

LONG RANGE DEVELOPMENT PLAN
UNIVERSITY OF CALIFORNIA, SANTA CRUZ

Prepared under the auspices of the
CAMPUS PLANNING COMMITTEE

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Dean E. McHenry, Chancellor
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Dear Chancellor McHenry:

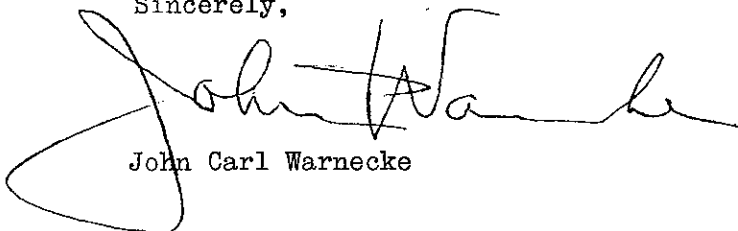
As the Master Planning Architect of the Campus of the University of California at Santa Cruz, I submit herewith to you the written Report and the supporting drawings which comprise the Long Range Development Plan for consideration of and approval by the Campus Planning Committee and recommendation to the Board of Regents for adoption.

The Plan conforms both to the unique philosophy set forth in the Academic Program and to the total and unusual demands of the beautiful site - the combination of which made possible the development of a scheme for a campus of great richness and diversity. Over the decades this campus can become an academic and intellectual expression of great dimensions. The Plan is so flexible that it can accommodate without distortion any future modification which may be necessitated, not only in the philosophy and policies of the campus, but also in the Environs Plan of the proposed University-oriented community.

In the preparation of this Plan, one of the great benefits was the teamwork afforded by the architectural consultants, Anshen & Allen, Theodore C. Bernardi, and Ernest J. Kump, and by the Landscape Architect of the Campus, Thomas D. Church. This approach has brought together architects deeply rooted in the traditions of the San Francisco Bay Region.

All of us engaged in the project, and I in particular, are indebted to the Campus Planning Committee and you for the encouragement, and advice you provided throughout the preparation of the Plan.

Sincerely,



John Carl Warnecke

THE UNIVERSITY OF CHICAGO

PHILOSOPHY DEPARTMENT

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October 21, 1963

PRESIDENT CLARK KERR:

I take pleasure in forwarding to you the Long Range Development Plan for the Santa Cruz campus. It is the product of more than eighteen months work by the design team headed by John Carl Warnecke. The Santa Cruz physical planning staff, led by John E. Wagstaff, and the Campus Planning Committee have represented the campus throughout the development of the plan. We are grateful to Vice President Elmo R. Morgan, University Architect Robert J. Evans, and the statewide staff of Architects and Engineers for support, encouragement, and counsel during this critical period. The physical plan has been shaped by two major decisions. The first of these was the selection of the Cowell Ranch site. Although the site is one of extraordinary beauty, it presents some difficulties that are unique or unusual within the University. The distance from a large metropolitan area indicates on-campus housing of most students in the initial years. The rough topography means fewer good sites for buildings and roads, and added expense for fills and bridges. The large size of the site requires longer utility runs. On the other hand, the forest cover should minimize landscaping costs and the 2000 acres provide ample room for growth and protects the campus against future impaction.

The Academic Plan confronted the physical planners with the problem of arranging facilities in such a way that undergraduates will feel they belong to a small community that combines learning and living, yet have available the superior resources of a large university, such as a central library, science laboratories, and cultural events.

Since both college and academic core buildings are being built one-by-one, initial experience will indicate which patterns and locations function best to serve the learning process. This Long Range Development Plan is "a guide to future development". We have tried to plan ahead with as much precision as possible, but the future is dimly seen at best, and changes undoubtedly will be made from time to time. We think the plan has elements of flexibility that will make it possible to adapt to changed conditions and to further refinement of program as better methods of imparting instruction are discovered.



Dean E. McHenry

1918-1919

1918-1919

The first part of the report deals with the general situation in the country during the year. It shows that the economy was in a state of depression, with a sharp decline in production and a corresponding increase in unemployment. The government had to take measures to support the economy, including the introduction of a new currency and the implementation of various economic policies.

The second part of the report discusses the social conditions. It notes that the population was suffering from widespread poverty and malnutrition. The government had to provide relief to the most vulnerable groups, such as the elderly, the disabled, and the unemployed.

The third part of the report deals with the political situation. It notes that the government was facing a crisis of confidence, and there were calls for a change in leadership. However, the government managed to maintain its position and implement its policies.

The fourth part of the report discusses the foreign relations of the country. It notes that the country was in a state of isolation, and there were no significant diplomatic relations with other countries.

The fifth part of the report deals with the military situation. It notes that the country was not involved in any major conflicts, and the military was in a state of readiness.

The sixth part of the report discusses the financial situation. It notes that the country was facing a severe financial crisis, with a large amount of foreign debt and a shortage of funds. The government had to take measures to stabilize the financial situation, including the introduction of a new currency and the implementation of various financial policies.

The seventh part of the report deals with the cultural and educational situation. It notes that the country was in a state of cultural and educational stagnation, and there were calls for reform. The government had to take measures to support the cultural and educational sectors, including the establishment of new institutions and the implementation of various policies.

The eighth part of the report discusses the health and medical situation. It notes that the country was facing a severe health crisis, with a high incidence of disease and a shortage of medical services. The government had to take measures to improve the health and medical services, including the establishment of new hospitals and the implementation of various policies.

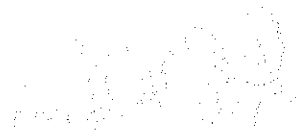


TABLE OF CONTENTS

1

PREFACE AND SUMMARY
THE BACKGROUND
THE CHALLENGE
THE RESPONSE

2

HISTORY AND SETTING

3

THE ACADEMIC PLAN

4

OBJECTIVES AND PRINCIPLES OF PHYSICAL PLANNING

5

THE LONG RANGE DEVELOPMENT PLAN
PLAN CONCEPTS
ARCHITECTURE
LANDSCAPE ARCHITECTURE
ENGINEERING AND UTILITIES

6

THE UNIVERSITY AND THE COMMUNITY

APPENDICES

I Campus Planning Committee

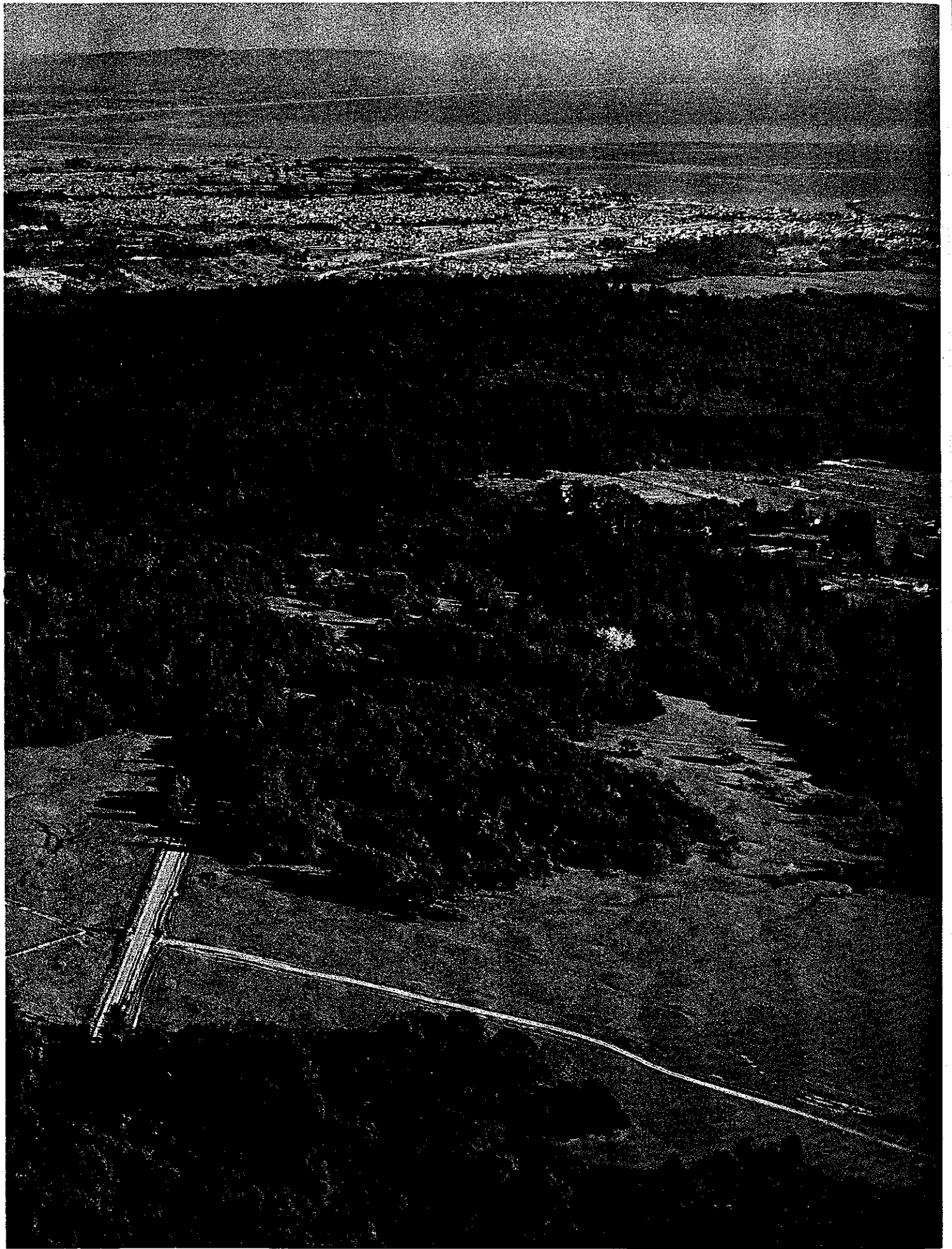
II Master Plan Team

III University Staff

IV Space Allocations

V Standards for Parking

VI Bibliography



PREFACE AND SUMMARY

This document is a culmination of studies begun long ago, leading toward expansion of the University of California to new campuses. The most recently published documents related to growth of the University, some of which are referred to in sections of this report, are: *The Restudy of the Needs of California in Higher Education*, (1955); the *Additional Centers Report*, (1957); the *Master Plan for Higher Education in California* (1960); and President Clark Kerr's *Recommended Plan for the Growth of the University of California*, of the same year, which translated the *Master Plan* recommendations into a specific *Growth Plan* for the University. Finally, the Regents had authorized three new campuses for the University in October, 1957, one of which was to be in the five-county South Central Coast area.

During 1960, a site selection study for this campus was conducted by the firms of Lawrence Livingston, Jr., Planning Consultant, and John Carl Warnecke, Architect. The site choices were narrowed down ultimately to two possibilities: the Almaden Valley in Santa Clara County, and the Cowell Ranch in Santa Cruz County. The Regents chose the Santa Cruz site in March 1961 and the S. H. Cowell Foundation offered to sell sufficient acreage to the University for a campus, on satisfactory terms. Agreements were consummated with the City and County of Santa Cruz and ultimately about 2,000 acres of land, partly in the City and partly in unincorporated territory, were purchased. In July 1961, Dean E. McHenry was appointed Chancellor of the new campus, and a general allocation of functions for the Santa Cruz campus was made in the Statewide Academic Plan.

In January 1962, John Carl Warnecke was selected by The Regents as Master Plan Architect. Subsequently, he nominated Ernest J. Kump, Anshen & Allen, and Theodore C. Bernardi as consulting architects to work with the firm of John Carl Warnecke and Associates. Thomas D. Church was appointed by The Regents to be Landscape Architect for development of the campus. Work was started at once on site studies and physical planning. In January 1963 a tentative Long Range Development Plan was approved in principle by The Regents.

