A COLLEGE OF THE ARTS FOR
THE PENNSYLVANIA STATE
UNIVERSITY

A thesis submitted in partial fulfillment of the requirements for the degree, Master in Architecture, at the Massachusetts Institute of Technology

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Abstract

.... a land of softly rolling .... tree covered mountains .....
.... small shops ... houses, on narrow treelined streets ....
... colleges and residence halls located around small courts .... Psuedo-Georgian Architecture .....

.... modified somewhat by the elevation and the protecting mountains ....

.... adding new colleges as the need for them arises.
... Art ... Humanities ... Music ... Theater ......
... a physical as well as an administrative tie ......

.... Prominate and close to the center of the campus ......
.... uniform slope
... again red brick with pitched roofs ......
... the tower of the administration building ....
.... not only from the campus, but also from the town ...

Unity ...... in terms of the university as a whole ......
.... basic underlying forms ......
.... space to which all belong ......
.... the relationship of the parts to the whole .....
.... color, form, texture .... respect if not repeat.

.... offices .... library .... studios .... classrooms .... theaters .... rehearsal

.... a proper attitude towards its orientation and relationship to the site, its relationship of forms and its organization of elements ....

... a great plaza, a long four-story classroom unit and a "doughnut" shaped office unit ....
Acoustics ..... a major consideration ......
.... the need for light and air .... easy access .....

..... a simple post and beam system ....
..... the wall as a wall ......
.... brick .... glass .... limestone ....

.... proper contribution to the campus ....
..... Unity ....

To two who made it all possible

Pietro Belluschi, Dean
School of Architecture and Planning
Massachusetts Institute of Technology
Cambridge, Massachusetts

Dear Dean Belluschi:

In partial fulfillment of the requirements for the degree, Master in Architecture, I herewith respectfully submit a thesis entitled "A College of the Arts for the Pennsylvania State University."

Sincerely,

Robert P. Breading

Acknowledgements

I wish to express my thanks to those individuals who have given their suggestions and encouragement so generously during the development of this design.

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Physical Characteristics

Central Pennsylvania is a land of softly rolling mountains and rich fertile valleys. From the air it appears as if the surface of the earth had been wrinkled by a mighty hand. The forest-covered mountains rise as much as two thousand feet above the plow patterned valleys. Here and there small farm communities of a few hundred houses appear, clustered together on the valley floor or nestled along the banks of a small stream. The industrial cities, mill towns, and monotonous suburbs of the eastern and western areas of the state seem to be far away. Located in the heart of this area is the town of State College.*

The town itself is situated on the floor of the valley with blue-green mountain ranges enclosing it on the northwest and the southeast. Just to the east of the town, Mt. Nittany sweeps abruptly out of the valley. This tree-covered knoll creates a focal point both for the town and the entire valley.

Originally the community was laid out on the southeastern side of an axis running down the valley with the campus to the northwest. In later years, residential areas have slowly crept around the campus until they now surround it on three sides. The com-

*State College has remained the name of the town while the campus area itself has been renamed University Park.

mercial area has remained, however, directly across from the main gate of the campus and is composed mostly of small shops in two and three-story buildings. The remainder of the town consists of single family, apartment and fraternity houses on narrow, tree-lined streets. Since there is no industry in the area, with the exception of agriculture, the sole means of livelihood for the town's eight thousand residents is the university and its students.

The main campus area, excluding the golf course and the farms, extends for about a mile along College Avenue and is about a half mile deep. In the early years the buildings were rather widely scattered, but as new schools were added, the land became more and more crowded until it has become increasingly difficult for the university to expand. The major axes of the campus are Pollock Road for vehicular traffic, running parallel to College Avenue and The Mall for pedestrian traffic, running perpendicular to it. These divide the university into quadrants with the colleges and residence halls located around small courts in each and the main administration building located at their intersection. For the most part, the buildings themselves are built in a Psuedo-Georgian architecture with the exception of the Liberal Arts and Chemistry Colleges which are done in what might be called "Federal Architecture." Although the trees, the landscape, and even the valley itself, tend to hold it together, there is still a certain lack of unity and organization which becomes more apparent as each new building is added.

