN MODERN MATHEMATICS. 3(2-2) FS. Prerequisite: MA 111 or equivalent completed in high school. Introduction to the theory of sets, relations, and functions with applications to Boolean algebra, logical inference, theory of probability, vector spaces and matrices.

PHYSICAL EDUCATION. 1(0-2) FS. Each semester of physical education is divided into two eight week terms. Students are given tests to determine individual needs and are directed into prescribed courses which will best meet these needs: Hygiene, Swimming, Fundamental Sports, Soccer, Gymnastics, and Restricted Activity. All elective courses in physical education are grouped within the areas of Aquatics, Developmental Activities, Individual Sports, or Team Sports. Each student must elect one course from each group before he is permitted to take a second course in either area.

DN 201, 202. ENVIRONMENTAL DESIGN III, IV. 4(1-9) FS. Prerequisites: (201) DN 102; (202) DN 201. Introduction to the disciplines of Architecture, Landscape Architecture and Product Design through environmental studies and investigations of materials and processes. Emphasis placed on organizing and solving design problems.

DN 211, 212. VISUAL COMMUNICATION I, II. 2(0-6) FS. Prerequisites: (211) DN 112; (212) DN 211. Visual communications processes as they support design activities. Two and three dimensional studies as related to conceptual and definitive aspects of the design process. Exercises aimed at developing a mastery of both technical and non-technical methods of visual communication.

EM 211. INTRODUCTION TO APPLIED MECHANICS. 3(3-0) FS. Corequisites: MA 212, PY 212. This course is intended to acquaint the student with the concepts of particle and rigid body mechanics. The fundamentals of equilibrium, kinematics and kinetics are applied to engineering problems involving structures and machines.

EM 212. MECHANICS OF ENGINEERING MATERIALS. 3(2-1) FS. Prerequisite: EM 211. This course constitutes a study of the properties of engineering materials with special emphasis on the mechanical parameters. It is especially conceived to prepare the student for the selection and specification of materials common to engineering practice. A particular emphasis is given to mechanical aspects of materials employed in design.

MIG 208. PHYSICAL GEOGRAPHY AND METEOROLOGY. 3(2-3) S. Study of the physical conditions on the earth's surface that influence human activities; factors of man's environment including planetary conditions, geographic location, climate and weather, soils, and land forms.

NOTE: A minimum of five hours of Physics is required and may be chosen from any of the following courses:

PY 205, 208. GENERAL PHYSICS. 4(2-4), 5(3-4) FS. Corequisite: MA 201. This sequence is required in most engineering curricula. A study of classical and modern physics in which the analytical approach is employed and calculus is applied as needed. Demonstration lectures, recitations, problem drill, and laboratory work are coordinated to give a working knowledge of basic principles. PY 205, mechanics, sound, and heat; PY 208, electricity, light, and modern physics.

PY 211, 212. GENERAL PHYSICS. 4(3-2) FS. Prerequisites: MA 111 or MA 116. A survey of general physics designed to provide an understanding of the fundamentals on which technology is based. Recitations, demonstration, and laboratory work. PY 211, mechanics, sound, and heat; PY 212, light and electricity.

PY 221. COLLEGE PHYSICS. 5(5-0) FS. Prerequisite: MA 111. An introduction to the origins of physical science, the fundamental principles of physics, and the many applications to modern technology. The important concepts in the classical areas of physics are presented, along with a brief survey of modern atomic physics. Lectures and demonstrations with class participation.

DN 311, 312. ADVANCED VISUAL LABORATORY I, II. 2(0-6) FS. Extension of problems introduced in first and second year drawing on a more advanced level. Problems will involve the human figure and its environment and investigate techniques to increase the ability of the student to express his ideas in varied forms.

DN 321, 322. HISTORY OF DESIGN I, II. 3(3-0) FS. Prerequisite: (321) HI 101. A critical study of architecture from prehistoric times to the present including references to landscape architecture, painting, sculpture, and artifacts.

PD 301. PRODUCT DESIGN I. 5(3-6) F. Prerequisites: DN 202, DN 212. Custom designed object(s) for an individual within a given system produced subtractively of natural materials utilizing mechanical joints.

PD 302. PRODUCT DESIGN II. 5(3-6) S. Prerequisite: PD 301. Limited production designed object(s) within a given system for a limited subculture group produced subtractively with combinations of natural and/or readily available material joined mechanically.

PD 311. MATERIALS & PROCESSES I. 2(1-3) F. Photomechanics. Theory and practice dealing with the interrelation of photomechanics and production printing processes (lithography, serigraphy, relief, and intaglio in continuous tone, line, and halftone reproduction) with special emphasis upon materials and equipment appropriate to the various processes.

PD 312. MATERIALS & PROCESSES II. 2(1-3) S. MODERN MATERIALS AND TECHNIQUES. Introduction to the basic plastic raw materials and their fabrication techniques, design criteria and potential uses.

PD 321, 322. COLLOQUIUM I, II. 1(1-0) FS. A survey of the historically evolving passive and active interaction of the arts, technological, sociological and psychological forces. Lectures by professional authorities (faculty and guests) and discussions under their guidance. Required selected reading and field experience.

PD 331. VISUAL DESIGN I. 3(1-6) F. Direct studies of spatial principles of two and three dimensional visual design; emphasis on typography and layout principles as applied to single presentation approaches.

PD 332. VISUAL DESIGN II. 3(1-6) S. Prerequisite: PD 311. Experimentation and studies in context of total format, involving the techniques and processes of typography, photography, and printing; emphasis on multiple presentation.

ARC 301, 302. ARCHITECTURAL DESIGN I, II. 4(1-9) FS. Prerequisites: (301) DN 202, DN 212 or departmental approval; (302) ARC 301, ARC 331, EM 211. Introductory exercises in architectural design in which are studied relatively simple problems of specific function and elementary construction which can be related to the student's experience; emphasis is given to the influence of environment, climate, and site.

ARC 331, 332. BUILDING TECHNOLOGY I, II. 2(1-3) FS. Prerequisites: (332) ARC 331, ARC 301. A systematic survey of the elements of building science as determinants in conceptual design. A treatment of basic principles of construction and environmental control systems as responses to the physical requirements of building.

CE 338. STRUCTURES I. 4(3-3) F. Prerequisite: EM 211. Analysis of simple structures, reaction, shear and moment diagrams; stresses in members of framed structures; graphic statics.

CE 339. STRUCTURES II. 4(3-3) S. Prerequisites: CE 338, EM 212. Analysis of indeterminate structures; slopes and deflections; analysis of indeterminate frames by moment distribution.

LAR 301, 302. LANDSCAPE DESIGN I, II. 4(1-9) FS. Prerequisite: DN 202. Landscape survey, investigation and analysis. Social and physical functions as form determinants. Concentration on the manipulation of surface, volume, and function to produce spatial complexes. Correlated with LAR 311.

LAR 311. LANDSCAPE TECHNOLOGY I. 4(3-3) F. Prerequisites: MA 111 or 112, ARC 201. Beginning course in the technical aspects of site development. Grading, earthwork quantity computation. Surface runoff and drainage systems. Vehicular circulation principles and techniques. Landscape materials.

LAR 312. LANDSCAPE TECHNOLOGY II. 4(3-3) S. Prerequisite: LAR 311. Continuation of LAR 311. Site surveying principles. Advanced grading and earthwork. Horizontal and vertical alignment of roads. Road construction. Sanitary sewer system layout. Landscape materials. Correlation with LAR 302.

LAR 321, 322. LANDSCAPE MATERIALS I, II. 2(0-6) FS. Prerequisite: BS 100. Design characteristics and use of plant materials. Cultural aspects and installation procedures. Relationship to other landscape materials.

ARC 401, 402. ARCHITECTURAL DESIGN III, IV. 4(1-9) FS. Prerequisites: (401) ARC 302, ARC 332, EM 212; (402) ARC 401, ARC 431, ARC 300, CE 338. Continuing exercises in architectural design in which are studied more complex problems involving large buildings or building groups; emphasis is given to economic and sociological considerations in functional planning and to the influence of technology and industrialization in design.

ARC 431, 432. BUILDING TECHNOLOGY III, IV. 2(1-3) FS. Prerequisites: (431) ARC 332, ARC 302; (432) ARC 431, ARC 401. A continuation of the survey of the elements of building science begun in Building Technology I and II, with increased emphasis on practical applications and detailed investigation of various aspects treated in general during the previous year.

ARC 441. DESIGN METHODS. 2(2-0) S. Description, comparisons and testing of the various methods which are available in architectural design with emphasis on problem-solving techniques. The method is primarily a means for integrating rational analysis and creative thought in the design act.