While the University has been going ahead with its plans, the City and the County of Santa Cruz have been planning the University environs. The firm of Williams & Mocine, Planners, representing the City and the County, have cooperated with the University's planning team and with the Campus Planning Committee and the campus staff. A General Plan for the

City of Santa Cruz and an Environs Plan for the immediate University area are in process of being approved and adopted.

The Long Range Development Plan for the Campus of the University of California, Santa Cruz, results from concepts, policies, and directions stemming from the sources noted earlier, as formulated by the Santa Cruz Campus Planning committee, headed by Chancellor McHenry. All members of the master planning team have contributed to the data that are compiled in this document.

It is the purpose of the Long Range Development Plan to translate the Academic Plan into terms of physical reality, and establish guidelines for the continuing development of the Santa Cruz campus. It is recognized that the plan must be flexible, so that possible changes in educational concept and other presently unforeseeable factors can be accommodated if need be. At the same time, it is believed that the campus must from its start make a bold statement, both in an academic and an architectural sense.

THE CHALLENGE. The campus of the University of California, Santa Cruz, offers an unparalleled opportunity to build freshly, in a beautiful setting, structures that will implement a stimulating educational concept. Such opportunities have been extremely rare in the history of our country; never, perhaps, has the site chosen for the development of such a venture been so inspiring.

The history of physical planning and architectural development of college and university campuses in the United States, since the time when early campuses were built, has not always been a happy one. Harvard, whose wooden Old College buildings had rotted away by the time Thomas Jefferson planned the University of Virginia, along with other truly colonial institutions had simple needs and obvious stylistic impulses. By the end of the last century, when a wave of university building began, there were still some buildings and a few campuses of distinction remaining from the earlier periods. Princeton's Nassau Hall, Richardson's Harvard structures, Jefferson's classical symphony at Virginia, were composed, however, of individual buildings or groups of buildings, often beautifully related to their sites, but seldom tied integrally to a program of education or even to an overall physical plan. Toward the 1890's, many master plans were authorized, among the most interesting developments being that for the University of California at Berkeley. Olmstead's scheme, Benard's winning competitive design, and Howard's plan that evolved from these were among the first instances of planned growth. Classical planning, Beaux Arts axial symmetry, formalism and im-

The campus site affords spectacular vistas toward the ocean.

pressiveness were too often the hallmarks of the planning efforts that followed on other campuses until, in fact, a strong President of a strong new University protested. Daniel Coit Gilman, President of Johns Hopkins, objected to imitation medieval buildings on an imitation classical campus, and asked that good, simple, workable structures be planned for his campus. Thomas Huxley, speaking at the dedication of these buildings, applauded the result: ". . . whenever you build, get an honest bricklayer, and make him build just such rooms as you really want, leaving ample space for expansion."

Although in recent years there have been many examples of functionally planned campuses, and buildings that provide just those rooms needed (sometimes with room for expansion), true distinction in overall campus planning and architecture is still rare. The great examples are still likely to be isolated buildings, not always well related to their neighbors. And the number of instances in which an imaginative academic plan has been studied for its architectural implications is small indeed.

Here at Santa Cruz, then, is a great opportunity — a true challenge. The idea of the small college related to the great contemporary University; the aggregation of colleges, schools and academic centers that might be adapted to the near wilderness site; the opportunity for a contiguous environment to grow with the University campus: these concepts, together, form the challenge.

THE RESPONSE. The pages that follow will document the ways in which the Long Range Development Plan for the University of California, Santa Cruz, responds to the challenge cited above. In brief summary, the response is this:

The site will constantly be respected, and preserved as it is as much as possible.

Fifteen to twenty residential colleges and ten professional schools are planned for, roughly encircling a core of joint University facilities, including the academic and the science centers.

The academic center and the science center will provide intra-college contact and instruction and research spaces.

The colleges will be relatively self-contained, providing for much of the student's social as well as academic life.

Professional schools will also be self-contained, some perhaps to be joined with colleges, but located so as to provide close academic contacts.

Housing will accommodate at least 50% of the student body and faculty on or close to the campus.

Athletic areas and other student activity spaces will be partially centralized, in specified places, and partially related to the colleges and schools.

Commercial areas will be encouraged or developed at specified places, in some cases campus oriented.

Affiliated institutions may be attracted to land in reserve.

Campus circulation systems will branch off from regional and local off-campus roads, and will consist primarily of an outer and inner perimeter loop system, with cross connections.

Parking will be placed where reasonable walks are possible to destination points, but so located that the center of the campus is primarily pedestrian.

A transit system is recommended for study.

The flexibility called for in the Academic Plan will be made possible in a physical sense by the Long Range Development Plan.

The architecture of the campus is planned so that each group of buildings may have its own character, consistent within itself, and all groups will have some degree of overall unity.

Overall architectural unity is to be achieved by use of similar materials, similar roof forms in most cases, and similar base treatments.

There will, however, be a hierarchy of scale and style, ranging from informality, intimate scale, and inward-orientation in the residential colleges to a more formal approach in the academic center.

Landscape architecture will respect existing planting and topography, and use indigenous materials for new work. Open spaces will be retained, and handled as wilderness, park, scenic, and buffer areas. Roads, paths, and bridges will be adapted to the terrain.

The relationship of the University to its environs, including the present city and new communities that may develop, will be planned as one of contiguous, simultaneous, and mutually advantageous growth, in both a physical and a cultural sense.

HISTORY AND SETTING

The development of the campus at Santa Cruz will cause profound changes in the character and quality of the surrounding community and will greatly accelerate growth in the entire area. It should mark a major turning point in local development.

LOCATION The campus site is at the western edge of the City of Santa Cruz, and the center of the site is about 2½ miles from the downtown area. Located on the northern end of Monterey Bay, Santa Cruz is 75 miles south of San Francisco, 30 miles southwest of San Jose and about 30 miles north of Monterey. Three state highways link the area with other points. State Sign Route 17 extends over the Santa Cruz mountains to Los Gatos and San Jose and connects with major freeways serving the entire San Francisco Bay Area. State Sign Route 1 (Cabrillo Highway), along the coast, extends northwesterly from Santa Cruz through San Mateo County to San Francisco, and southerly to Watsonville and Monterey. State Sign Route 9 links Santa Cruz with Skyline Boulevard, via the San Lorenzo Valley.

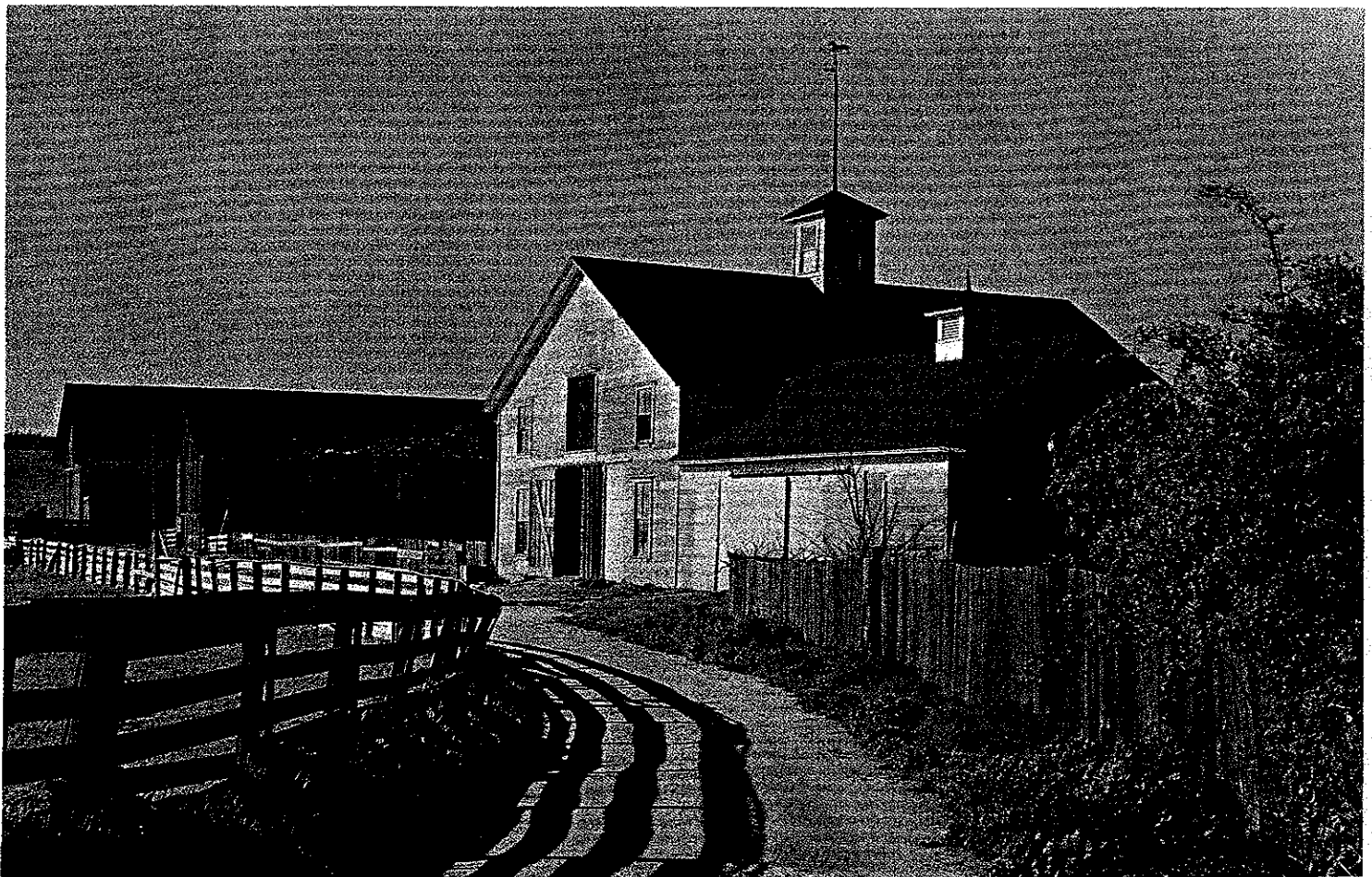
HISTORY. Although somewhat bypassed by the tremendous growth experienced in other parts of the State, Santa Cruz is one of the older communities in California; its history goes back to the settlement