Climatic Conditions

The climate of the valley is temperate and very much similar to that of other parts of northeastern United States. Although it is modified somewhat by the elevation and the protecting mountains, temperature and percipitation measurements compare favorably with those of inland Massachusetts.

The average winter temperature is thirty degrees or about five degrees warmer than Massachusetts. In summer the reverse is true with temperatures averaging in the sixties for State College as compared with a seventy-degree average for Southern New England. However, temperatures as low as minus ten and as high as ninety do occur occasionally.

The rainfall is identical with that of Massachusetts--both areas receiving about forty-five inches a year. Spring is the wettest season while late fall is the dryest. The Nittany Valley, however, receives about ten inches more snow per year and the ground is covered for approximately eighty days during the winter, while in Massachusetts this occurs for only fifty days. Snowfall up to two feet has been recorded, although normally it amounts to only a few inches.

The University

Now over a hundred years old, the Pennsylvania State University is one of the original land-grant colleges. Although it got off to a slow start due to political corruption in the handling of appropriations, the University has progressed rapidly since the nineteen-twenties. The present enrollment is now over fifteen thousand, and by 1970 will probably exceed twenty thousand.

This expansion has been accomplished, not so much by enlarging present facilities, but by adding new colleges as the need for them arose. This grouping of related communities helps keep the university in scale with the individual and to provide a greater flexibility in administration.

The campus has grown from the original college of agriculture to a present total of nine--the College of the Arts being the last to be added. This new college is comprised of four schools: Art and Art Education, Humanities, Music and Music Education, and Theater Arts. These schools have existed at the University for a number of years, but were scattered among various colleges. Humanities was divided between the School of Architecture and the College of the Liberal Arts. Music and Theater Arts were also in the College of the Liberal Arts, while Music and Art Education were separated from the College of Education.

With the formation of the new College, these schools will be increased from their present enrollment to the capacities listed below. In addition to the students of the College of the Arts itself, there will be four hundred and seventy affiliated students coming from the School of Architecture and the College of the Liberal Arts to take courses in the humanities and the arts.

Art	524
Art Education	432
Music and Music Education .	856
Theater Arts	234
	2,046

The present proposal is to group these four schools, along with an administration center, into a new college community. It is felt by the university that there must be a physical as well as an administrative tie between the various schools of the new college. The four schools will therefore be moved from their present and somewhat inadequate facilities to a new and more conjenial site.

The purpose of this thesis is to present a solution for the building of this new college.

Design Considerations

The Site:

In order to provide a location for the College of the Arts which was both prominent and close to the center of the campus, the university chose a now-vacant site on the College Avenue side of the campus, just northeast of the main administration building. The site is bounded on the southeast by College Avenue, the northeast by women's residence halls and recreation building, and on the northwest by the lawns of the Student Union Building. The two classroom buildings of the Home Economics College close the site from the southwest and separate it from the great court of the main administration building. The site has an almost uniform slope which rises twenty-five feet from the College Avenue elevation to the campus side. At this point the site is limited by a utilities tunnel which runs under the existing sidewalk.

The Surrounding Elements:

Although there are some shops located along College Avenue, the main business district is several blocks to the southwest, and the great majority of the buildings are residential in character. The street itself is broad and tree-lined. Most of the traffic is of a local nature--the only main highway passes on the other end of the campus.

The women's residence hall and recreation building are two to four-story structures of red brick walls and grey slate roofs. The Union Building which overlooks the site from the campus side is a three-story contemporary structure housing lounges, dining rooms, and recreation facilities for students and visitors. The buildings which border the site on the southwest are again red brick with pitched roofs in the Georgian manner. Rising above these buildings can be seen the tower of the administration building.