BO 442 (ZO 442). GENERAL ECOLOGY. 4(3-3) F. Prerequisite: BS 100 or equivalent. The study of relationships between organisms and their environment, and of interactions among organisms. A team-taught course combining the principles of plant and animal ecology. Lectures, laboratories and field trips present a balanced perspective in environmental biology. Content includes: productivity; nutrient cycling; pollution; environmental factors affecting freshwater, marine, and terrestrial systems; physiological ecology; regulation and dynamics of populations; interactions among species; community ecology; world biomes and paleoecology; the ecological viewpoint in modern land management.

DN 411, 412. ADVANCED VISUAL LABORATORY III, IV. 2(0-6) FS. Advanced problems in the fields of painting, sculpture, graphics, and photography.

DN 421, 422. HISTORY OF DESIGN III, IV. 3(3-0) FS. Prerequisite: HI 102. Specialized historical studies in design fields.

DN 491. SPECIAL TOPICS IN DESIGN—HISTORY OF ASIAN DESIGN. 3(3-0)S. Prerequisites: DN 321, DN 322 for students in the School of Design. No history prerequisite is required. A study of the historic and religious backgrounds of the cultures of Asia and a consideration of architecture, landscape, painting, sculpture and the minor arts from pre-history to the present.

LAR 401, 402. ADVANCED LANDSCAPE DESIGN I, II. 4(0-12) FS. Prerequisite: LAR 302. Professional problem solving and communication methods. The solution of specific landscape problems with emphasis on coordination of ecological, social, and psychological determinants. Problem areas to include the siting of medium-scale building complexes, horizontal and vertical alignment of public roads, land-water relationships, and coordination of utility systems. Correlates with LAR 421, 422, LAR 431, 432.

LAR 421, 422. LANDSCAPE TECHNOLOGY III, IV. 2(0-6) FS. Prerequisite: LAR 312. Techniques and procedures of construction drawing. Contracts, specifications, and office practice. Consolidation of previous technical course work by case study projects of various scales.

LAR 431, 432. LANDSCAPE MATERIALS III, IV. 2(0-6) FS. Prerequisite: LAR 322. Ecological criteria of plant material used in Landscape Design. Contract drawings and specifications of combined landscape materials. Correlates with LAR 421, 422, LAR 401, 402.

PD 401. PRODUCT DESIGN III. 5(3-6) F. Prerequisites: PD 301, PD 302. Limited production designed objects(s) for local middle class 18-25 age group with designed system produced additively of existing synthetic materials utilizing existing molecular joining.

PD 402. PRODUCT DESIGN IV. 5(3-6) S. Prerequisite: PD 401. Unlimited production designed objects(s) for more than one age and regional class group with designed systems produced additively from unlimited combinations of synthetic materials utilizing existing mass molecular joining techniques.

PD 411, 412. MATERIALS & PROCESSES III, IV. 2(1-3) FS. Prerequisite: PD 312. Introduction to mass production processes and their influence on design. Emphasis is placed on material search and process selection in relation to cost, function, human factors, form, finishes, and joining methods. A systems analysis of materials and manufacturing processes utilized in the production of mass produced products.

PD 421, 422. COLLOQUIUM III, IV. 1(1-0) FS. Continuation of PD 321, PD 322, treating various phases of the subject in depth. Special emphasis on communication, communication systems and media of communication.

PD 431, 432. OFFICE & INDUSTRIAL PRACTICE I, II. 1(1-0) FS. Study of the ethics, organization, and procedures of professional product design practice; patent law.

PD 490, 491. SPECIAL PROJECTS. 2(1-3) FS. Special projects of an inter-disciplinary nature, guided by various faculty specialists involved in areas supplementary to product design.

ARC 501, 502. ARCHITECTURAL DESIGN V, VI. 6(3-9) FS. Prerequisites: (501) ARC 300, ARC 402, ARC 432, CE 339; (502) ARC 501, ARC 511, ARC 521, ARC 531. Advanced studies in architectural design in which are investigated large scale environmental problems of complex social and economic implications; special emphasis is given to urban design and prototypical systems design. An architectural thesis is required in the spring semester.

ARC 521, 522. STRUCTURES III, IV. 3(3-0) FS. Prerequisites: (521) CE 339, ARC 402; (522) ARC 521, ARC 501. Principles and applications of timber, steel and reinforced concrete design; elements of foundations; and principles of design of building systems.

ARC 531, 532. ADVANCED BUILDING TECHNOLOGY I, II. 2(1-3) FS. Prerequisites: (531) ARC 432, ARC 402; (532) ARC 531, ARC 501. Research and special projects in significant aspects of Building Technology.

DN 511, 512. ADVANCED VISUAL LABORATORY V, VI. 2(0-6) FS. Advanced problems in the fields of painting, sculpture, photography, and graphics.

DN 541. SEMINAR ON IDEAS IN DESIGN. (2-0) FS. An examination of esthetics and the relationships of philosophic thought to design.

LAR 501, 502. URBAN AND REGIONAL DESIGN I, II. 6(3-9) FS. Prerequisite: LAR 402 or graduate standing. Regional research and analysis. Social criteria of urban and regional design. Transportation systems, land use determination and the design of large scale environmental complexes. Open to graduate students in related fields. Evaluation of non-majors based on contribution of their discipline to group effort.

LAR 591, 592. SPECIAL PROJECTS. 4(0-6) FS. Prerequisite: LAR 402 or graduate standing. Student evolved projects with emphasis on utilization and expansion of technical processes and techniques to reinforce design solutions. Introduction and investigation of experimental methodology. Development of student evolved interest in specific areas. Open to graduate students in related fields. Evaluation of non-majors based on contribution of their discipline to group effort.

PD 501. PRODUCT DESIGN V. 7(3-12) F. Prerequisite: PD 402. Designed unlimited production systems designed with objects(s) possibilities produced additively of new synthetic materials utilizing new molecular joining for national class and age groups.

PD 502. PRODUCT DESIGN VI. 7(3-12) S. Prerequisite: PD 501. Unlimited production systems designed with object(s) possibilities produced additively of new synthetic materials utilizing new molecular joining for international class and age groups.

PD 521, 522. COLLOQUIUM V, VI. 1(1-0) FS. Prerequisites: PD 321, PD 322, PD 421, PD 422. Emphasis on communication media as conscious forms. Evaluation of subjective feeling versus objective judgment and environment control and design. Consideration of the relationships of language and form as a strong influence in the creation of environment.

PD 590, 591. SPECIAL PROJECTS. 3(1-6) FS. Special projects of an inter-disciplinary nature, guided by various faculty specialists involved in areas supplementary to product design.

GRADUATE PROGRAMS

The Graduate Program Committee of the School of Design, formed in 1965, was charged with the responsibility of formulating proposals for master's degree programs in Architecture, Landscape Architecture, Product Design and Urban Design. Final proposals are now being drafted for a graduate program to become operative in September 1968.

While some details remain to be worked out, the basic outlines are firmly established. Recognizing the need for greater breadth in the initial years and in-depth exploration at the latter stages of the designer's education, the master's program is conceived of not as a mere addition to the present five year undergraduate curriculum but as an integral part of a totally restructured environmental design education. Consequently, the entire academic program of the School of Design is being re-formed, the new curricula outlined in this bulletin representing the first stage and the proposed graduate program the final stage in this re-formation.