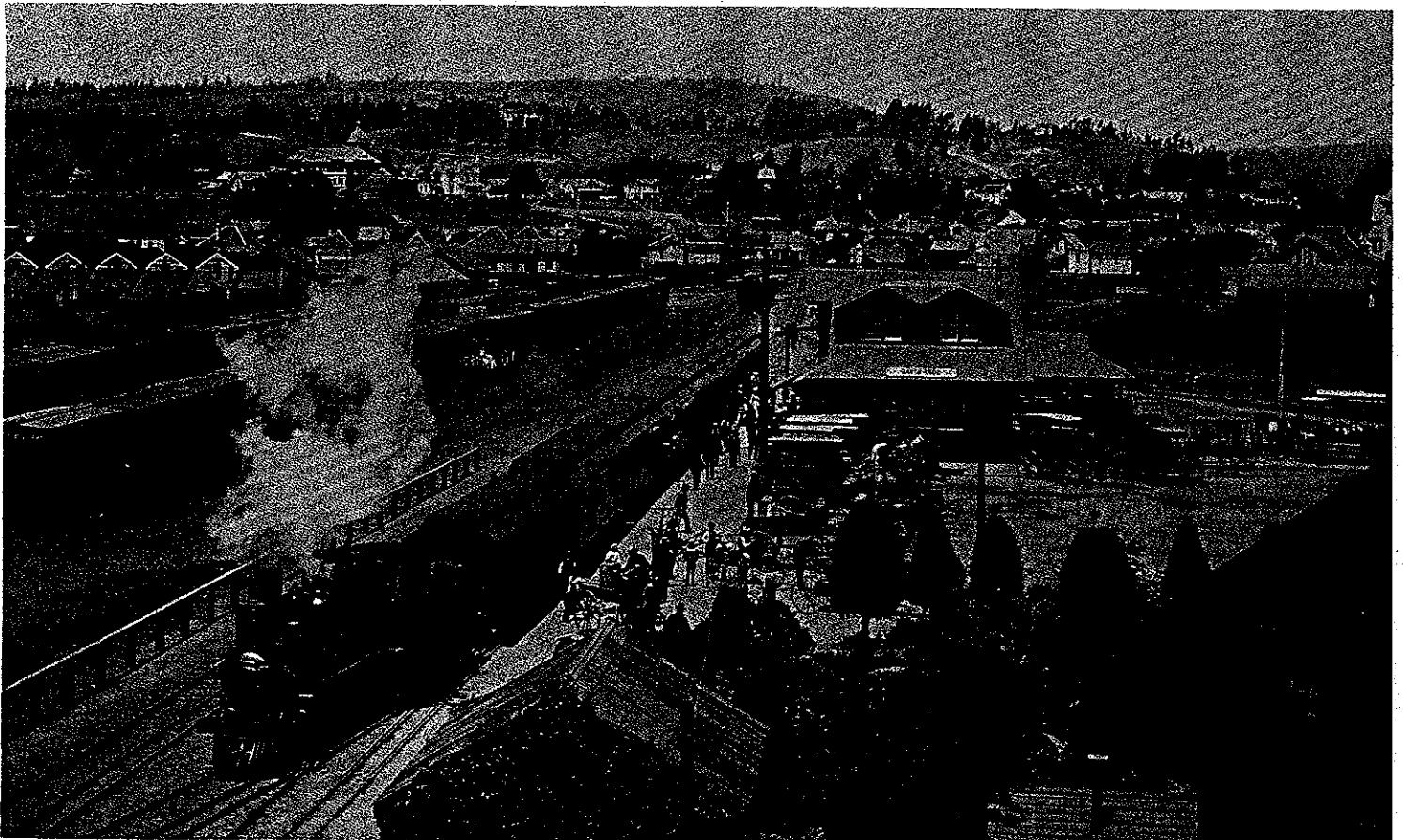
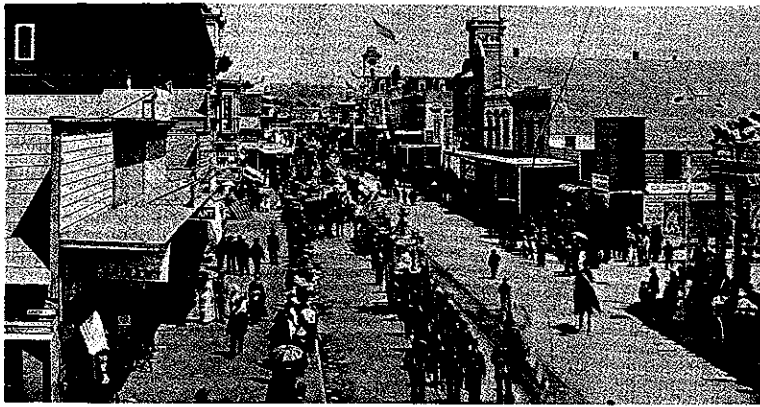
occurring around the Santa Cruz Mission, which was founded in 1791. In 1797, the town of Branciforte was established by the Spanish Government as a pueblo, and after the missions were secularized, the town continued as a population center. Branciforte was annexed in 1907 by the City of Santa Cruz, which had developed on the site of the original mission.

Since its earliest years the City has been an agricultural trade center, and after 1850 lumber and lime production became important local industries. The first Santa Cruz wharf was built in 1853, and from it was shipped lime produced in a kiln operated at the upper end of Bay Street. This enterprise became the Cowell Lime and Cement Company — the source, in a later period, of the funds for the Cowell Foundation, from which a part of the Cowell Ranch (the campus site) was acquired.

As early as 1880 the equable climate, excellent beaches, and mountain and seashore beauty in the area were recognized, and Santa Cruz early became a recreation and resort center. These activities have tended to dominate the economy of the area; Santa Cruz is still one of the most popular resort and amuse-

Some of the early Cowell Ranch buildings remain.





ment localities serving the Bay Area. However, the area suffered a decline during the depression of the 1930's from which it has never fully recovered, and downtown Santa Cruz and the beach area were left with many old or absolescent buildings. The City is now moving to correct some of these conditions through redevelopment.

Santa Cruz, the largest city in Santa Cruz County, is the center of social, cultural and economic activities for the county as well as being the County seat. In 1960 it was a city of 25,600 inhabitants with an unincorporated fringe half again as large. During the latter part of the 19th Century, Santa Cruz had a growth rate comparable to the State as a whole. In recent years, however, the City, together with Santa Cruz County, has grown more slowly than the rest of the State. In the last few decades, Santa Cruz has not grown as rapidly as the Monterey Peninsula area, which can be considered comparable as a recreation area. It has, nevertheless, felt the impact of the growth of the San Francisco Bay Area and Santa Clara Valley, in the large increase in summer visitors.

The City of Santa Cruz has a relatively compact pattern of older buildings, reflecting many decades of slow growth. The street system is an irregular network of local streets and thoroughfares adequate for normal traffic volumes except during the summer season, when routes serving the beaches are heavily congested.

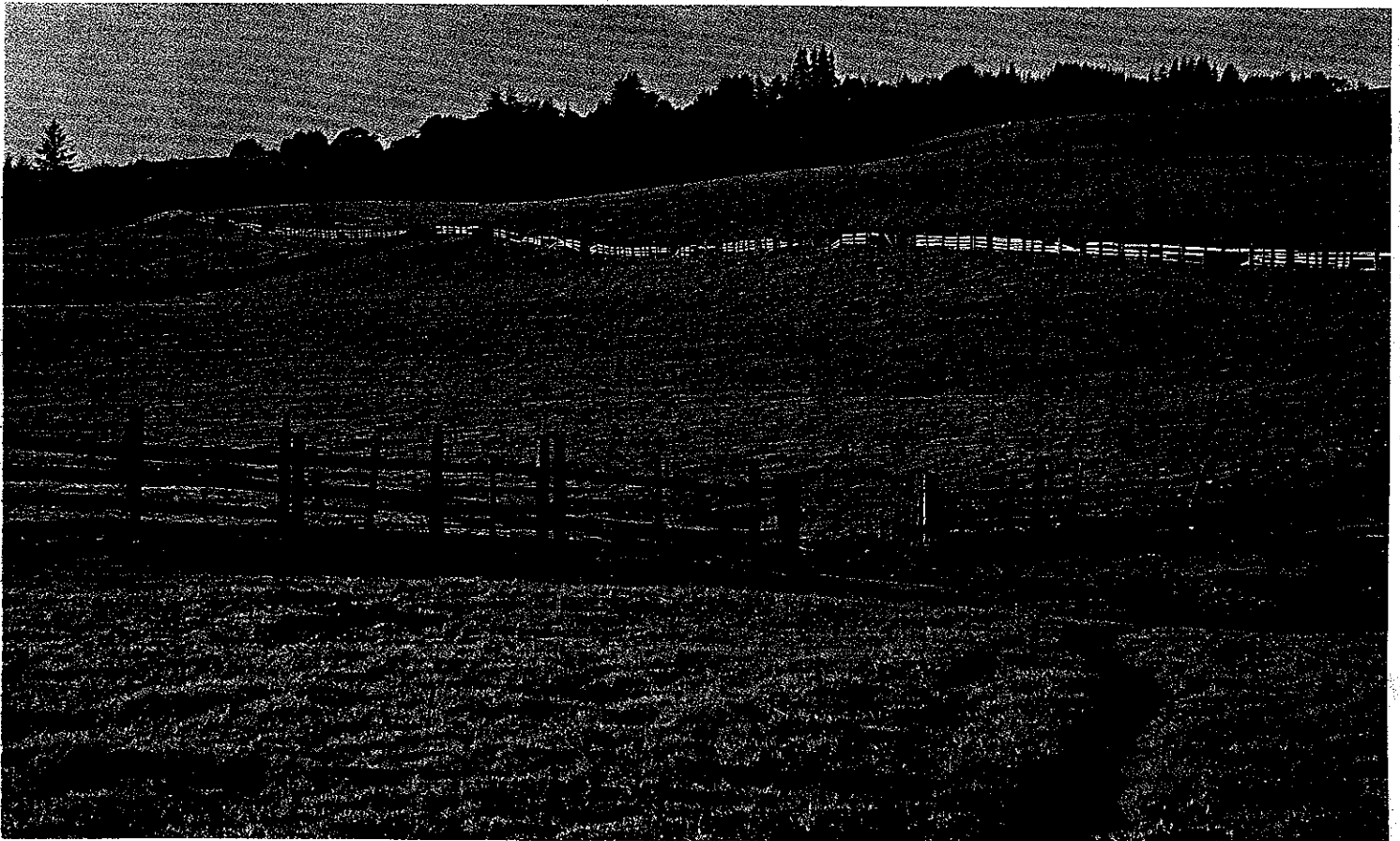
At the turn of the Century Santa Cruz was a popular resort.

The principal business district is near the present center of population. Commercial amusement development is concentrated at Santa Cruz Beach. Small areas of industrial development are located to the north, west, and east of the City. In general, urban development extends easterly from the City to the adjacent communities of Capitola and Soquel while agriculture occupies the balance of the coastal shelf.

Other important uses in the vicinity include the several State beaches and parks along Monterey Bay, and the Henry Cowell Redwood State Park, 2½ miles up the San Lorenzo River Canyon.

The campus site itself is surrounded on three sides by forest and grasslands; the Henry Cowell Redwood State Park forms the northeastern boundary. Only on the south do urban uses occur at present. Good quality residential development extends northwest from the center of the City to the campus site. An elementary school and a church adjoin the southeast corner of the site, marking present limits of concentrated urban development. Some scattered residential development occurs along the southern and western boundaries. The S. H. Cowell Foundation owns most of the lands on the western and eastern boundaries. The land on the south side of the campus, however, is held in many ownerships varying from single lots to larger acreages.

A beautiful setting in which to develop a stimulating concept.





SLOPE DIAGRAM



TREES AND SLOPE DIAGRAM

THE SITE. The campus site, which encompasses some 2,000 acres, lies within and adjacent to the northwestern boundary of the City of Santa Cruz, along the road known as Empire Grade. It is an irregular shape, about three times as long as its maximum width.

The site varies in elevation from approximately 290 feet to approximately 1190 feet from south to north. The topography varies from nearly flat, to gently rolling, to moderately steep. In the past, parallel streams flowing from north to south have cut "V" shaped canyons into the terrain.

The southernmost and part of the northernmost areas are grasslands, while the area between is covered with mixed stands of trees and brush. In the central area large second-growth redwoods predominate.

GEOLOGY. The geologic formations found within the limits of the site consist of marble formations (crystalline limestone), mica schists, quartz diorites, sandstones and shales. The marble formations, occupying the central and southeastern portions of the site, have a relatively thin soil cover; in many stream valleys the soil cover has been washed away. The marbles are hard, compact, white to grey carbonaceous rocks which outcrop extensively. The schists, along with the marbles, are found in much of the central portion of the site; they are brownish to grayish in color and are physically weak from an engineering standpoint. The quartz diorite, an intrusive igneous rock that occupies the northern end of the site, may have harder zones than the schists. Overlying much of the southernmost part of the site are the remnants of several sedimentary formations that represent the physically weakest formations on the site.

The San Andreas fault, about 12 miles northeast of the site, and the Nacimiento fault, roughly 70 miles to the south, are considered to be potential sources of major seismic activity. Nevertheless, the possibility of rupture by faulting is remote. The Santa Cruz area in recent times has experienced earthquakes of various intensities but apparently without major damage.

It is not believed from the evidence available that ground water will constitute a major engineer problem. Apparently the cavernous limestone acts as a mechanism for ground water storage, transmission and discharge. The site is relatively free of landsliding.