Access:

It is necessary to have access to the site not only from the campus but also from the town since a great number of the students, including about all of the fraternity men, live "off campus." In addition, the town's people themselves will use some of the facilities of the theater and art schools.

Parking for faculty and theater patrons is provided in an existing parking area located just above the women's recreation building. Its capacity will be greatly enlarged when the temporary art classroom building is removed upon completion of the new college, thus creating additional facilities not only for the new demands but also for the Student Union Building and the women's residence halls.

An existing service road for the College of Home Economics adjoins the site on the southwest side. Service is possible but undesirable from College Avenue.

Aside from these purely technical aspects of the site, there are several aesthetic qualities which must be considered. One of the most important of these is unity--not only in terms of the college itself for that is obvious, but more in terms of the university as a whole. Many factors contribute to this feeling of "belonging"; geometry is one. The buildings of the campus, although differing from each other in many respects maintain certain basic underlying forms. Although these need not be imitated, new forms can be developed from these same elements so as to harmonize with the existing ones. Another factor which helps build unity is space. The buildings create space within themselves and with other buildings create again still greater space to which all belong. A feeling for the manner in which this has been accomplished in other parts of the campus should be obtained. In speaking of space, one must also consider scale--the relationship of the parts to the whole and the whole to the University. This becomes almost monumental on the campus level, but the individual must not be forgotten.

The last and perhaps most obvious way to create unity is through the choice of materials--both landscape and architectural. Their color, form, and texture should respect if not repeat existing materials.

DETAILED PROGRAM REQUIREMENTS

Administration

Deans offices	3,000 sq. ft.
Library	8,000 sq. ft.
Exhibition area	4,000 sq. ft.

Art and Art Education

18 studios	18,000 sq. ft.
Industrial design	2,000 sq. ft.
Photo studio and lab	1,500 sq. ft.
14 studio offices	3,500 sq. ft.
Student lockers and property storage	4,000 sq. ft.

Humanities

8 classrooms	6,000 sq. ft.
5 lecture halls	7,000 sq. ft.
5 offices	8,000 sq. ft.
3 seminar rooms	8,000 sq. ft.

Music and Music Education

Rehearsal studios	
18 individual.	1,000 sq. ft.
10 group	1,000 sq. ft.
3 organ	600 sq. ft.
Band and orchestra . . .	3,000 sq. ft.
Chorus	2,000 sq. ft.
Listening studios	
18 individual	1,000 sq. ft.
10 group	1,000 sq. ft.
Dance studio	2,000 sq. ft.
Storage	
Instrument and uniform .	3,000 sq. ft.
Sheet music and recordings	1,000 sq. ft.
12 offices	12,000 sq. ft.

Theater Arts

Large theater . . . . 12,000 sq. ft.
    500 seats
    acting area 35'x30'x18'
    orchestra pit - 25 members
    stage house
    projection booth
Arena theater . . . . 4,500 sq. ft.
    200 seats
    flexible stage position
    actors' entrances from
        all points
Small theater . . . . 2,800 sq. ft.
    100 seats
    acting area 20'x15'x12'
    projection booth
Lobby . . . . 4,000 sq. ft.
Movie studio for educational
        films . . . . 5,000 sq. ft.
    cutting room
    projection room
    film laboratories
    offices
Workshop . . . . 1,600 sq. ft.
Dressing rooms . . . . 1,600 sq. ft.
Rehearsal rooms . . . . 1,800 sq. ft.
Costume shop and storage . . 9,000 sq. ft.
Property and scenery storage 4,000 sq. ft.
8 offices . . . . 8,000 sq. ft.
Green room . . . . 1,000 sq. ft.

Administration . . . . 15,000 sq. ft.

Art and Art Education . . . . 30,000 sq. ft.

Humanities . . . . 15,000 sq. ft.

Music and Music Education . . . . 18,000 sq. ft.

Theater Arts . . . . 38,000 sq. ft.