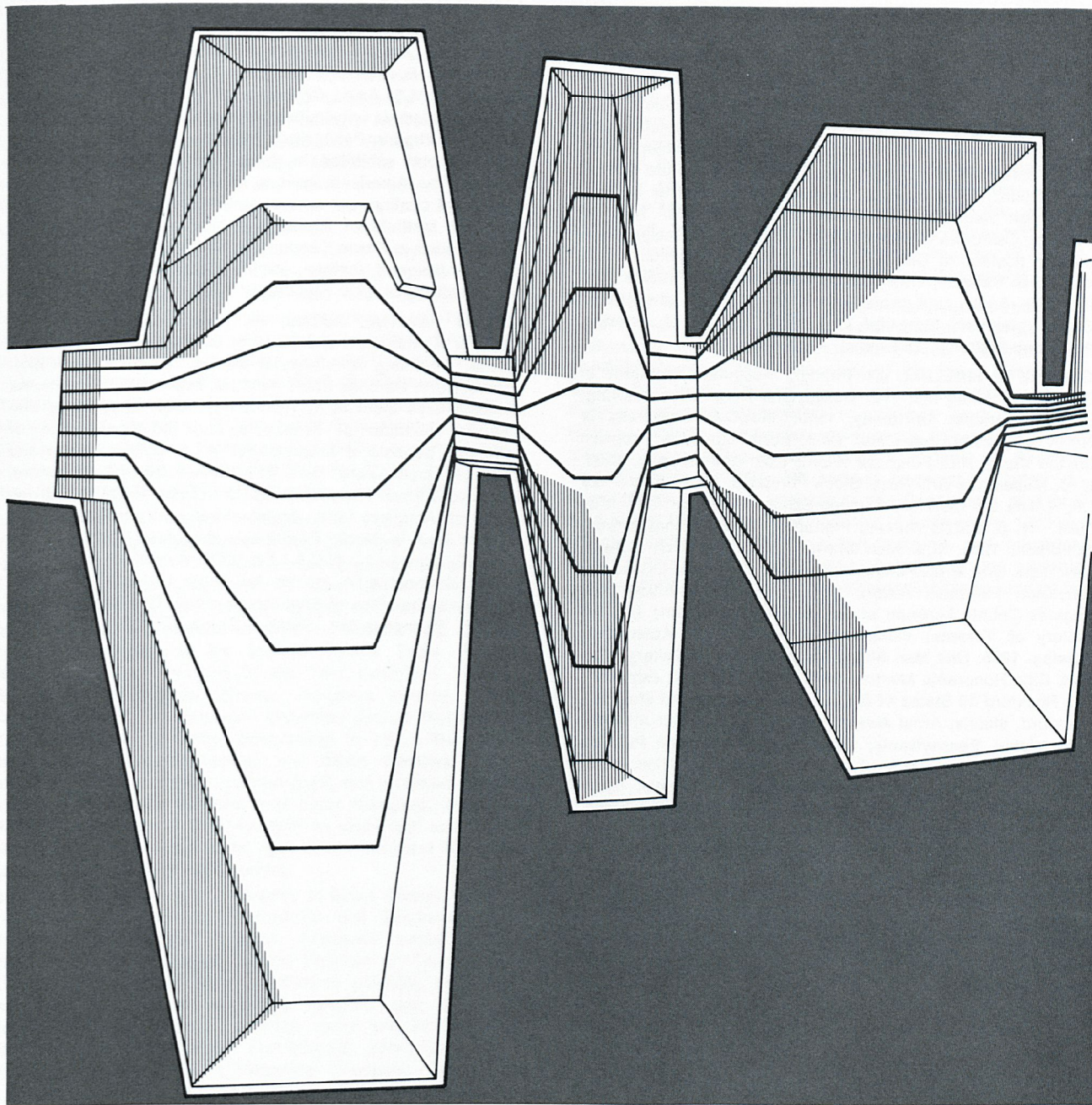
Beginning in September, 1968, the School of Design will offer six year two-degree programs in each of the three departments. A four year undergraduate program leading to a non-professional bachelor's degree will constitute the first stage in the Architecture curriculum, and two additional years of professional studies will terminate in the awarding of the Master of Architecture degree. Landscape Architecture and Product Design will retain their five year bachelor's degrees but will initiate two year graduate programs which will overlap with the final undergraduate year and lead to master's degrees in the two departments.

The School of Design plans to institute a new inter-departmental master's degree program in Urban and Regional Design. The original concept of urban design has been broadened to include also

the larger patterns of inter-urban networks, regional development and the natural environment. Concern for these and the specific problems of the contemporary urban condition has created an awareness of the critical need for people who, by inclination and training, are capable of dealing with these massive problems. Standing midway between the planners and government agencies on one hand and the building designers and engineers on the other, the urban or regional designer will be able to translate strategies and policies into implemented proposals.

Consequently, a two year program developed in cooperation with the graduate Department of City and Regional Planning at UNC-CH will offer to students from the design disciplines, as well as those from the related fields of engineering, planning, economics, political and social science, comprehensive training in urban and regional design, technology, methods, and planning theory leading to the degree of Master of Urban and Regional Design.

The inauguration of graduate studies can provide for a major expansion of creative and scholarly activity in the School of Design. In the field of research, vastly expanded programs will be aimed at adding to the body of knowledge in critical design and technical areas. Continuing education activities will be increased to permit greater possibilities for service to the community and state. The budget appropriation approved by the 1967 General Assembly will permit the attraction of distinguished new faculty and staff members whose talents will enrich this area. And, most important, the graduates of the new program, with a more broadly based and individually selective education than was previously possible, will have the creative and intellectual capability of bringing order and richness to the environmental needs of modern society.



FACULTY

WALTER P. BAERMANN. Industrial Designer. Professor of Product Design. Teaching Product Design, Colloquium I, III, V, and Office and Industrial Practice. M.A. in architecture and engineering, Technische Hochschule, Munich, Germany 1926; Ph.D., University of Munich 1928. President, Furniture Design Association, 1962-64. Head, Department of Industrial Design, Cranbrook Academy, Bloomfield Hills, Michigan, 1940-42. Director, California Graduate School of Industrial Design Engineering (California Tech.), 1934-40. Chief of Graphics, Office of Civilian Defense, Washington, D. C., 1942-44. Articles published in books and professional magazines in the United States. Member: Industrial Designers Society of America. President: Walter P. Baermann, Associates.

GEORGE L. BIRELINE, JR. Painter. Associate Professor of Design. Teaching first year Design and Descriptive Drawing. B. F. A., Bradley University, 1949. M.A.C.A., University of North Carolina at Chapel Hill, 1963. Ford Foundation Program for the Visual Arts Purchase Award from national jury, 1959. N. C. Museum of Art, Wood Block Purchase, 1961. First Prize Oil, Artists Competition, Winston-Salem Gallery of Fine Arts, 1962. N. C. Artists Annual, Painting L-1963 purchased from exhibition. 1964: One Man Show, Andre Emmerich Gallery, New York City; First Purchase Prize, N. C. Artists Exhibition; Harrelson Purchase Award, N. C. Artists Exhibition; Los Angeles County Museum of Art; Walker Art Center; The Art Gallery of Toronto; illustration, Post Painterly Abstraction Catalog. 1965: One Man Show, Andre Emmerich Gallery, New York City; Honorable Mention, N. C. Artists Annual; exhibited: The Rockford 50 States of Art Exhibition, Burbee Art Museum, Rockford, Illinois; Artist Award; Optical Painting, Art Alliance, Philadelphia, Pennsylvania; Contemporary American Painting and Sculpture, University of Illinois catalog illustration. 1966: First Purchase Award, The Huntery Gallery Annual, Chattanooga, Tennessee; 29th Annual N. C. Artists Exhibition, First Purchase Award. 1967: Decade, 7, Contemporary American Art, 1967 Southern Illinois University catalog; The Fourth International Young Artists Exhibition, U.S.A.; Tokyo, Japan, catalog illustration; The American Federation of Arts, circulating exhibition. 1967-68: One Man Show, Andre Emmerich Gallery, New York City; fellowship, John Simon Guggenheim Memorial Foundation Fellowships to assist research and artistic creation.

JOSEPH N. BOAZ. Architect. Professor of Architecture. Chairman of fourth year Architectural Design instruction. Teaching Professional Practice, Architectural Design, and Building Technology. B. Arch. and B.S. Arch. Engr., University of Oklahoma 1940; M.S. Arch., Columbia University, 1941. Taught at Yale and Columbia universities; Visiting Critic at Cornell, Syracuse, and Virginia Polytechnic Institute. Completed projects published and exhibited in the United States and abroad. Member, The American Institute of Architects, and recipient of regional citation and several state awards of merit by The American Institute of Architects. Most recently completed major project is Harris Cafeteria at North Carolina State University, designed before joining faculty. Editor, A.I.A. "Architectural Graphic Standards" project.

ROBERT PASCHAL BURNS, JR. Architect. Associate Professor of Architecture and Head of the Department of Architecture. Teaching Architectural Design. B. Arch. with high honors, North Carolina State, 1957; M. Arch. with high honors, Massachusetts Institute of Technology, 1962. Member of The American Institute of Architects and the Association of Collegiate Schools of Architecture. A.I.A. School Medal and N.C.A.I.A. Book Award, 1957. 44th Paris Prize in Architecture, the Lloyd Warren Fellowship for 18 months travel in Europe and North America, 1957. Architectural work on independent projects and in North Carolina architectural firms. Award of Merit, co-winner, N.C.A.I.A., 1962. Award of Merit, co-winner, National A.I.A. Homes for Better Living, 1962. Chief designer in the office of Eduardo Catalano, Cambridge, Mass., 1962-65. Partner in firm, Harris & Burns, Architects.