VEGETATION. Almost 75% of the site is occupied by indigenous tree and shrub cover. Only the southern portion of the site has large open areas, although there are smaller meadows in the north. The predominant trees are redwoods, many over 100 feet high; the largest stand is located near the center of the site. Among other native trees on the site are Douglas fir, bay, oak, madrone, Monterey pine, buckeye and maple trees. Plants other than trees include native grasses and wild flowers: manzanita, ceanothus, toyon, chinquapin, ferns, vines and azalea.

CLIMATE. There are prevailing westerly winds that

seldom reach severe intensities. The rainfall at the lower elevation is 28 inches per year and somewhat more at higher elevations. The mean average temperature is 56 degrees F., with mean high ranging from 65 to 75 degrees and mean low temperatures ranging from 38 to 65 degrees. Seasonal variation of temperature is minimal. There is no air pollution problem and because of the pattern of prevailing winds, none is likely to develop in the future. Rainfall is concentrated almost entirely in the months from December through March.

The area receives an abundance of sunshine throughout the year. Foggy and cool mornings are the rule during the summer months, although the daily fog usually disappears by midmorning. May and June, and September and October are relatively free of fog.

The prevailing winds of winter are from either south or north. During the summer months, gentle morning breezes generally come from the west and northwest, gradually subsiding in the evening. The proximity of the ocean, of course, affects the amount of rainfall, and also equalizes the temperature.

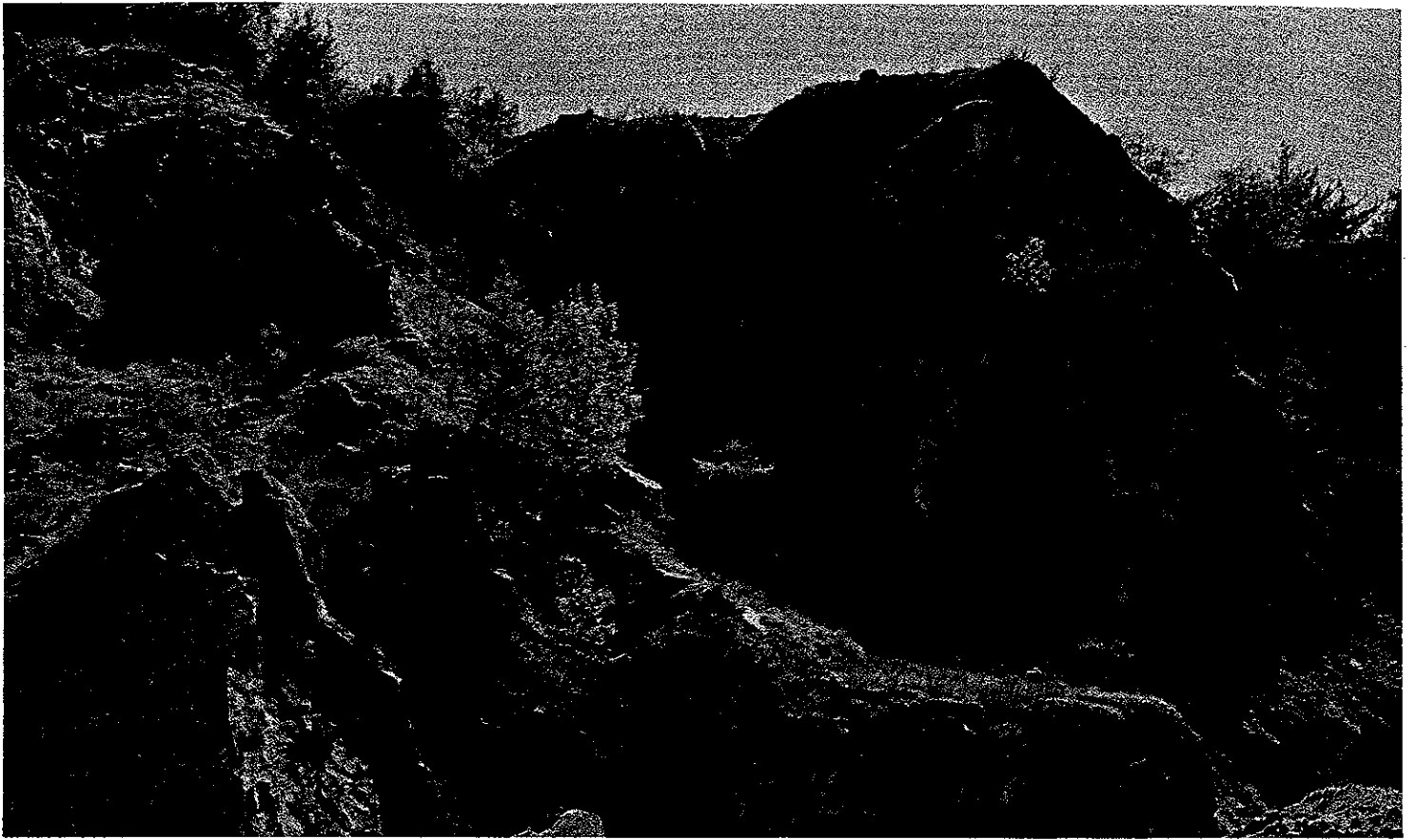
TOPOGRAPHY. While a large portion of the lands in the site are easily buildable, 65% of the total area having slopes of less than 15%, there are limiting physical features that will influence the nature of the development. The steep-sided and very deep canyon of the San Lorenzo River bounds the site on the north and east, imposing severe limitations to access from this direction. A somewhat similar condition exists on the western side, with Wilder Creek and Cave Gulch generally paralleling the campus boundary. On the south, however, there is an opportunity for free access between campus and adjoining lands.

On the site itself there are several wide, deep ravines dividing the southern half of the campus into relatively narrow strips. One larger ravine and three smaller ravines occur at the center of the site. Knolls and valleys occupy most of the balance of the land.

The orientation of the site, with the long axis facing south and the terrain falling towards the ocean, provides spectacular vistas to the south and southeast. The site enjoys marine views without the glaring western sun, a somewhat unusual situation on the California Coast.

A once active limestone quarry is now a picturesque canyon.

The towers of redwood trees have their own form and mass.





THE ACADEMIC PLAN

The University of California faces a double challenge as its new campuses are planned and its present campuses expand: it must provide space, facilities, staff and curricula at an accelerating rate; and it must maintain the quality of education, research and service for which it has rightly become known. The State of California has earned an enviable reputation for foresight and imagination in its plans to accommodate the oncoming flood of students qualified to enter its public institutions of higher education. Indeed, the Legislature's concern with the problems of student numbers and quality in State educational institutions goes back into the last century. The most recent review — *A Master Plan for Higher Education in California, 1960-1975* — was the result of an extensive survey and analysis made by a team of carefully chosen educators. Some of its recommendations were translated into bills and resolutions that were introduced in the Legislature in 1960 and in almost all cases passed into law.

Within this Master Plan, the role of the University, with its various existing and proposed campuses, was carefully defined in relation to the respective roles of the State Colleges and the Junior Colleges. The University, basically, is described as providing instruction in the liberal arts and sciences and in the professions. It is authorized to award the doctoral degree in all fields of learning and, importantly, it is the primary State-supported academic agency for research at various academic levels.

The Academic Plan for the Santa Cruz campus is based, then, on the quantitative goals set for the new institution (7,500 students by 1975, 27,500 students as an ultimate population, to be reached in 1990); on the overall role of the University, and the relationship to it of each of the individual campuses; and on specific aims for this particular campus that have been formulated by the Chancellor and agreed on by the State-wide administration and The Regents.

The University of California shares with other great Universities the basic tasks of teaching in many fields, of furthering academic research, and of providing a public service by making its resources and the knowledge of its faculty available to the community.

The Academic Plan for the Santa Cruz campus describes a method of education related to college living that is suited to the particular location. The new campuses of the University will all provide instruction and research in the arts and sciences, engineering, business and other fields in which the demand warrants provision of facilities on several campuses. In addition, in each case the campuses will foster instructional and research specialties in other fields

that are suited to the specific region. The University of California deliberately cultivates diversity among its campuses; each campus is encouraged to develop its own individuality from its particular location, physical setting and design, history, academic organization, and leadership. At Santa Cruz the intent is to combine the advantages of a small college with the facilities of a great University. As the Academic Plan points out, this campus, because of its location, must provide more than the usual amount of residential space. Here, then, the opportunity seems great to combine patterns of learning and living, as well as to make use of new methods of instruction, study, and communications.

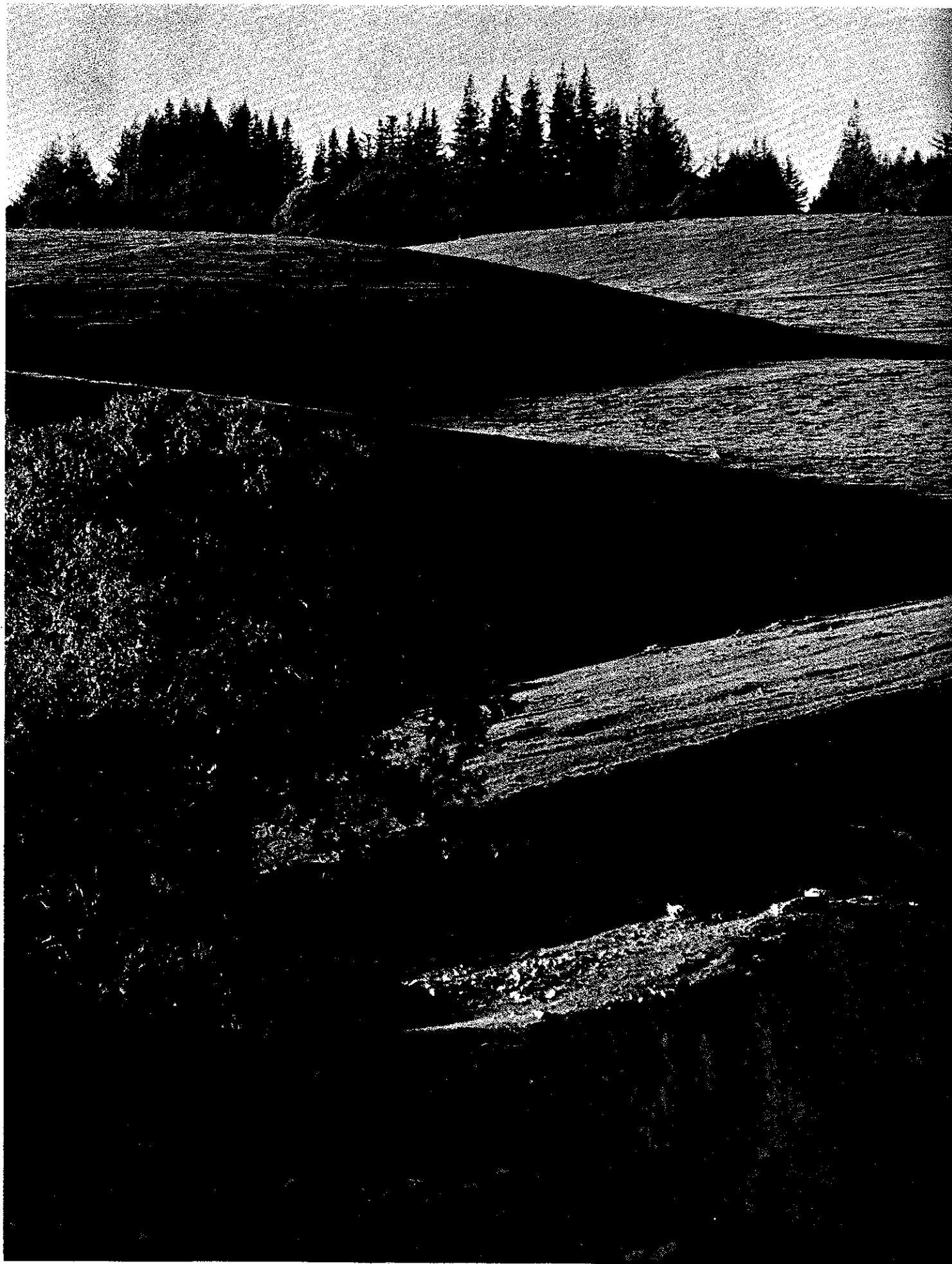
The key element in the academic organization of the Santa Cruz campus will be the residential college. Ultimately 15 to 20 colleges are planned, with the number of students in each varying from 250 to 1,000. In the first college, proposed to be named Cowell College in honor of the family that owned the large ranch property on which the campus will be located, 600 students are planned for, 400 of whom will live on campus, with 200 commuting. The residential college is an academic unit of administration, providing for not less than half of the student's instruction and, further, it is his center of academic life, a place where he lives, dines, leads most of his social life, and centers his athletic and recreational activities.