Circulation and service facilities . . 24,000 sq. ft.

141,000 sq. ft.

The originally proposed concert hall has been dropped from the scheme by the University. Instead they will remodel the present auditorium for that use.

The library remains as a branch of the University Library and will need little service area since all books and materials will be processed in the main library.

Gallery facilities which house the permanent collection of the University already exist elsewhere on the campus. It is therefore planned to include only an exhibition area for student work and transient shows.

The motion picture studio, although a part of the college, is intended primarily for educational films and not academic work.

Towards a Solution

It is felt that the building must maintain a proper attitude towards its orientation and relationship with the site, its relationship of forms and its organization of elements. In terms of orientation the building must do two things. It must enclose the Student Union Court so as to give definition and meaning to this area. It must also close off this court from College Avenue. This would give greater significance to the court of the administration building which would then become the only major opening on that face of the campus. To do this the building must have height and solidity. The pronounced slope of the side must also be taken into account. The building must become a part of the site and not be allowed to slip over it.

There must be a relationship between the forms of the new College and those used in the older ones. For the most part these existing buildings are composed of simple rectangular blocks, interlocked or connected and roofed flat or gabled. Their surfaces are articulated with columns and pilasters while their roof lines are sometimes broken with dormers and gables.

There must also be a definite organization of the element of the building itself, whether it be done by schools, function, size, or orientation.

The proposed solution consists of three major elements--a great plaza, a long four-story classroom unit and a "doughnut" shaped office unit. The plaza is raised above College Avenue, about to the level of the campus. Beneath it, the Theater Arts School is located with the public spaces and the theaters themselves on one side of a service corridor and the production areas on the other.

The classroom unit is on the campus side of the plaza with the first floor or plaza level devoted to the library and the exhibition area while the remaining three identical floors contain art studios, studio-offices, and humanities classrooms.

The "doughnut" shaped element slips under the classroom unit on the northeastern end and consists of offices for the administration and faculty at the upper level and music practice rooms, wrapped around the large rehearsal areas, at the lower level.

Acoustics are necessarily a major consideration in the design of both the theater and the music school. In the theater the problem was twofold--the insulation of the performance areas from the noisy elements such as the shop and the rehearsal halls, and the design of forms which would give reasonably good hearing conditions. The first was accomplished by placing all the elements which needed isolation on grade so that they could be separated from the actual structure of the building and by preventing direct contact between noisy elements. The second was solved by the use of compact, steeply sloping seating and askew wall and ceiling surfaces to reinforce but not echo or focus the sound, and by articulated surfaces to break up the sound.

In the music school the problem reversed itself. Here it was necessary to keep the sound in rather than out, and to "kill" it rather than reinforce it. Again to prevent transmission by the structure, these elements were all placed on grade. By skewing the walls of the practice studios and rehearsal rooms, the sound patterns are more confused to reduce reinforcement. In the music school as in the theater school, the elements which are to be insulated or isolated must be partitioned with heavy double walls, have all openings minimized and be air conditioned.

The lecture halls of the humanities school are also placed at the lower level. Since they are to be used primarily for film and slide lectures, they are designed as motion picture theaters and are therefore air conditioned.

The primary concern for the placement of the art and humanities classrooms was the need for light and air, while that of the library administration and exhibition areas was to provide for an easy access to each of the schools as well as visitors.

Construction

Structure:

The building is built on a simple post and beam system. All members are steel with the exception of the floor slabs which are reinforced concrete. The joists maintain a uniform span of twenty feet while the beams vary from a minimum of twenty feet to a maximum of sixty in the large theater.

The structural members which are exposed are covered with concrete for reasons of fire protection and maintenance.

This system was adopted because of the simplicity of erection and the resulting economics.

Materials:

The walls of the classroom and office building are constructed of brick laid in panels. This was done in an effort to express the wall as a wall and not as a structural element. The color and texture would be related to those of the other new building on the campus.