LEWIS CLARKE. Landscape Architect. Professor of Landscape Architecture. Teaching Landscape Design, Landscape Technology, and History of Design. Dip. Arch. (Leics) 1950, Dip. L.D., (Dunelm) 1951, England. M.L.A. Harvard University, 1952. Member, The American Society of Landscape Architects; Chairman, N. C. Section American Society of Landscape Architects; Associate of the Royal Institute of British Architects, and British Institute of Landscape Architects. Smith-Mundt Fellowship and Fulbright Grant, 1951. Co-winner, Carson Pirie Scott Competition. First Honor Award, ASLA, House and Home Outdoor Living Competition, 1962. Four national awards in the American Association of Nurserymen "Plant America" Competition, 1962. Panelist, International Design Festival, Aspen, Colorado, 1955; and Urban Design Conference, Harvard, 1963. Lectured and taught at Harvard, University of Pennsylvania, University of Louisiana, University of Virginia. Research on design and plant growth in artificial environments. Landscape Architect, St. Andrews College; Whitaker Park, Winston-Salem; Research Triangle Park; and enclosed mall shopping centers in Charlotte, Roanoke, Philadelphia, San Antonio, Pittsburgh, Louisville, and Baltimore. Various articles and work published in the United States and the UK. University Outstanding Teacher Award, 1967.

JOSEPH H. COX. Painter. Professor of Design. Teaching Visual Communications, Painting and Graphics. B.F.A., John Herron Art Institute, 1938. M.F.A., University of Iowa, 1941. Teaching experience: University of Iowa, University of Tennessee, University of Florida. Exhibited nationally and regionally and represented in several museums and private collections. Prizes in the Indiana Artists Show, Fourth Memphis Biennial, Painting of the Year Exhibition, Atlanta Southeastern Exhibition, Atlanta. Purchase Awards, North Carolina Annual; Mint Museum, Charlotte; Norfolk Museum of Art. Recipient of a Tiffany Scholarship in 1941. Murals in Indiana, Michigan, Tennessee, and North Carolina; most recent an exterior panel in stained glass and anodized aluminum on the Branch Banking and Trust Company, Raleigh, North Carolina, and a thirty-six feet by eight feet sculptural aluminum mural using colored light in the Southern National Bank in Lumberton, North Carolina.

RUSSELL DRAKE. Artist. Instructor in Basic Design. Teaching first year Design and Perception and Communication. Studied: Art Institute, Chicago; Academie Andre Lhote, Paris; Institute of Design, Illinois Institute of Technology, Chicago. Professional work: subdivision planning and construction, architectural rendering, graphic and package design. Creative research: painting, color and light, music harmony and composition, architectural proportions, enciphering systems used in allegorical literature; discovered a system of composition used in ancient Middle Eastern art.

FRED EICHENBERGER. Industrial Designer. Associate Professor of Product Design. Teaching Photomechanics, Design and Communications, and Visual Design. B.F.A. with honors, Pratt Institute, 1953. Further study at New York University and the University of Cincinnati. Taught Industrial Design at the University of Cincinnati 1953-63. Visiting Critic: Texas A & M University and the University of Cincinnati. Member Industrial Designers Society of America. Principal research activities: the development of low-cost rehabilitation equipment for United Cerebral Palsy Association, the graphic display of complex information in collaboration with Professor Duncan R. Stuart for the National Institute of Mental Health, and the experimental uses of offset-lithography.

MICHAEL G. HANCOCK. Architect. Assistant Professor of Architecture. Teaching Architectural Design and Building Technology. B.A. (with honors) in Architecture, University of Sheffield, England, 1962. Associate of the Royal Institute of British Architects. Offered Department of Scientific and Industrial Research Studentship to continue work on architectural aspects of stressed skin space frames 1962 (declined). Senior designer with James A. Roberts, of Birmingham, England, 1962-65. Worked on large-scale central redevelopment schemes. Lecturer in the Department of Architecture and Civic Planning, University of Nottingham, 1965-67. Taught architectural design, uses of materials, and industrialized building methods. Currently researching into variable housing systems and self-contained regenerative service units.

HARWELL HAMILTON HARRIS. Architect. Professor of Architecture. Teaching Architectural Design and History of Design. Fellow of The American Institute of Architects and member of *Congres Internationaux d'Architecture Moderne*. Collaborator with Richard Neutra, 1929-32. Private practice since 1933. Director, School of Architecture, University of Texas, 1951-55. Visiting Critic: University of Southern California, University of Minnesota, Yale University, Columbia University. Important contributor to development of California house both as modern and regional expression. Architect of proposed U. S. Embassy, Helsinki, Finland. Work included in: A.I.A.'s selection of 75 significant buildings, 1857-1957; Architectural Record's 50 Most Significant Buildings of Past 100 Years; Museum of Modern Art's 47 buildings, 1932-42; 43 buildings, 1943-53; *Encyclopedia Britannica Yearbook*; *Masters of Modern Architecture*, Braziller, Inc. Exhibitions: Museum of Modern Art, New York; National Gallery, Washington; U.S. Office of War Information; American Federation of Arts; Moscow Fair; Paris International Exposition; Triennale Fair, Milan; world fairs at New York and San Francisco; Pan-American Congress of Architects. Honor Awards: Southern California Chapter A.I.A., Texas Society of Architects. Buildings widely published in U. S., England, France, Switzerland, Italy, Germany, Sweden, Japan, Argentina. Articles in "Texas Quarterly", "California Arts and Architecture", "A.I.A. Journal", "House Beautiful", "Die Form", "Perspecta". Listed in "Who's Who in America", "Current Biography", "Dictionary of International Biography".

CHARLES H. KAHN. Structural Engineer and Architect. Professor of Architecture. Teaching Advanced Structural Design. A.B. in Mathematics, University of North Carolina, 1946; B.C.E., North Carolina State College, 1948; M.S. in Structures, Massachusetts Institute of Technology, 1949; B.Arch., North Carolina State College, 1956. Registered Architect and Engineer, Member, The American Institute of Architects, American Society of Civil Engineers, American Concrete Institute, International Association for Shell Structures. Regional Director, Association of Collegiate Schools of Architecture, Consultant to the National Architectural Registration Board, Lecturer and Visiting Critic to various universities and colleges. Fulbright in Architecture, Italy, 1957-58; Henry Adams Fund Grant, Structural Research in France, 1961; North Carolina AIA Award of Merit, Residence, co-winner, 1962; National AIA-House and Home, Homes for Better Living Award of Merit, Residence, Co-winner, 1962. Research in thin shells and space structures, consulting structural engineer.

HENRY L. KAMPHOEFFNER. Administrator and Architect. Professor of Architecture and Dean of the School. Teaching Seminar on Ideas in Design. Attended Morningside College. B.S. in Arch., University of Illinois, 1930. M.S. in Arch., Columbia University, 1931. Certificate of the Beaux Arts Institute of Design, 1932. Honorary Doctor of Fine Arts, Morningside College, 1967. Professor of Architecture at the University of Oklahoma, 1937-48. Professor of Architecture, University of Michigan, summer 1948. Alternate on the 32nd Paris Prize in Architecture, and the 1939 Schermerhorn Fellowship. Winner, Edward Langley Scholarship. Private practice in Iowa. Author of many articles in architectural journals and magazines. Co-author of "Cities Are Abnormal", "Churches and Temples," "The South Builds." Lecturer and Visiting Critic at many American colleges and universities. Fellow of The American Institute of Architects. Member, Advisory Design Panel, United States Navy (1966-). National President of the Association of Collegiate Schools of Architecture, 1963-65.

ENN KAYARI. Designer. Assistant Professor of Architecture. Teaching Architectural Design and Building Technology. B. Arch., University of Toronto, 1960. Pittsburgh Glass Scholarship (second prize), Gouldstone Traveling Scholarship, Pilkington Traveling Scholarship and Royal Architectural Institute of Canada Medal. M.Arch., University of Pennsylvania, 1965. Foreign Student Scholarship, finalist British Commonwealth Rome Prize Competition. 1960-62: Traveled in Europe, worked for Sir Basil Spence, R.A., London, research on the development of theatrical form in Europe, professional adviser to jury on Theater and Cultural Center for Neuchatel, Switzerland. 1962-64: Staff architect, Bregman and Hamann, Toronto; worked on Scarborough College, John Andrews and Page/Steel, Associates, Toronto. Member of Royal Architectural Institute of Canada.

HARRY A. MACKIE. Design Engineer. Associate Professor of Product Design and Mechanical Engineering. Teaching Advanced Product Design and Creative Engineering. Tulane University, 1931-32; B.S. in Aerospace Engineering, Louisiana State University, 1936. Registered Professional Mechanical Engineer in Michigan and Louisiana. Senior Project Engineer, Fisher Body Central, 1947-51; Chief Engineer, Harley Earl Incorporated, 1951-54; Senior Research Design Engineer, General Motors Styling Center, 1954-67. Has had thirty-two U. S. and eight foreign patents granted as a result of his work.