Academic emphases in the colleges will vary, although all will provide undergraduate liberal arts education. Courses will be kept small, with stress on seminars and tutorial instruction. There will naturally be an interplay and exchange among colleges, and special courses given in one will be open to qualified students in others. Each college will be headed by a Dean, who will live in the college, as will also ten or twelve fellows and preceptors. As the Academic Plan states: "The colleges will be student-oriented, but the atmosphere will be seriously intellectual. The academic program will be heavy, the hours long. A determined effort will be made to reach the whole individual, and to occupy his entire attention during the academic week."

Thus a very important aspect of the residential college concept is that there be differences among the colleges, accentuated by the Dean and faculty and also through special curricular emphasis. This might range from Comparative Literature to Life Sciences, always with a common devotion to liberal education. Cutting across the college boundaries there will be campus-wide academic units based on specific disciplines, grouped broadly under the Humanities, Social Sciences, and Natural Sciences.

In addition to the residential colleges, there will be

Park-like open areas contrast with the dense grove of trees.



several professional schools. Fields of specialization now considered likely to be scheduled in these schools are Engineering, Business, Natural Resources, and Landscape Architecture. Resources in the region will be called upon to assist in implementation of these curricula. It is planned that some of the professional schools may be organized in a manner similar to the residential colleges, which much of the student's personal and social life, as well as his academic instruction, in the particular school area.

The separated activities of the colleges and schools will be brought together in a campus academic core, where facilities for the Social Sciences and Humanities will cluster around the library, and where campus-wide administration spaces will be located. The University Library — "the intellectual heart of the Santa Cruz campus" — will be centralized, but each college is expected to have from 10,000 to 15,000 volumes of reference works, duplicate books and paperbacks. The main focus will be on a central collection that might start with 75,000 volumes and grow by 1975 to some 500,000.

Scientific disciplines will cut across college lines and will have their own science center. It is planned that the biological sciences — Botany and Zoology — will be combined with the physical sciences — Chemistry, Mathematics and Physics — for a unique interdisciplinary cooperation.

The Academic Plan calls for close relationship of faculty fellows (academic staff members attached to

a particular college) with activities in their colleges, and some of them will live there. Others will be given an opportunity to live nearby. The Long Range Development Plan provides that enough land be held in reserve to assure housing at prices that are commensurate with staff compensation.

A program of University extension services is anticipated as a part of the function of the Santa Cruz campus. Ultimately, a residential adult college, possibly combined with a conference center, might be built. In the beginning, extension services will consist largely of adult education courses given on the campus, in regular academic facilities. Various affiliated institutions may be attracted to the campus, adding depth and variety to its life.

The Santa Cruz campus will want to take part in the University's State-wide program of full utilization of instructional facilities by planning a year-round program from the outset. This will be difficult in the early years of small enrollment. Even then, however, it is anticipated that a substantial summer program will be given, and the residential college facilities will be used for summer institutes and similar activities.

In summary, the Academic Plan of the Santa Cruz campus as it affects the physical Long Range Development Plan provides for the development of a campus of separate residential colleges and professional schools, with such central facilities as may be necessary to house activities and disciplines that cut across college boundaries, with a large proportion of students and faculty living on or near the campus, and with a close interrelationship to the surrounding community.

Several ravines cut through the more gently sloping land.

OBJECTIVES AND PRINCIPLES OF PHYSICAL PLANNING

The primary concern of the Long Range Development Plan for the Santa Cruz campus is the arrangement on a remarkable campus site of the activities and facilities that grow out of the educational program described in the Academic Plan. The academic proposals must be related to the site in such a way that they can be accomplished as completely and as satisfactorily as possible; at the same time the site itself must be utilized so sympathetically that its natural aesthetic qualities are preserved, and remain to assist and enhance the development of the academic goals.

Certain primary objectives guided the planning that results in this Long Range Development Plan. The Academic Plan describes the aim to furnish the student with an environment that would induce serious intellectual achievement and at the same time provide pleasant living conditions and a sense of belonging to and participating in a small group of fellow students and faculty. Also from the Academic Plan comes the basic precept of residential college differentiation and identification, which implies a physical separation and an architectural distinctiveness, always with a linkage to a central campus core.

The site demands unique attention. Everyone who saw it during the planning stage was awed and impressed by the need to keep it as unspoiled as possible. "Any manicuring of this area will produce a commonplace effect," said Ansel Adams. "To a greater extent than any of us have faced heretofore, the buildings are less important in the visual composition than the trees," commented Thomas Church. Thus the impact of the site on the Long Range Development Plan has induced the planners to find areas where buildings and groups of buildings could adapt to the ridges and ravines, the groves and open spaces, and the intimate and the long-range views — and at the same time have the relationships with one another that the Academic Plan requires.

Two objectives, then, influenced the physical planning: implementation of a strong educational concept that suggested certain plan relationships; and respect for a strong site that brought unique possibilities and, at the same time, limitations in planning. From these objectives, certain principles emerged and were incorporated in the Plan:

1. The core of the campus, containing the library, the central academic area and the administrative headquarters, should be centrally located for accessibility to the public and to the rest of the campus, and at the same time should command a wide sweeping view of the land and seascape, not blocked in the foreground by other structures.
2. The individual residential colleges should be lo-

cated on the crest or knolls of high land, attempting to gain views, wherever possible, but taking advantage of trees and intervening ravines for separation and individuality. Most of the colleges should be within 7½ minutes' walking distance of the center of the campus.

3. The colleges should be inward looking, with some aspects of a "walled city," expressing a concept of self-contained unity. This should not, however, preclude taking advantage of the views.

4. There should be an "entrance" to the campus, in the sense of a visually interesting approach and a focal point of a welcoming building. In addition, there should be on the campus some vertical accent that would focus visual attention and give a sense of unity to the Plan.

5. The science center should penetrate into the central core, with liberal allowance for future expansion.

6. The campus road system should be a peripheral one, with automobiles excluded from the central part of the campus as much as possible.

7. Parking spaces should be provided so that they would be within reasonable walking-time distances of academic buildings. Parking should be provided at the colleges for commuter students.

8. The setting should remain simple and natural, with landscape refinement restricted to the college and academic courts.

9. High density housing for faculty and staff, as well as individual residences, should ultimately occupy a portion of the University's land.

10. University-community sectors, at several points of the site, should provide some shopping and other community facilities related to both campus and environs.

11. Athletic facilities should be provided in close proximity to the residential colleges, with their use restricted to intramural and physical education activities.

12. In the beginning, with few residential colleges built, students should be given a sense of campus — of colleges with character. And in the later stages the physical plan should, as the Academic Plan phrases it, "foster among students a sense of belonging that will make the campus seem small as it grows large."

13. The campus should retain flexibility. Certain aspects of the residential college concept will need to be tested, and changes made, as necessary, from stage to stage. Educational as well as architectural attitudes will change in time, and a rigid, restricting plan in either the academic or the architectural sense would be wrong. Yet the original concept should be strongly expressed, with no visual sense of uncertainty or compromise.



COLLEGES



PROFESSIONAL SCHOOLS

H

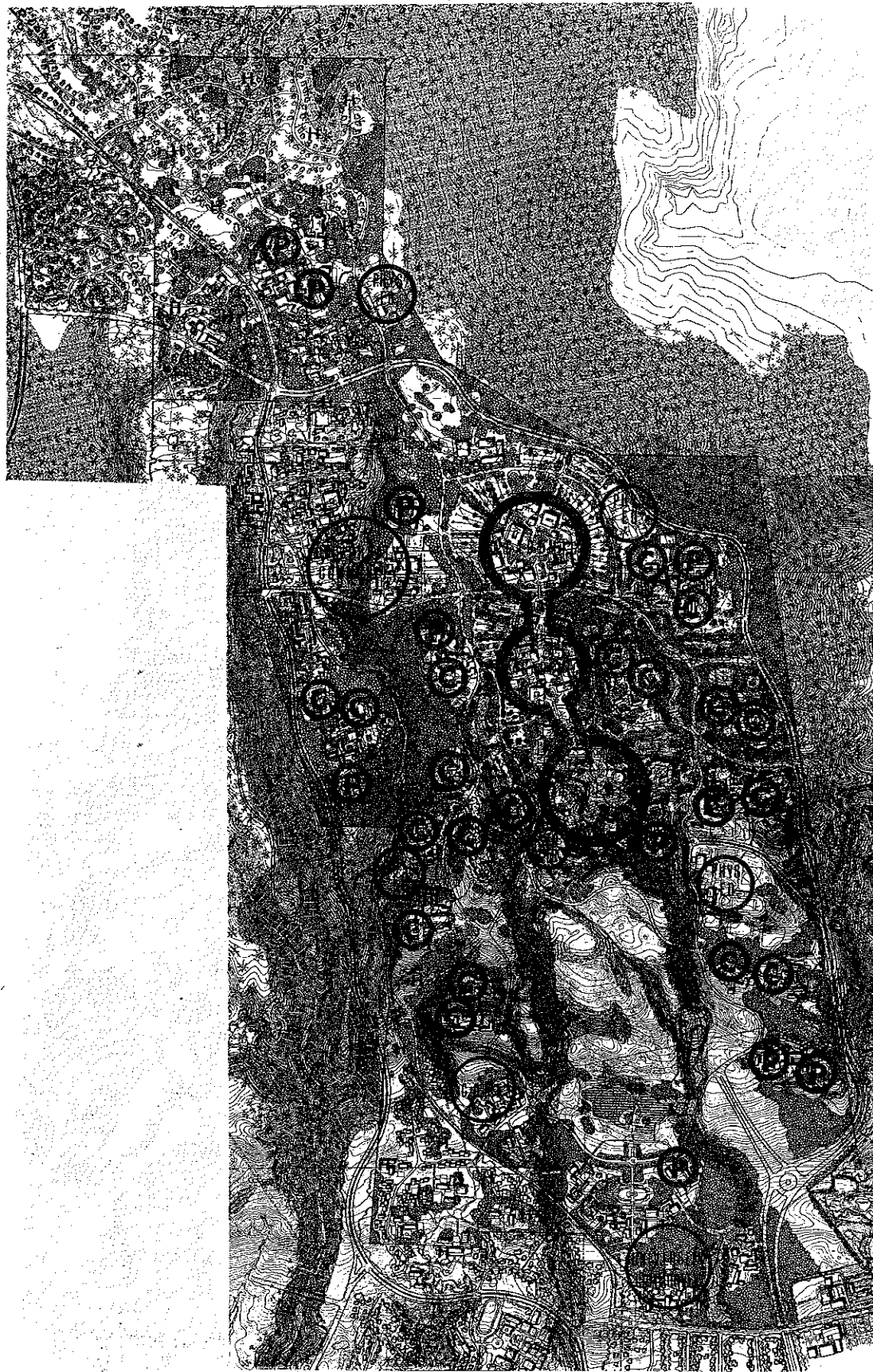
HOUSING

FUNCTIONAL USE DIAGRAM



FUNCTIONAL USE AND DISTANCE ARCS

EACH ARC HAS A RADIUS OF FIFTEEN MINUTES WALKING TIME.