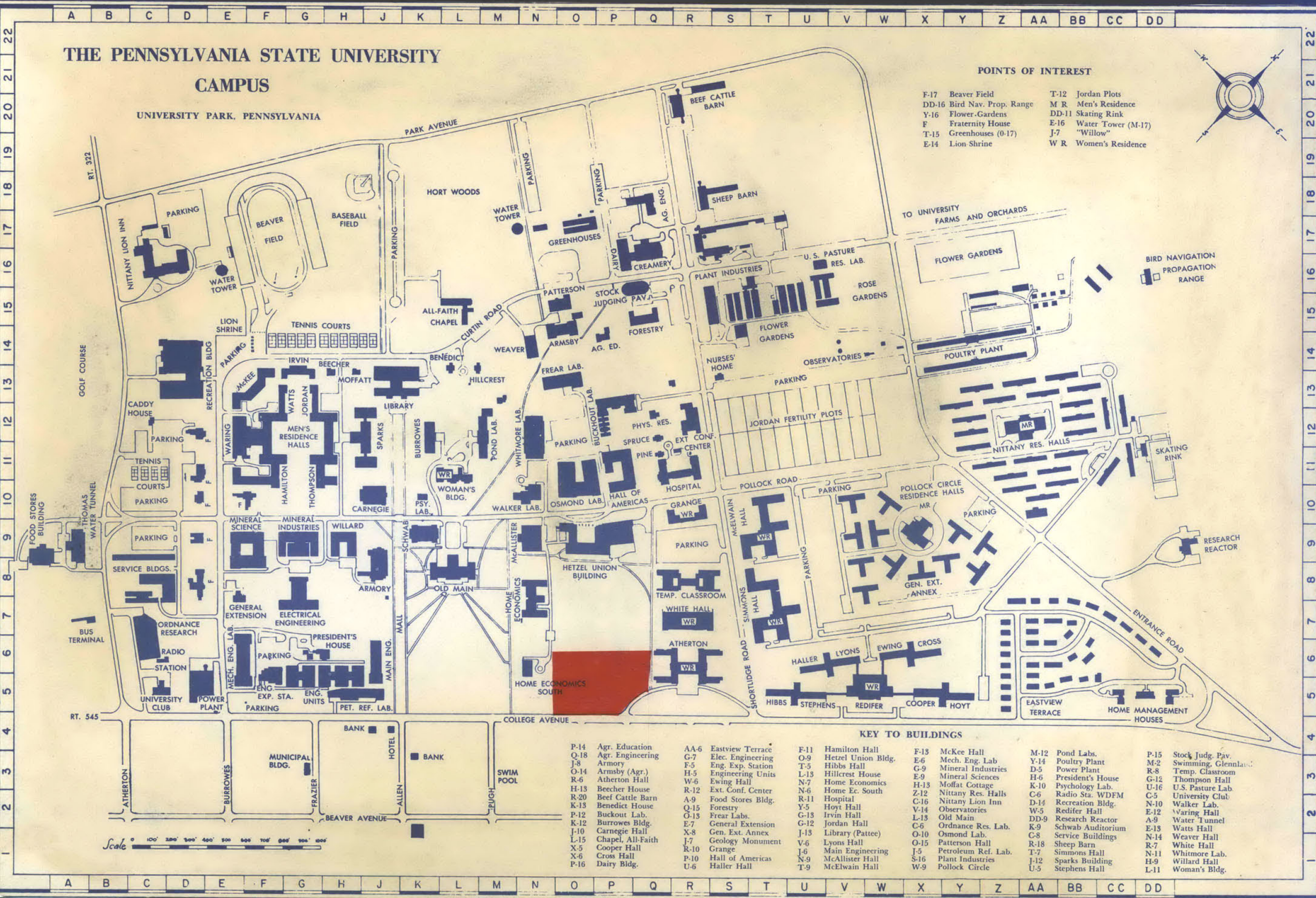
The walls of the stage house are of cream-colored annodized aluminum, striated to prevent warping and to add texture and scale.