DON A. MASTERTON. Industrial Designer. Associate Professor of Product Design. Head of the Department of Product Design. Teaching Product Design, Design Analyses. B.S. in Product Design, Southern Illinois University, 1952; M.S., Illinois Institute of Technology, 1954. Associate Professor of Design, University of Illinois, Chicago 1954-66. Visiting Lecturer at Virginia Polytechnic Institute, Pratt Institute, Ball State College, Ohio State University, California School of Arts and Crafts, Parsons School of Design, School of Architecture, Toronto. Free lance exhibition design, product design, industrialized housing design 1954-present. Summer home U. S. Overseas Exhibition, Department of Commerce 1964. Research: E.F.L. Ford Foundation Research Grant, 1964; U.S.O.E., University of Illinois, 1965; Graham Foundation Fellowship, 1966-67; First prize 1960 and 1963 AIA Small House Competition, Visual Presentation. Executive Committee A.A.U.P. 1954-present; National Committee on Creativity, A.C.-S.A. 1964-65; Articles: Creativity, Small House Design.

WAYNE MAYNARD. Landscape Architect. Assistant Professor of Landscape Architecture. Teaching Landscape Design and Landscape Technology. B.S. in Landscape Architecture, California State Polytechnic College, 1963; M.L.A., University of Michigan, 1966. Designer, Department of Landscape Architecture, San Diego City School District, 1963-64. Designer, Atwell-Hicks Inc., 1965-66. Associate of The American Society of Landscape Architects.

GENE MESSICK. Designer. Instructor in Product Design. Teaching second year Visual Communications and Visual Design. B. Product Design, N. C. State University at Raleigh, 1966. Chairman of Exhibitions, Erdahl-Cloyd Union, 1961-64; Co-Editor, "The Student Publication of the School of Design", 1964-65; Thompson Theater set design, "Hedda Gabler", 1966. Assistant Project Director, "Piedmont Crescent" film, N. C. Film Board, 1964. Graphic design work for numerous University agencies. Work published in "Print" and "Architect Canada". Board of Directors, Associated Artists of North Carolina, 1963-69.

***RICHARD A. MOORE.** Landscape Architect. Associate Professor of Landscape Architecture. Teaching Landscape Design. B.S., University of Missouri, 1951. M.L.A., University of Oregon, 1957. Taught at California State Polytechnic College 1957-61. Principal, Environmental Planning Associates, Pomona, California, 1957-61. Landscape Architect, various projects in Washington, Oregon, California, Missouri, and North Carolina. Prize winner, Seattle Civic Center Fountain Competition for the Century 21 Exhibition. Member, The American Society of Landscape Architects.

* on leave of absence 1967-68.

RAYMOND MUSSELWHITE. Sculptor. Associate Professor of Design. Teaching Sculpture, first year Design. Attended University of Maryland, Wilmington College, George Washington University. B.S.Ed., University of Georgia, 1959. Graduate work at the University of Georgia. Assistant Professor of Art, Texas Wesleyan College, summer 1960. Instructor, School of Art, University of Oklahoma 1960-61. Mary Rosenblate Scholarship, University of Georgia 1957. Art Auction Scholarship, University of Georgia, 1957, '58, '59. Work exhibited in Washington, D. C.; Athens, Georgia; Atlanta Art Institute, Dallas, Texas; Museum of Art, and University of Oklahoma. Awards: First Award, 1961, Eleventh Mid-American Annual. Nelson Gallery, Kansas City; Honorable Mention, 1961, National Watercolor Exhibition, Jackson, Mississippi; First Award, 1961, Third Annual Exhibition of Southwestern American Art, Oklahoma Art Center, Oklahoma City. Work also in many public and private collections.

HENRY SANOFF. Architect. Assistant Professor of Architecture. Teaching Architectural Design. Principal investigator of research project, "Social implications of the Physical Environment". B. Arch., Pratt Institute, 1957. M. Arch., Pratt Institute, 1962. Assistant Professor of Architecture, Research architect and chairman, Design Research Laboratory, University of California, Berkeley, 1963-66. Who's Who in the West, Marquis. Department of Housing and Urban Development Research grant, "Low Income Housing Demonstration", and "Evaluation of Three Case Study Dwellings", both publications. Research in the area of behavioral aspects of the environment, predictive and evaluative techniques for performance measurement. Articles and work published in "Architectural Forum", "A.I.A. Journal", "House and Home", "Arts and Architecture", and "Interbuild". University of California grant for 16 mm film, "Anonymous Architecture West". Member, Board of Directors, North Carolina Fund's Low Income Housing Demonstration Program; Member, The American Institute of Architects.

BRIAN SHAWCROFT. Architect. Associate Professor of Architecture. Teaching Architectural Design and Photography. South West Essex Technical College and School of Art, London, 1949-53. M.Arch., Massachusetts Institute of Technology, 1960. Government Scholarship, England, 1949-53. Senior Designer, Page and Steele, Architects of Toronto. Design Critic, Boston Architectural Center. Member, The American Institute of Architects, Associate of the Royal Institute of British Architects. Articles and photography published in books and journals in the United States and Canada. North Carolina Chapter, The American Institute of Architects House and Home, Homes for Better Living Award of Merit, co-winner, 1962. Member, North Carolina State Capitol Planning Commission, Heritage Square Commission, 1962-65. Private practice in Raleigh since January, 1963. Consulting Architect for design of Science Building, East Carolina College, Greenville, North Carolina, School of Nursing and School of Dentistry, University of North Carolina at Chapel Hill.

VERNON F. SHOGREN. Architect. Associate Professor of Architecture. Teaching Basic Design. Chairman of Basic Design Instruction. B. Arch., University of Minnesota, 1950. M. Arch., Massachusetts Institute of Technology, 1952. Technische Hogeschool, Delft, Holland, 1953. Fulbright Scholarship for Urban Housing studies in Delft, Holland. Designer in office of Eero Saarinen and Associates. Member, The American Institute of Architects.

DUNCAN R. STUART. Painter and Designer. Professor of Design. Teaching in Basic Design area and Advanced Visual labs. Studied: University of Oklahoma, Chouinard Art Institute, Yale University (Weir Scholarship). Teaching: Waterbury Art Institute, University of Oklahoma, University of Michigan. Visiting professorships and lectureships: Cornell University, University of Pennsylvania, University of Texas, University of Southern California, Massachusetts Institute of Technology, University of Southern Illinois, University of Detroit, University of Cincinnati, Tulane University, University of Hawaii. Creative work: painting, sculpture, graphic arts, experimental structures, mathematics, Operations Analysis (U.S.A.F.). Exhibited paintings and graphics in most major U. S. cities and has received numerous awards. Works represented in many public and private collections. Publications primarily in fields of geometry, graphic problems of design and various papers on operational problems of the United States Air Force. Present activities largely center on geometrical studies.

RONALD TAYLOR. Painter. Assistant Professor of Design. Chairman of exhibitions. Teaching first year Design, Advanced Visual Laboratory. B.F.A., Atlanta Art Institute, 1962. M.F.A., University of Georgia, 1964. Design Department Head, Barwick Mills, Chamblee, Georgia, 1961-62. Painting Instructor, Atlanta Art Institute, Summer 1960; Georgia Center for Continuing Education, 1963. Graduate Assistant, Department of Art, University of Georgia, 1963-64. Exhibited: Art Across America, M. Knoedler & Co., New York, N. Y., 1955 to present (still circulating), sponsored by Mead Corp.; Connecticut Academy of Fine Arts, Hartford, Connecticut; Ball State Teachers College, Muncie, Indiana; Purdue University, Lafayette, Indiana; Florida; Georgia; South Carolina; Tennessee; Virginia; and North Carolina. Awards: Southeastern Annual, Atlanta, Special Mention Award, 1960; Second Prize, 1961, First Prize, 1965; Four Arts Award, Contemporary American Painting Exhibition, Palm Beach, Florida, 1960; Association of Georgia Artists Exhibit, Second Prize, 1963, First Prize, 1964; First Purchase Award, Hunter Gallery Annual, Chattanooga, Tennessee, 1964, Merit Award, 1966; Purchase Award, Central South Art Exhibition, Nashville, Tennessee, 1966.