FUNCTIONAL USE, SLOPES AND TREES



CIRCULATION DIAGRAM

THE LONG RANGE DEVELOPMENT PLAN

PLAN CONCEPT. The basic design configuration of the Santa Cruz Campus is a series of residential academic enclaves encircling a central campus core in a manner adapting itself to the terrain, with peripheral road systems and cross-campus connections linking groups of buildings to one another. The principal, central activities of the campus will be located in the wooded area of the site, so arranged as to take full advantage of the dominance of the great trees. Approach can be from several directions, but the main entrance will be from the south where the City of Santa Cruz lies. The campus is entered across a rolling meadow, up a road that winds past a series of vistas looking back toward the sea and forward to the campus buildings. This approach road arrives at a terminus—a high point with a view toward Monterey and the Pacific horizon—where the Administration Building can form an architectural entrance to the campus.

There are many advantages in placing the academic core of the campus in this geographic center of the site:

1. There is already an unusually generous and stately tree cover that would require 100 to 150 years to grow on open land.
2. The size and scale of the trees will provide a unifying force compatible with a variety of building types.
3. The redwood groves will impart a unique character to the campus.
4. Expansion possibilities to both north and south will be maximized.
5. The Plan will be less constrained by topography.
6. The campus will have a better relationship with the environs.
7. Vistas from the site will be better.
8. Wind, fog, and glare will be minimized.
9. Soils in the central area of the site are more fertile.
10. More separation will be gained from freeways to the south.
11. The central area is located at the meeting point of forest and meadow, the contrast providing the most beautiful areas of the site.

In addition to all these reasons, there is the advantage of the great meadow rolling away toward the south of the campus center. If the University maintains this space as an open area, by the year 1990 it may well be one of the most rare, gratifying and valuable assets of the campus.

CULTURAL AND ACADEMIC CENTER. North from the "entrance" building, then, for some distance in the geographic center of the campus site, the buildings of the campus center will be located in a great wooded park. Grouped more formally than the colleges, these buildings will yet adapt themselves to the contours of

the land and respect the existing trees. Here will be the central library, the major assembly spaces and exhibit areas and the central facilities required for humanities and social sciences. This is the part of the campus where students and faculty from the various colleges will meet for access to joint facilities and for the activities that are common to all of the colleges. At its northern end, on a dominating knoll that overlooks the park, will be located a vertical architectural symbol—a great tower—which, rising through the trees, will provide orientation within the campus and identification from without.

SCIENCE CENTER. North of the cultural and academic center, a change in topography occurs; the land becomes more level and more densely wooded. Here the science center is located amidst redwoods that will be cleared only to the extent needed for openings and light to the buildings and for necessary circulation. Sharing the central campus area, the science center will be a meeting place for students and faculty from all colleges for instruction or research. The buildings in the science center group will include laboratories and teaching and research facilities in the biological sciences (Botany and Zoology) in the physical sciences (Chemistry, Mathematics and Physics), and in Engineering. The science center is so located that extensive expansion is possible, as these disciplines may grow unpredictably.

RESIDENTIAL COLLEGES. The residential colleges are located on the site in the prime areas of natural beauty, and are joined together by paths, roads and bridges intended mainly for pedestrians and bicyclists. Each college is located in a distinctive area. The diversity desired in the Academic Plan will be achieved in physical terms by varying topography, differences in natural vegetation and relation to (and separation from) other campus facilities through the use of ravines and open glades in planning. Fifteen undergraduate colleges are located within about ten minutes walking distance of the academic core. More important, perhaps, is the fact that from many colleges, within a fifteen-minute walking distance, students can reach other colleges and some aspects of non-academic life. Thus, there is a separation but no sense of isolation. Some of the later colleges are planned for sites farther from the center of the campus, and several are connected with or related to professional schools. The colleges are grouped in enclaves of two or more so that academic, athletic, food service and certain other facilities may be shared, and so that roads and utilities can be commonly used. Recreational and sports facilities will be largely decentralized in areas located close to the individual colleges. Parking is provided in im-

mediate proximity in small unobtrusive spots.

PROFESSIONAL SCHOOLS. The professional schools called for by the Academic Plan may be associated with their own residential facilities, as are the undergraduate residential colleges, but will be more closely related to a special department or faculty, or even with affiliated institutions or the adjacent community. Engineering, Natural Resources and Forestry, for example, will be located near the science center. Business will be located for easy access to the academic core, but also to the City of Santa Cruz. Traffic to the professional schools from married students' housing areas, both on and off campus, will be heavy. Many of these students will be older and more likely to be married, and the schools have been so located that access is direct, by foot or car.

HOUSING. Housing is a particularly important aspect of the Long Range Development Plan because of the stress that will be placed on the residential nature of the campus. It is anticipated that between 35% and 50% of the student body will live on campus. In addition to the students, a great number of faculty members will live either in close proximity or on the campus itself. It is planned that students and staff will be closely integrated into an overall University community.

Single students will be housed primarily in the colleges, where teaching and living arrangements can be integrated to claim the student's full time and attention. Graduate student housing will be located near to or as a part of the professional schools.

Sites are reserved for married graduate students' housing on the campus. In the early years, however, married students will live in the adjacent community.

Staff housing will be partly on campus and partly in the environs. About half of the ultimate total academic staff will be expected to live on campus or within the University environs. The Long Range Development Plan provides acreage to accommodate about 700 staff families.

The Plan indicates land reserved for housing for the purposes mentioned above in two categories: high density (row-housing, apartments); and low density (single-family houses of various price levels and lot sizes).

ATHLETIC AREAS. The athletic emphasis indicated in the Academic Plan is on intramural sports and physical education, with participation by most of the student body. About 85 acres are designated for athletic use, of which some 25 acres are distributed among the individual colleges. There will be clusters of athletic facilities located on both the eastern and western sides of the campus, adjacent to one of the several athletic fields. In the quarry south of the campus center might be located ultimately a stadium for intramural games. As in the case of the academic facilities, sports areas will be located so as to take advantage of natural sites

and existing groves of trees.

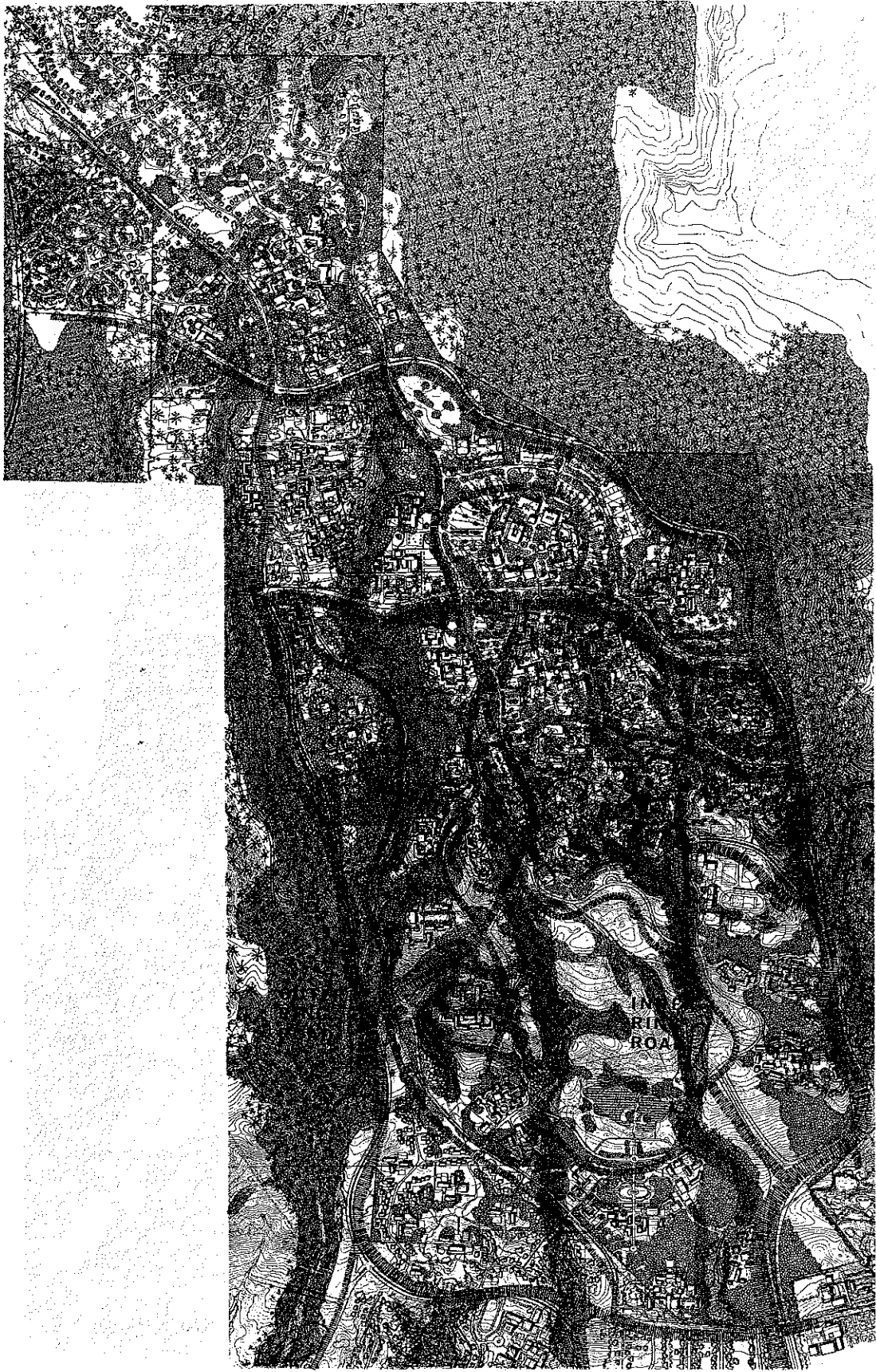
STUDENT ACTIVITY AREAS. Much of the life of the student will center around his own college. Nevertheless, student activities of several sorts are planned in addition to these dispersed recreational and social functions. A student and faculty center will probably become necessary for use by graduate students living off campus and faculty not associated with one of the colleges, to broaden the University-wide interchange of ideas and interests. A commercial center that will be used heavily by students and staff may develop near the Cave Gulch area, as the campus grows. In addition to this, however, areas of University-community shops, stores and service facilities may be located on several of the major connections to the environs. A small, centrally located commercial grouping is indicated in the heart of the campus, solely for student-oriented services, to provide for day-to-day needs.

AFFILIATED INSTITUTIONS. In the Academic Plan, it is suggested that five fields of special interest might "begin as informal pockets of strength in the colleges, and later emerge as centers or institutes." The subjects are anticipated to be: Language and Linguistics, South Pacific Studies, Conservation, Psychology, and Mathematics. A portion of the campus to the south of the open meadow, adjacent to the City of Santa Cruz, has been reserved for the potential development of such institutes, which would be affiliated with the University. Here also would be sites for University Extension activities, and for a conference center. In the same general area, there is a reserve of land indicated that might be the site for a future hospital, and where other university-community cultural activities, such as a museum or a theater, might be located.

SERVICE FACILITIES. A Corporation Yard is planned, to be located in the future in an area toward the north of the campus center where it will be accessible, yet not obtrusive. In the earlier stages it is anticipated that general campus services will be housed in close-in, multi-use buildings. Certain aspects of administration might be housed there, in a later interim period, after service facilities have expanded and been relocated.

OPEN SPACE. Open spaces are identified in the Long Range Development Plan, so that they can be staged in their development, and permanently preserved in many instances. Permanent open spaces are of four types: park (including the central campus park area); wilderness; buffer areas between the campus and the community, where desirable; and scenic drives, such as the main approach to the campus entrance. These areas will not be tailored or intensively landscaped; they will remain, as much as possible, in their present rugged state.

ROAD SYSTEMS. Circulation systems indicated on the Long Range Development Plan are integrally related to the land-use plans for the campus, and also to the University Environs Plan. Because the alignments and



CIRCULATION, SLOPES AND TREES



PHASING DIAGRAM - TO 1970



PHASING DIAGRAM - TO 1980

functions of on-campus roads are dependent to a large extent on approach routes to be planned and built by the City, County, and State, and since roads in the environs will carry both University and community traffic, there has been cooperation in circulation planning with the local planners.