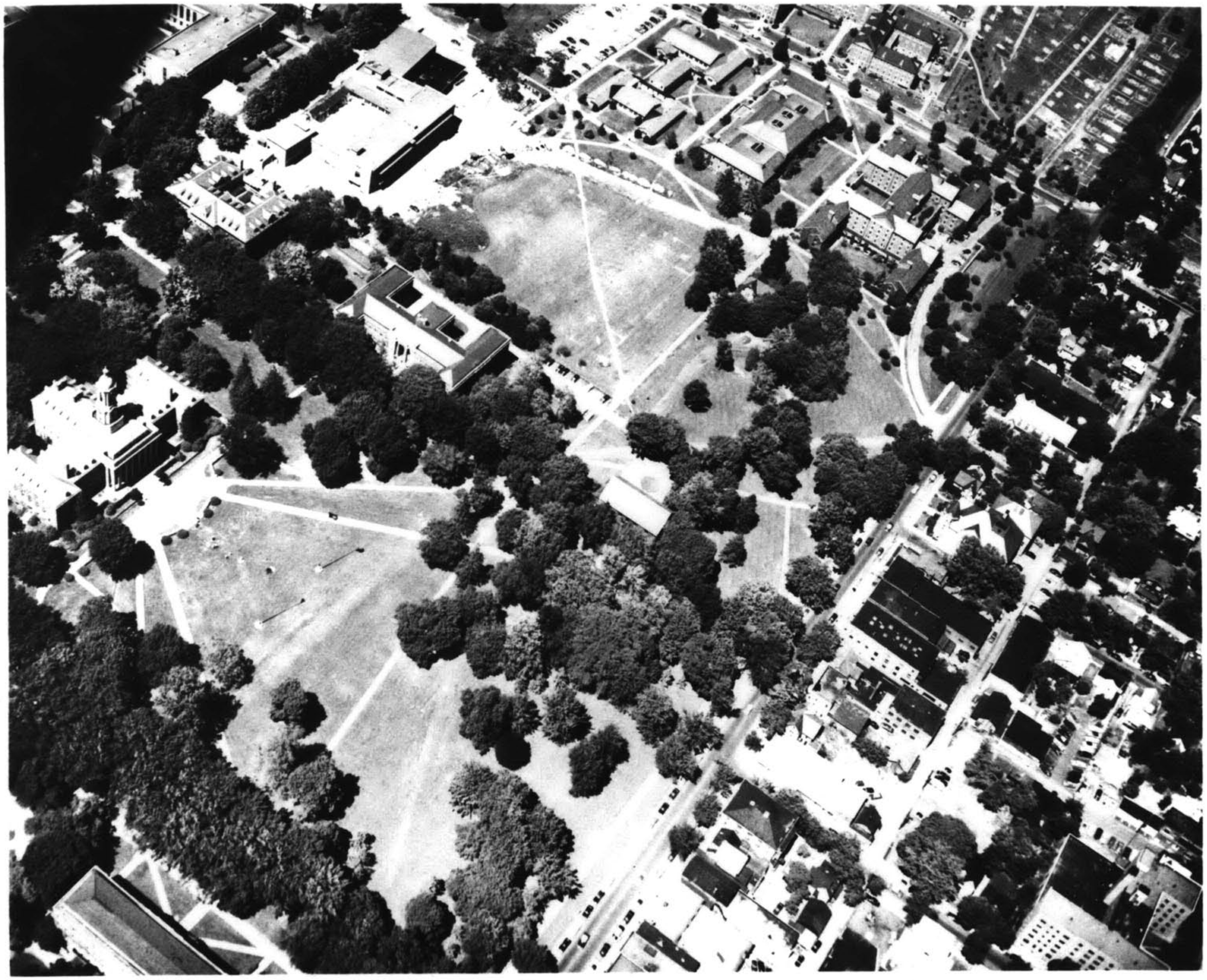
The retaining walls are all concrete faced with brick.