EDWIN G. THURLOW. Landscape Architect. Professor of Landscape Architecture. Teaching Landscape Design, and Landscape Technology. Purdue University 1928-29; B.S. in Landscape Architecture, North Carolina State University 1932; M. L. A. Harvard University 1936. Charles Eliot Traveling Fellow in Landscape Architecture 1937. Landscape Architect, Maine State Planning Board, National Park Service, U. S. Forest Service. Land Planning Consultant, Federal Housing Administration. Head, Department of Landscape Architecture 1947-50. Member and former Trustee of The American Society of Landscape Architects. Registered Landscape Architect. Work published in "Progressive Architecture", "Architectural Forum", "Architectural Record", "Landscape Architecture", and "Time Saver Standards". Award of Merit for Landscape Design, Southeastern Region, The American Institute of Architects, North Carolina Chapter. Merit Award, House and Home Outdoor Living Competition.

LAWRENCE WODEHOUSE. Architect, Town Planner and Architectural Historian. Assistant Professor of Architecture. Teaching History of Design, History of Asian Design and Historic Architecture Research. Diploma in Architecture, University of Durham 1959; Post-Graduate Academic Diploma in Town Planning, University of London 1962; M. Arch., Cornell University in the History of Architecture 1963; Associate of the Royal Institute of British Architects. Worked for the London County Council on schools and housing and for Richard Sheppard on Churchill College, Cambridge. Has published in the "Journal of the Society of Architectural Historians" in Great Britain and America and in the "Art Journal". A Robert J. Eidlitz travel fellowship from the Cornell University College of Architecture has been awarded for research into governmental architecture of the 19th century. Mr. Wodehouse is also researching vernacular architecture of North Carolina.

DANIEL BAZIL YOUNG. Landscape Architect. Assistant Professor of Landscape Architecture. Teaching Landscape Design, Landscape Technology, Urban and Regional Design. B.F.A., University of Utah, 1961; B. Architecture, University of Utah, 1963; M.L.A., University of Michigan, 1965; graduate scholarship, teaching fellowship. Assistant Professor of Landscape Architecture, Utah State University. Worked in the following offices: Robert L. Springmeyer, Architect; Woods & Woods, Architects; Jackson & Sharp, Architects; James L. Livingston, Architect; Huron Clinton Metropolitan Authority, Detroit, Michigan, Public Recreation Agency, as Land Use Consultant; Johnson, Johnson & Roy, Landscape Architects; Boyd A. Blackner, Architect. Associate Member, The American Society of Landscape Architects.

PART-TIME FACULTY

LODDIE D. BRYAN, Lecturer in Landscape Architecture. B.L.A. North Carolina State College, 1957. Teaching Landscape Technology III.

JAMES W. FITZGIBBON. Lecturer in Architecture. B. Arch., Syracuse University, 1938. M. Arch., University of Pennsylvania, 1939. Teaching fifth year Architectural Design.

VINCENT M. FOOTE. Instructor in Product Design. B.S. in Industrial Design, University of Cincinnati, 1960. Teaching Materials & Processes.

E. F. HARRIS, JR. Instructor in Architecture. B. Arch., North Carolina State College, 1957. Teaching Environmental Design III, IV.

MARGARET K. HUNTER, Lecturer in Design. B.A. Wheaton College, 1941. B. Arch. Harvard University, 1945. Teaching second year Design.

BENJAMIN B. TAYLOR. Instructor in Architecture. B. Arch., North Carolina State University, 1958. Teaching Building Technology.

JAMES BRADFORD WIGGINS. Instructor in Architecture. B. Arch., North Carolina State College, 1956. Teaching Building Technology.

STAFF

BETTY HILL. Administrative Secretary to the Dean. Attended Oklahoma State University.

ANNE CRADDOCK. Secretary and Recorder. Attended Memphis State College. Diploma from West Tennessee Business College.

WINIFRED HODGE. Secretary. Diploma in Commercial Education, Dunsmore Business College, Staunton, Virginia.

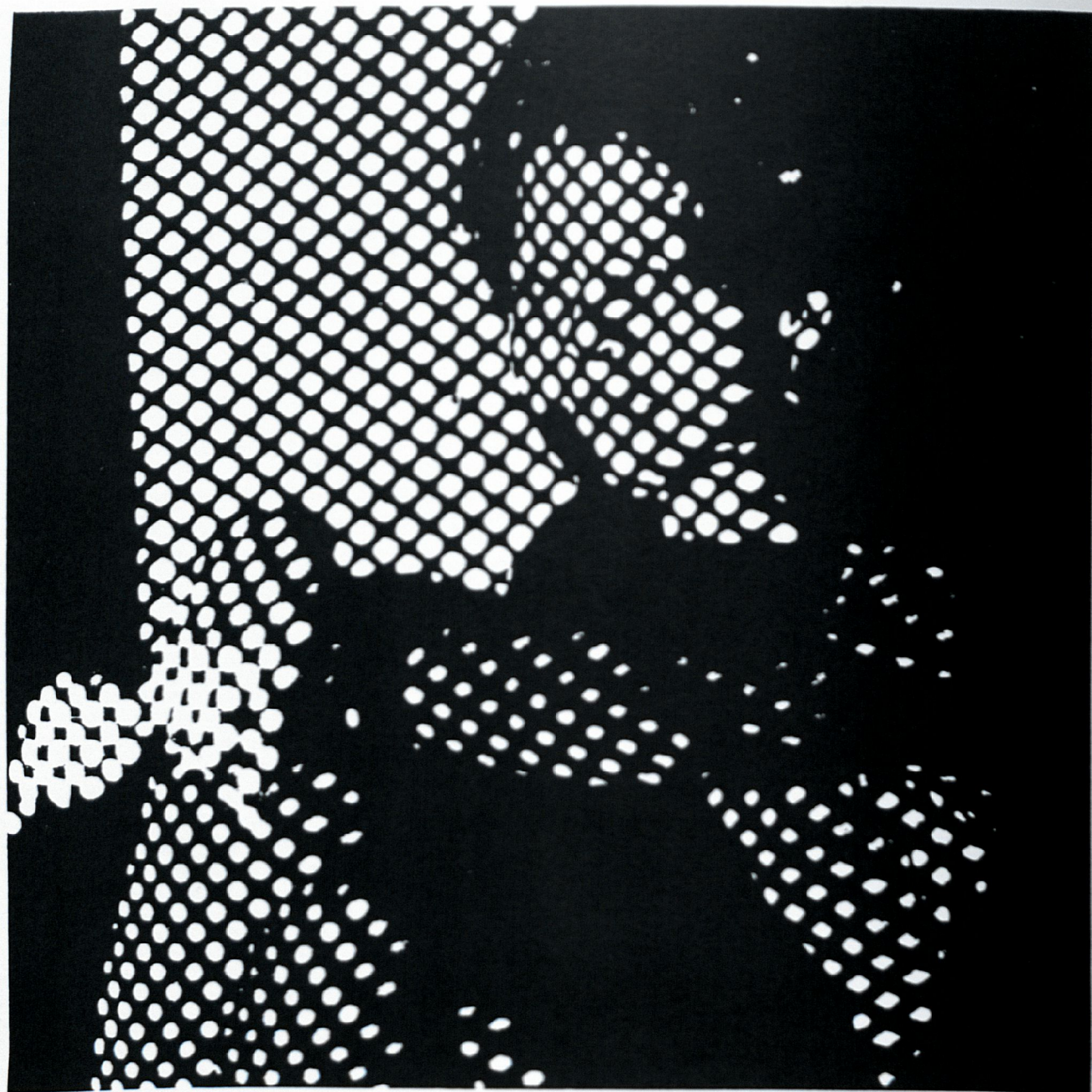
RITA WESTHOFF. Secretary and Receptionist. Attended University of Georgia and North Carolina State University.

JANET VERMILLION. Secretary, Departments of Landscape Architecture and Product Design. Attended University of North Carolina at Greensboro.

HARRY E. LYONS. Librarian. B.A., University of Iowa. M.A., University of Denver.

MODINE EXUM. Assistant Librarian. Attended Baylor University.

HUBERT M. CHAMPION, SR. Shop Supervisor. Winner of the Second Annual Craftsmanship Award from the North Carolina Chapter of The American Institute of Architects, 1967.



FACULTY RESEARCH

ARCHITECTURAL STRUCTURES. A continuing research into a self-supporting membranal structure is being conducted. Professor Charles Kahn with graduate assistant help is in the process of erecting a full-scale 60' canvas membrane of the pure tension family of a system whose geometry originated with Professor Horacio Caminos. In addition, a research is being initiated in the area of prototype prefabricated structures in both concrete and steel.

RESEARCH PROJECT FOR THE TECHNICAL DIVISION, OFFICE OF CIVIL DEFENSE. A project designed to translate the concepts of radiation shielding as used to protect occupants of buildings against nuclear accident or attack, into the working vocabulary of architects and to prepare a publication for the architectural profession which will be issued by the Office of Civil Defense.