The Long Range Development Plan recognizes the need for flexibility in circulation, in the sense that uses of land and of buildings could change in later phasing stages. Colleges now shown at some distance from the center of the campus might be moved in closer when the time came to build them; more or fewer central academic buildings might become desirable; the nature of the schools or the colleges might change. The inner-campus road system will make possible changes in land use, if that should become desirable. The roads are planned to encompass and unify the land; they do not necessarily dictate its use.

University-oriented vehicular traffic has been analyzed primarily according to origins and destinations of the drivers. There will be five types of traffic, each requiring a particular road design. The first two are primarily the responsibility of the Santa Cruz community. The remaining three road systems are on the campus.

For campus vehicular traffic certain criteria have been evolved:

- (a) Circulation of people within the core of the campus will be primarily pedestrian.
- (b) Persons driving automobiles to the campus are to park generally at the periphery of centers of activity, but with distinguished visitors parking near their destinations.
- (c) Top administrative staff, faculty, commuting students and visitors will find parking within a five minute walk from their goals, and others will be able to park no more than fifteen minutes walking distance from their destinations.
- (d) The terrain, with its original contours and its dominant trees, is to be used in as natural a manner as possible as roads are designed.
- (e) Service traffic will be provided to each building, so designed that it will not interfere with other intra-campus movement.
- (f) Emergency traffic, such as fire trucks or ambulances, should be able to reach all parts of the campus at any time.

The five basic types of road will be the following:

1. *Traffic to and from the Santa Cruz community.* This system has three components: perimeter roads on the east and the west sides of the campus to be provided by the City and County of Santa Cruz; connections from these perimeter roads to the downtown city and its various parts; and interconnections among the elements of the community, such as downtown, the beach, industrial areas, residential areas.
2. *Traffic to and from distant points outside the Santa*

Cruz area. This type of University traffic, having no other business in the community, will be taken as quickly as possible from the inter-city highways to the campus, and vice versa. There are four connections to the State Highway network (sign routes #1, #9, and #17).

3. *Traffic that has reached the campus from outside points.* Most of this traffic will be channeled as quickly as possible by roads leading from the outer perimeter roads, to parking or service areas, without disturbing the inner, primarily pedestrian activity of the campus. This system includes entrances to the central campus area (which may be connected to form a through road, in the early years); a cross connection serving the science center; a cross-campus road at the north end of the campus core; cul-de-sac entrances to the residential colleges and to the service areas of other building groups.

4. *Limited local traffic within the campus.* This movement may be by automobile or bicycle (with limited parking available, primarily for faculty and staff), and consists of an inner loop system, with what cross connections are absolutely essential. The areas within this loop will be penetrated only by service roads and pedestrian paths.

5. *Visitor Traffic and Traffic related to ceremonial occasions.* The campus will be approached formally from the south — specifically, via the most convenient highway interchange from the regional highway system, and thence on the on-campus approach road leading to the campus center.

Widths of roads will be adjusted to traffic needs as they develop. In the initial phases, roads can be two lanes wide. By 1980, it is anticipated that traffic on some perimeter roads will require four lanes. The ultimate plan indicates that allowances should be made for grading perimeter roads in some cases to accommodate possible ultimate six-lane traffic, although this is considered highly undesirable by the Master Plan Architects. If the University wishes to keep the perimeter roads to a maximum width of four lanes, and inner loop and connecting roads to two lanes, certain controls will have to be maintained. Speeds will have to be controlled, and a supplementary transit system will have to be installed. Otherwise, the studies of traffic engineers indicate, the combined requirements of the adjacent community and of the University may in time force perimeter roads of the six-lane width.

PARKING SPACES Parking will be provided in stages as the population of the campus grows and the number of buildings increases. Until 1975 all parking basically will be on surface, reasonably close to the facilities it serves, within the walking distances that have been described. As the campus site is more intensively developed (when the population has grown to about 10,000) parking structures will be added, located in



PHASING DIAGRAM-TO 1990

the ravines so that they will not be visually disturbing. Only high priority parking will be allowed near the center of the campus.

BICYCLES. It is difficult at this time to estimate the number of bicycles that might be used on campus. The experiences of other universities on hilly sites are inconclusive. The University of California is now studying this problem on other campuses, and when more data are available, a study of bicycle path and parking problems should be made for the Santa Cruz campus.

TRANSIT SYSTEMS. It is strongly recommended that a transit system be instituted, to traverse the inner loop of the campus road system, and to connect the campus with the City of Santa Cruz. Such a transit system, to be used by students, staff, and service personnel as well as visitors, will be necessary in order to minimize use of individual automobiles and allow the campus roads to remain relatively narrow thoroughfares. It may at times require subsidy, and may call for unusual vehicles such as micro-buses.

PHASING. The Long Range Development Plan indicates how the campus may be constructed in stages, related to student and faculty growth. In general terms, by 1970 (five years after the first construction) there are anticipated 3,250 students; by 1975, 7,500; by 1980, 15,000; and by 1990 the ultimate capacity of 27,500 should have been reached. Four residential colleges will have been completed by 1970. In the next five years, by 1975, four or five additional colleges will be ready for use. By 1980 five more colleges should be completed, and finally, in 1990, it is anticipated that the full complement of colleges and schools and other buildings will have been made ready.

The first buildings programmed in detail and on which building construction will soon begin are: the first college (to be known as Cowell College); the first science building, providing teaching and research laboratories, classrooms, and lecture halls; a central services building, to be used as an interim administration and library building, and then later as a maintenance-security headquarters building, or "surge" area; and the first stage of the central library in the cultural and academic area.

ARCHITECTURE

THE OPPORTUNITY. The architectural development of the Santa Cruz campus offers an unusual opportunity to those who will design its buildings. The Academic Plan of the campus is one of unusual interest, that should stimulate the imagination of creative designers. Furthermore, the campus is being planned and its first buildings will be constructed during a period of important reappraisal of architectural development in the United States. And finally, the campus will grow from unspoiled land, with no existing buildings to mark the direction it should take — land that offers a setting of unusual beauty, both a challenge and a

restraint.

The Academic Plan affects the architectural expression strongly in the sense that there is a desire for differentiation of design among the colleges, and obviously a difference in scale and monumentality between the architecture of the colleges and that of the academic buildings in cultural and science centers.

The search for new directions in architecture throughout the world at the present time comes largely from a dissatisfaction with the repetitive, sometimes unimaginative position that the modern movement in architecture, starting bravely in the early years of the century, seems to have reached at the time when the Santa Cruz campus is beginning. There is a new desire for emotional content in the design of important buildings, and for a richness and subtlety that seem to have been lost in a concern with technological innovations.

The effect that the land and the landscape will have on the architecture has been suggested by Thomas D. Church, the landscape architect. Referring to the "out-scale" redwood groves and their natural relationship to the "rugged knolls and the deep ravines," Church comments: ". . . an architecture must grow out of the problems, restrictions, and potentialities of the site . . . (but it would be foolish to think that a new, startling architecture will appear here. Any attempt of a designer to compete in grandeur with this site is doomed to failure . . . color and texture will be as important as form."

PRINCIPLES. To these challenges, the master plan architects of the Santa Cruz campus respond with a statement of architectural purpose:

1. In the design of buildings, there must be a full respect for the site, with its meadows and its forests, and for the climate, with its sunshine and its fog. This does not mean a withdrawn, negative architecture, but a variation in statement: one sort of statement for buildings that will sit proudly on knolls, another for those that will be sheltered in the groves of trees.
2. There must be a differentiation between the informality of the residential college groupings and the more formal and even sometimes almost monumental character of the central campus buildings.
3. There must also be a differentiation among the colleges, since the Academic Plan makes a point of this fact in relation to the program for education.
4. There must not be any cliché type of stylized "modern" architecture. The site, the program, and the unparalleled opportunity to start from scratch all argue against the use of any standard, tired building types, either traditional or modern.
5. Buildings averaging no more than three stories can meet the initial needs of the campus. Later, as the site becomes highly utilized, more intensive use of the land will be required to preserve trees and maintain open areas. It will probably be necessary to rise gradually to an average of six stories. Any architectural

approach adopted in the early buildings must be compatible with higher-rise buildings to be erected later. PRECEPTS. From these general principles certain specific directions are indicated, and have been stated by the master planners as suggested "rules" or precepts. They are:

A. The principle of architectural diversity on the campus (from college to college and from academic to residential structures) should be pursued in two ways:

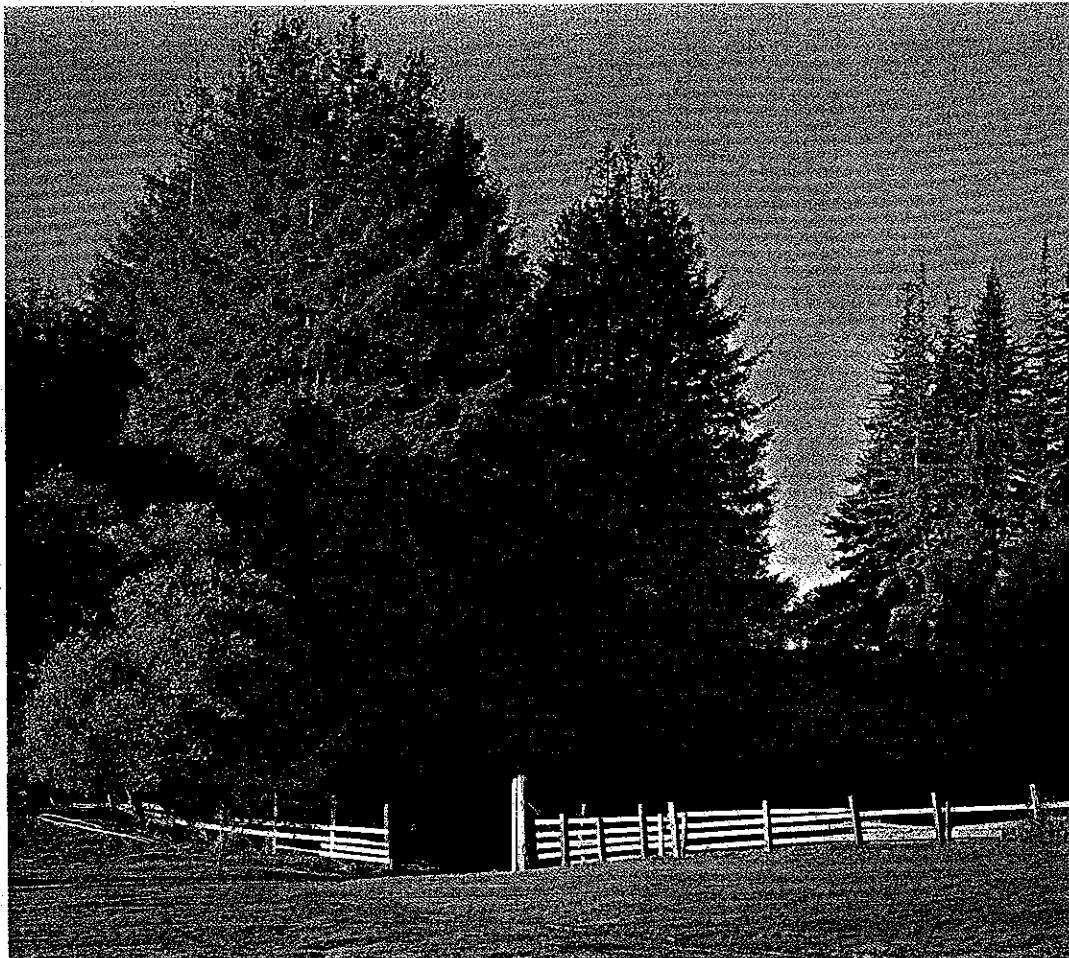
1. By a hierarchy of building types. Within this order the residential colleges, which comprise the majority of campus buildings, should assume great informality and be designed at a scale related to the individual, to induce recognition of each college as an entity, and give a sense of intimate enclosure. At the other extreme will be some of the buildings in the central academic area, where the dignity and ceremony of University life should be expressed in more formal architecture, and at a scale recognizing or responsive to the total campus. In between, many of the academic and non-academic buildings will find their own scale and their own expression. The science center buildings, for instance, should give a sense of courts and quadrangles, with provision for future tower buildings.
2. By the varying architecture of the individual residential colleges. Here variation will come in the individual translations of the programs by different architects.