The classroom building and the office building have a built-up roof surfaced with white marble chips while those of the theater and music schools are paved with limestone.

Conclusion

The design of any college building is both interesting and challenging. Here it is not enough that the building be solved within itself. It must also make its proper contribution to the campus as a whole. This is perhaps true of every building, but in the academic setting, it becomes intensified. Regardless of its intended use, the building must have unity with the campus as a whole--unity in terms of material, form, space, and scale.


THE PENNSYLVANIA STATE UNIVERSITY
CAMPUS
UNIVERSITY PARK, PENNSYLVANIA
POINTS OF INTEREST
F-17 Beaver Field
DD-16 Bird Nav. Prop. Range
Y-16 Flower-Gardens
F Fraternity House
T-15 Greenhouses (0-17)
E-14 Lion Shrine
T-12 Jordan Plots
M R Men's Residence
DD-11 Skating Rink
E-16 Water Tower (M-17)
J-7 "Willow"
W R Women's Residence
KEY TO BUILDINGS
P-14 Agr. Education
Q-18 Agr. Engineering
J-8 Armory
O-14 Armsby (Agr.)
R-6 Atherton Hall
H-13 Beecher House
R-20 Beef Cattle Barn
K-13 Benedict House
P-12 Buckout Lab.
K-12 Burrowes Bldg.
J-10 Carnegie Hall
L-15 Chapel, All-Faith
X-5 Cooper Hall
X-6 Cross Hall
P-16 Dairy Bldg.
AA-6 Eastview Terrace
G-7 Elec. Engineering
F-5 Eng. Exp. Station
H-5 Engineering Units
W-6 Ewing Hall
R-12 Ext. Conf. Center
A-9 Food Stores Bldg.
Q-15 Forestry
O-13 Frear Labs.
E-7 General Extension
X-8 Gen. Ext. Annex
J-7 Geology Monument
R-10 Grange
P-10 Hall of Americas
U-6 Haller Hall
F-11 Hamilton Hall
O-9 Hetzel Union Bldg.
T-5 Hibbs Hall
L-13 Hillcrest House
N-7 Home Economics
N-6 Home Ec. South
R-11 Hospital
Y-5 Hoyt Hall
G-13 Irvin Hall
G-12 Jordan Hall
J-13 Library (Pattee)
V-6 Lyons Hall
J-6 Main Engineering
N-9 McAllister Hall
T-9 McElwain Hall
F-13 McKee Hall
E-6 Mech. Eng. Lab
G-9 Mineral Industries
E-9 Mineral Sciences
H-13 Moffat Cottage
Z-12 Nittany Res. Halls
C-16 Nittany Lion Inn
V-14 Observatories
L-13 Old Main
C-6 Ordnance Res. Lab.
O-10 Osmond Lab.
O-15 Patterson Hall
J-5 Petroleum Ref. Lab.
S-16 Plant Industries
W-9 Pollock Circle
M-12 Pond Labs.
Y-14 Poultry Plant
D-5 Power Plant
H-6 President's House
K-10 Psychology Lab.
C-6 Radio Sta. WDFM
D-14 Recreation Bldg.
W-5 Redifer Hall
DD-9 Research Reactor
K-9 Schwab Auditorium
C-8 Service Buildings
R-18 Sheep Barn
T-7 Simmons Hall
J-12 Sparks Building
U-5 Stephens Hall
P-15 Stock Judg. Pav.
M-2 Swimming, Glennland
R-8 Temp. Classroom
G-12 Thompson Hall
U-16 U.S. Pasture Lab.
C-5 University Club
N-10 Walker Lab.
E-12 Waring Hall
A-9 Water Tunnel
E-13 Watts Hall
N-14 Weaver Hall
R-7 White Hall
N-11 Whitmore Lab.
H-9 Willard Hall
L-11 Woman's Bldg.
Scale




OLD MAIN

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