Involved are Professor Robert Patton, of Washington State University, Investigator; Professor Brian Crumlish, of the University of Notre Dame, Investigator; Professor Vernon Shogren, North Carolina State University, Investigator and Coordinator; and Gene Messick, Instructor, North Carolina State University, Technical Assistant. The basic contract was awarded to North Carolina State University with Dean Henry Kamphoefner, School of Design, acting as Chief Investigator.

THE USE OF 8MM FILM LOOP FOR INSTRUCTIONAL AIDS IN DESIGN EDUCATION. A grant from the Graham Foundation for Advanced Studies in the Fine Arts was awarded to Professor Don A. Masterton. Films are being produced and tested that will measure the effectiveness of this auto-tutorial system on the teaching of factual classroom material. The material filmed does not require teacher-student interaction, and can consequently be made available for greater time periods to facilitate learning.

EVALUATION PROCESSES OF THE PHYSICAL ENVIRONMENT: A SOCIO-PSYCHOLOGICAL PERSPECTIVE. This longitudinal study is supported by a grant from the Faculty Research and Development Fund under the direction of Professor Henry Sanoff and associated with Dr. Man Sawhney of the Department of Sociology and Anthropology. The investigation is concerned with socio-psychological attitudes and preferences related to the micro and macro environment. This program is intended to develop a body of knowledge about human behavior within the physical environment.

In 1968 the program will include collaboration with the Department of City and Regional Planning at the University of North Carolina at Chapel Hill and the North Carolina Fund.

GOVERNMENT ARCHITECTURE OF THE 19th CENTURY is being researched by Professor Lawrence Wodehouse. He has already published on the work of Ammi Burnham Young (1798-1874), Supervising Architect to the Treasury Department 1852-1862. During the summer of 1967 he will further research post Civil War government architecture, especially the work of supervising architects Alfred B. Mullett and William A. Potter under a Faculty Research Grant from North Carolina State University. This research is an attempt to establish the significance of the "anonymous" architects of the government machine, who are equal in design to some of their more famous contemporaries.

NORTH CAROLINA VERNACULAR ARCHITECTURE is a continuing project of research undertaken initially by Professor Lawrence Wodehouse in 1965.

STUDENT PUBLICATION

In 1950, the students of the School of Design established the "Student Publication of the School of Design". This organization is open to participation by all students and gives the students the opportunity to express their ideas. Besides sponsoring an annual Art Auction, the organization sometimes participates in the School's Visiting Lecturer Program by interviewing and participating in the entertainment and in the scheduling of seminars and other activities.

The Publication is internationally circulated and is a student project maintained in the School by student fees, miscellaneous contributions, sales of subscriptions, and proceeds from an annual Art Auction which has become a community affair.

SCHOLARSHIPS AND LOAN FUNDS

Scholarships are awarded annually by the Garden Club of North Carolina, Inc. to North Carolina residents in the Department of Landscape Architecture. These awards are made on the basis of scholastic record, need and evidence of interest in Landscape Architecture.

In 1955, the Kendrick Brick and Tile Company of Charlotte gave the first of three annual scholarships for high school graduates in the four counties surrounding Charlotte. Beginning in 1958, uncommitted funds from these scholarships were converted into a student loan fund, which is available to students in Architecture.

In 1958, the late Arthur S. Berger, Landscape Architect of Dallas, gave the School of Design \$1,000 to be made available as a loan fund to the students in Landscape Architecture.

In 1964, the Aluminum Company of America established an Alcoa Foundation Scholarship of \$750 a year which continues to be available to advanced students in Architecture.

Design Foundation Scholarship—In 1965-66, Mid-State Tile Company of Lexington, North Carolina, gave the first of four annual \$500 scholarships in Architecture. The Carolinas' Chapter of the Producers' Council, Inc. established an annual \$500 scholarship in Architecture beginning in 1966.

Beginning in 1967-68, the family of the late Leslie N. Boney, Architect of Wilmington, gave the first of five annual \$500 scholarships as a memorial to their father. The scholarship will be called the Leslie N. Boney Memorial Scholarship in Architecture.

Design Foundation Scholarships are available to students in the School of Design and will be awarded on scholastic achievement and need.

In 1966, the Albert Q. Bell Memorial Scholarship in Landscape Architecture was established by Richard C. Bell, son of Albert Bell and Landscape Architect of Raleigh and graduate of the School of Design. The scholarship will be awarded on the basis of academic achievement, character, and need.

Application for financial aid and further information about available scholarships and loans may be obtained by writing directly to Ronald H. Sherron, Financial Aid Officer, North Carolina State University, Raleigh, North Carolina.

HONORS AND AWARDS

The American Institute of Architects gives a gold medal to a graduate in Architecture considered by the faculty of the school most outstanding in scholarly achievement and character, and a book award to the runner-up. The North Carolina Chapter of The American Institute of Architects offers an annual award of \$50 in books to the student judged by the faculty of the school to be most outstanding in architectural design.

Alpha Rho Chi, national professional architectural fraternity, annually gives a bronze medal to the graduate in Architecture judged by the faculty of the school to be most outstanding in leadership ability, professional potential through attitude and personality, and performed service to the school.

In 1964, a bequest was made in the will of the late Walter Hook, F.A.I.A., Architect of Charlotte, to establish through the Design Foundation a book award to be given annually to a graduate in Architecture who had done the most outstanding work in specifications and the materials of construction.

The American Society of Landscape Architects awards a Certificate of Merit to a graduate in Landscape Architecture judged by the faculty of the school to be outstanding in scholarly achievement and character.

The North Carolina Chapter of the Southeastern Chapter of The American Society of Landscape Architects gives a \$50 book award each year to the graduate in Landscape Architecture judged by the faculty of the school to be most outstanding in his total scholastic performance.

The Industrial Designers Society of America gives a Certificate of Merit each year to the graduate in Product Design judged by the faculty of the school to be most outstanding in scholarly achievement, character and professional promise.

UNIVERSITY OFFICIALS FOR STUDENT AFFAIRS

James J. Stewart, Jr., Dean of Student Affairs

Banks C. Talley, Jr., Director of Student Activities

Norbert B. Watts, Director of Student Housing

Kenneth D. Rabb, Director of Admissions and Registration

Prospective students may obtain application blanks and general information about the University by writing to the Director of Admissions and Registration.

DESIGN FOUNDATION

The North Carolina State College Architectural Foundation was organized at a meeting of the North Carolina Chapter of The American Institute of Architects in the summer of 1948. The Foundation was organized for the purpose of supplementing State salary funds for the faculty of the School of Design. More than half of the architectural firms of the State have now made contributions. Since 1948 increasing amounts have been placed in the hands of the administration of the School for selected supplements to the salaries of several members of the faculty. Money from this Foundation has also been used in special cases for travel where State funds would not have been available for the purpose. Early in the spring of 1959 the name of the Architectural Foundation was changed to Design Foundation, since the new name was considered by the Foundation directors as more descriptive of the purpose and philosophy of the professions in promoting the best in design for all related endeavors within the School of Design. Appropriately, Foundation activities have been broadened to create a more meaningful liaison between the School and professional activity and industry. This program can be implemented by donations of equipment and materials, as well as by monetary subscription. The procurement and encouragement of outstanding faculty members can be materially aided by annual contributions to the foundation by persons interested in the School and its work.

In 1964, the scope of the Design Foundation was enlarged to accept donations from persons, organizations, and corporations interested in design education. The new fund within the Foundation will be used for scholarship assistance to Design students in financial need. Several substantial gifts have been pledged, as described on page 30. The

School of Design is in critical need in the area of support to talented students needing financial assistance in order to complete a design education. Persons interested in supporting this fund within the Design Foundation should correspond with the Dean of the School or the President or Secretary of the Design Foundation, in care of the University.

ADVISORY COMMITTEE

G. Milton Small, Jr., FAIA, Raleigh Architect. Term expires 1971.

Robert A. Spelman, Executive Vice President of the Southern Furniture Manufacturers Association. Term expires 1970.

Richard C. Bell, ASLA, Raleigh Landscape Architect. Term expires 1969.

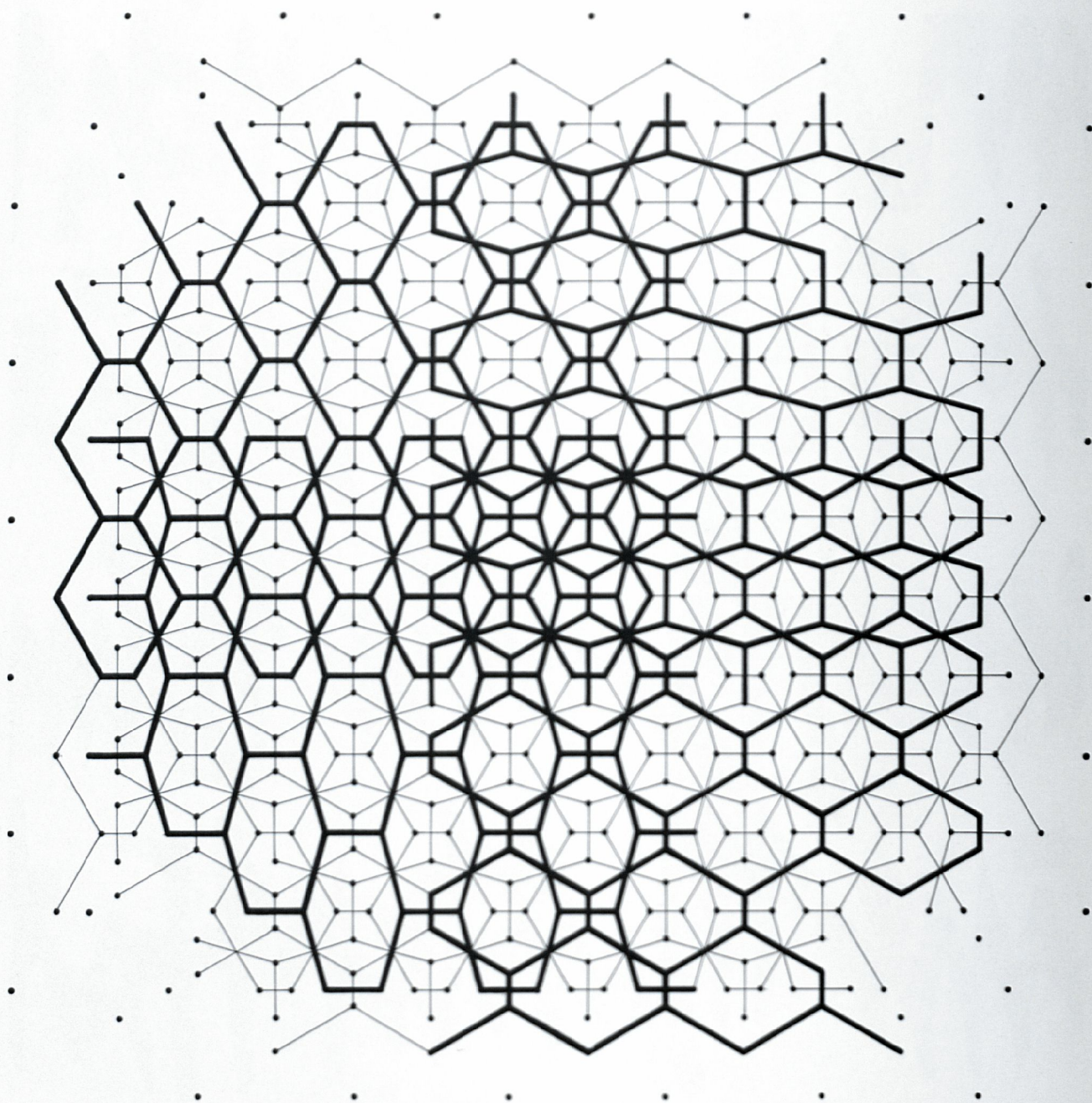
Jesse M. Page, AIA, Raleigh Architect. Term expires 1968.

G. Holmes Perkins, FAIA, Dean of the Graduate School of Fine Arts, University of Pennsylvania.

John O. Simonds, FASLA, Pittsburgh Landscape Architect.

Simon Steiner, Head of the Department of Art, University of Illinois at Chicago Circle.

Wunders Kinde
+ Schön Spä
nach Zumeist Blau
im Winter ist



VISITING LECTURERS SINCE 1948

THOMAS CHURCH, San Francisco landscape architect. WILLIAM W. CAUDILL, Texas architect. EERO SAARINEN, Bloomfield Hills, Michigan architect. R. BUCKMINSTER FULLER, noted American inventor, engineer, and designer. CLARENCE STEIN, one of America's foremost authorities on planning and housing. ERIC MENDELSON, San Francisco architect and designer of the Einstein Tower in Berlin. FRED SEVERUD, one of the nation's leading structural engineers. LEWIS MUMFORD, American author and critic in the fields of planning and the arts. FRANK LLOYD WRIGHT, world famous American architect. NAUM GABO, noted constructivist sculptor of Woodbury, Connecticut. JOSEPH HUDNUT, former Dean of the Harvard Graduate School of Design. JOHN LYON REID, San Francisco architect and school planning specialist. DOUGLAS HASKELL, writer, critic, and former editor of the "Architectural Forum". CHRISTOPHER TUNNARD, city-planner. ALDEN B. DOW, American architect, famous for his Midland, Michigan houses. LUDWIG MIES VAN DER ROHE, internationally known architect. PIETRO BELLUSCHI, Dean of the School of Architecture and Planning, M.I.T. FELIX J. SAMUELY, famous English engineer known for his work with the space truss. WILLEM DUDOK, Dutch architect. HIDEO SASAKI, landscape architect and professor at Harvard University. ALEXANDER ARCHIPENKO, world famous sculptor. WALTER GROPIUS, world famous architect. GEORGE NELSON, widely known architect and furniture designer. ROBERT ROYSTON, California landscape architect. GEORGE BOAS, philosopher and esthetician. CHARLES EAMES, architect and designer. LAWRENCE HALPRIN, California landscape architect and teacher. ROBERT B. NEWMAN, M.I.T. acoustical engineer. BRIAN HACKETT, British landscape architect and teacher. MARCEL BREUER, world famous architect and designer. ROBERTO BURLE MARX, Brazilian landscape architect. PAUL WEIDLINGER, New York structural engineer. PIER LUIGI NERVI, world famous structural engineer. MARIO G. SALVADORI, New York structural engineer, Professor at Columbia University. GARRETT ECKBO, California landscape architect and teacher. EDUARDO TORROJA, world famous structural engineer from Madrid. JOHN E. ARNOLD, engineer famous for development of courses in creative engineering. DAN KILEY, New England landscape architect. GUILIO PIZZETTI, Italian structural engineer. SIR HERBERT READ, British author and critic. O'NEIL FORD, Texas architect. WALTER A. NETSCH, JR., Chicago architect. H. TH. WIJDEVELD, Dutch architect. LOUIS I. KAHN, world famous architect. ERNEST J. KUMP, California architect. HEINZ VON FOERSTER, research cyberneticist and bionicist. G. E. KIDDER SMITH, New York architect and photographer. WAYNE ANDREWS, archives of American art professor at Wayne State University. JOHN M. JOHANSEN, Connecticut architect. HOYT SHERMAN, professor of fine arts at Ohio State University. MAURICIO LASANSKY, printmaker, professor of art, University of Iowa. RICHARD GENSERT, consulting structural engineer of Cleveland. FELIX CANDELA, Mexican architect and engineer. IVAN CHERMAYEFF, New York graphic designer. JAMES MARSTON FITCH, Columbia University author and critic. ROMALDO GIURGOLA, Columbia University architecture head. IRVING GROSSMAN, Toronto architect. JAMES STIRLING, British architect. RUDOLPH ARNHEIM, art historian and orientalist. THEODORE BOWIE, University of Indiana art historian. LANCELOT WHYTE, English philosopher of form.

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PRINTING HISTORY

The School of Design Bulletin is printed in 6, 8, 10 and 12 point Helvetica regular and bold types on Simpson-Lee Photo Text, cover and text weights.

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ILLUSTRATIONS

Pp. 1, 2, 34, and inside back cover: Part of a Series of Transformational Drawings. D. R. Stuart, Professor of Design.

Pg. 4: An Integrated Building System. R. C. Dellinger, '67 and M. Tribble, '67. R. P. Burns, Jr., critic.

Pg. 7: An International Architectural Center. G. W. Peer, '67. R. P. Burns, Jr., critic.

Pg. 9: A Regional Design Proposal. W. Hubbe, '68. L. Clarke, critic.

Pg. 10: Photo-montage. J. Lindstrom. B. Shawcroft, critic.

Pg. 12: Schematic descriptions of New Barn Concepts. The fourth year class of the Department of Product Design. D. A. Masterton, critic.

Pg. 15: Amphibious Support Body. J. Taylor, '67. W. P. Baermann, critic. (Redrawn from an original photograph.)

Pg. 21: Abstract Spatial Sequence. S. J. Heacock, '70. H. Sanoff, critic. (Redrawn from the original model.)

Pg. 28: High-contrast photography. S. Coe, '70. J. H. Cox and F. Eichenberger, critics.

Pg. 32: Woodcut. R. Goethert, '68. R. Taylor, critic.