B. There should be a strongly unified, integrated architectural expression within each group of buildings. Each college and professional school, as well as the group of central academic buildings must be consistent within itself and identifiable by its architectural character. For each group of buildings there should be a unity of building scale, materials and colors, textures, shapes. However, there will be no single architectural style vocabulary that will apply to every building and every space.

C. Individual buildings may take advantage of the topography to depart from conventional plans and make use of forms adapted to the site, such as bridges and wide cantilevers.

D. Despite the emphasis on variety from building type to building type, from college to college, and in addition to the consistency within each group, there must also be some form of overriding unity on the campus — a visual and emotional identification of the Santa Cruz campus as an entity. Implementing this precept will be difficult. The Long Range Development Plan suggests that the following methods of approaching the problem will achieve a sense of unity while allowing diverse architectural expressions in the different groups:

The trees, the meadows and the glades are as important as the buildings in the total visual composition of the campus.



1. A single, basic structural material that should be visibly used for columns, wall panels, and all major structural elements. This will provide an overall unity that no other method could approach. The material suggested for the Santa Cruz campus (actually being used in the first buildings) is concrete. This is the most versatile material that could be employed; it adapts itself to factory-controlled precasting techniques, and it allows many surface textures and forming methods. It is a plastic material, making possible variations in its use—and today it compares favorably in cost with other structural materials.

2. Roofs with a certain consistency of design and even a constancy of materials used—preferably copper—can be another unifying influence. The contours of the campus, which make it inevitable that roofs of some structures will be seen from the floors of others, suggest that good-looking, handsomely formed roofs be used on most of the buildings.

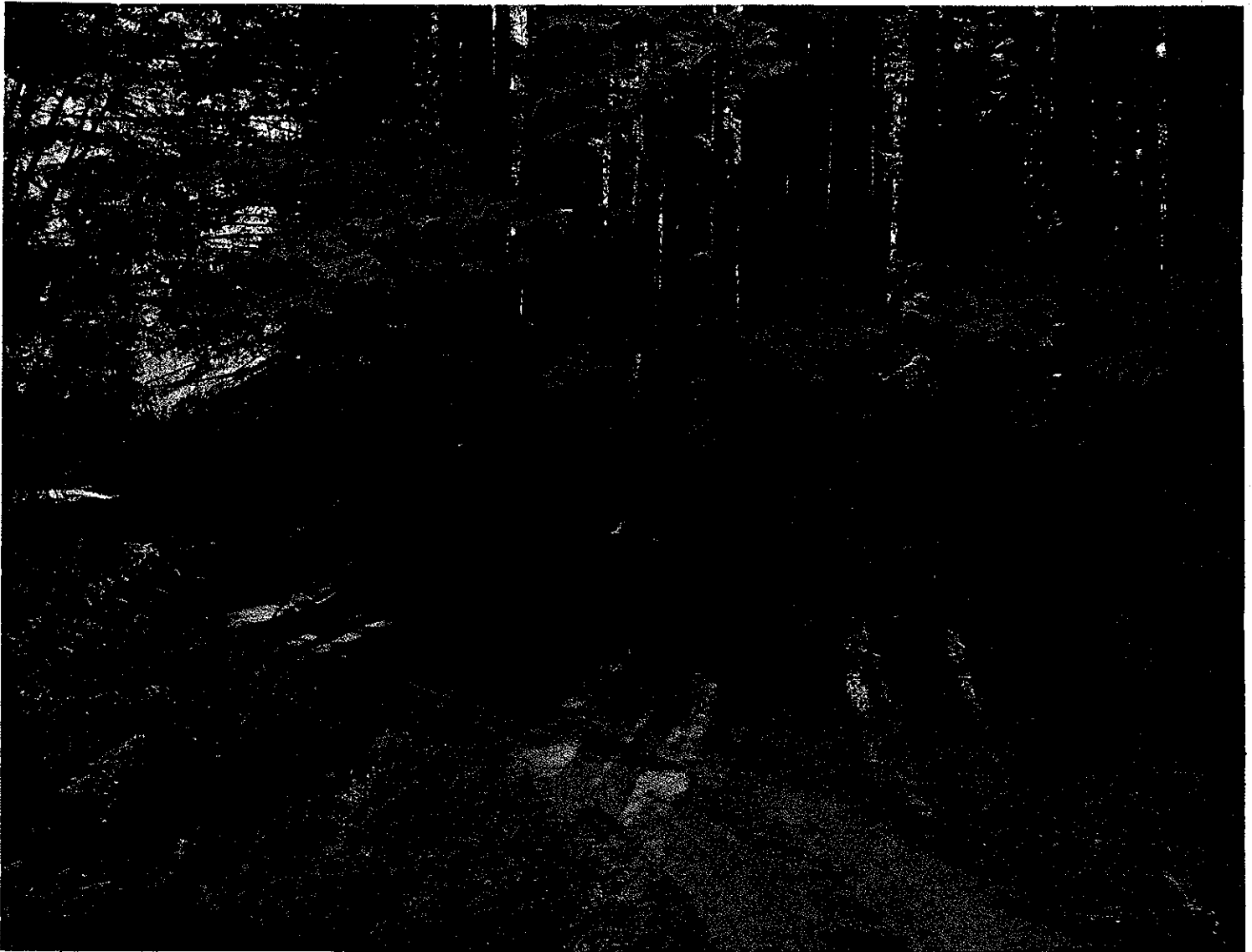
3. Bases of buildings, at the other extreme from roofs, can also be unifying factors. It is urged that there always be a strongly identified and clearly expressed transition from building to ground. Slopes of the site

can be taken up in bases, and terraces and flat areas can grow naturally in relation to the bases of the buildings.

4. A color palette of earth tones, with contrasts of sharp color spots is appropriate to the setting and can be a unifying influence, even though it is not suggested that the same textures and colors be used on all buildings. Lighter colors and off-whites should primarily be used within the densely wooded forest areas, where the sun will not penetrate strongly. On the slopes and knolls, often in full sunlight, the warmer earth colors can add richness. Textures will vary from smooth to rugged. In general the more formal buildings might use smoother finishes, and the less formal ones can find rough textures and even woods and stones appropriate. Textures, as colors, can vary depending on whether a building is sheltered by trees or is in open sunlight.

The actual design of buildings cannot be spelled out in a Long Range Development Plan. One of the precepts enunciated here is that the Santa Cruz cam-

75% of the site is covered with indigenous trees and shrubs.



pus should not have a single "style." However, these broad suggestions are made in the hope that they may be a guide, not only for the early designs that will start the building of the campus, but as well for future generations of architects who will carry the campus to completion. *Styles* change from time to time; *principles* of design can be followed through many periods of change and even by many architects, when they sincerely seek a consistency of expression.

LANDSCAPE ARCHITECTURE

The landscaping problem on the Santa Cruz campus site is not one of furnishing new material so much as it is preserving what is there and making the best use of it. Thomas D. Church has commented about the trees on the site as follows: "Among the natural features which make the site both provocative and difficult, it is the size of the redwood groves which must concern us the most. These towers of trees are 'out-scale' and more related to the rugged knolls and deep ravines than they are to an academic landscape. They are, therefore, to be thought of less as trees to enhance, screen and shelter buildings (although they do so), but more as great vertical elements of the topography having form, mass and density against which to compose the architecture. The problem is more like building at the foot of cliffs or in the Pinnacles National Monument. . . . It must be kept in mind, to avoid future recrimination, that one of the inevitable results of building in a forest is, that as man enters, nature recedes. Romantics must be warned that covers of fern, johnny-jump-ups and shooting stars prefer to disappear rather than face our advanced civilization. With the exception of areas especially preserved in their natural state the general effect in the main campus areas must be one of sensitive collaboration between the designer and this specular environment with the intent that neither shall impose unduly upon the other."

The desire to maintain open spaces, already mentioned, results in the following landscape policies:

1. To maintain wilderness areas, where the present condition will remain as a source of enjoyment and inspiration to students and faculty (with important use in the study of Botany, Natural History, and the Earth Sciences).
2. To develop parks, where the present ground cover — certain to disappear when the campus develops, as Thomas Church has pointed out — will be replaced with lawns and other more park-like planting.
3. To define buffer areas that will separate the campus from the surrounding community where this is deemed desirable, and to provide a setting of natural beauty for certain buildings and building groups.
4. To design scenic drives that, still serving a function in the road system, will lead through especially picturesque parts of the site and furnish vistas toward the most striking views.

In addition to this aspect of landscaping, however, the landscape design of the campus is inextricably related to the siting of buildings and the design of the road systems. The major decision with regard to siting — that the great meadow toward the south of the campus should not be built upon, that the first buildings to be encountered in entering the site would be at the crest of the hill where the trees begin, and that the academic core of the campus should occupy a park-like area in the geographical center of the campus — has been described earlier.

The other major decision in siting that affects landscaping is that the colleges will be placed on knolls and ridges, sometimes quite within the trees, sometimes in more cleared space. Rarely will one building group be seen from another. The courts and quadrangles, whether formed by college or academic groupings, will receive more formal landscape treatment, although even here the character of the terrain and of the region will be maintained, and indigenous plant materials will be specified. Certain paved areas will of course be required, where the aim will be to harmonize with the surrounding land.

Thomas D. Church has described the aims in siting: "Usual relationships of building groups in a formal pattern may violate the topography beyond repair. Grading and reforming of the land there will be, but kept to a minimum. Tree-clearing will be inevitable, not because the architecture forces it, but because the ultimate landscape demands it. There will be no indiscriminate removal of major redwood groves to accommodate pre-conceived architectural schemes. To a greater extent than any of us have faced heretofore, the buildings are less important in the visual composition than the trees. Instead of remaking the land, the land must remake our standard conceptions of building and plaza and parking lot."

Roads and paths are also an integral part of the landscaping. The roads have been laid out to conform as closely as possible to existing contours of the topography, not only to avoid unnecessary expense, but also to minimize unsightly cuts and fills. Where new earth work is necessary, indigenous planting will soften it as quickly as possible. Where bridges are required, they will be designed in congruity with the terrain. Parking areas will be kept unobtrusive through selection of their locations and by use of concealing trees and other planting. Paths will lead off from the vehicular roads, both in the center of the campus and at other building locations. They will separate from the road system in a natural manner and be, for the most part, asphalt paved. Along these paths there will be not only pedestrian bridges and steps, from time to time, but such outdoor "furniture" as lights, benches, and railings, all of which will be planned and designed to blend with the natural landscape.

ENGINEERING AND UTILITIES

WATER SUPPLY. The campus will obtain its water supply from the municipal water system of the City of Santa Cruz. The City is formulating a long range plan for expansion of its water supply system to meet future needs, including those of the University. For the initial phases of campus development, the supply is adequate.

Extension of existing City of Santa Cruz water distribution facilities will be required to serve the campus. The City has proposed extensions, including storage at a sufficiently high level, to serve the initial campus development adequately for both domestic use and fire protection. No pumping or storage facilities are contemplated as part of the University system. The range in elevation of the campus area will constitute a pressure zone in the University distribution system that will be served from the proposed City storage tank. Campus distribution systems will be looped and will have more than one connection to the City system, in order to provide security and assure continuity of water supply.

SEWERAGE SYSTEM. Sanitary sewage disposal for the campus will be provided by the City of Santa Cruz; the City sewers now extend to the southern boundary of the campus. The entire campus area can be sewered by gravity, to discharge into the City sewers at the southern boundary, except for a few minor locations. The City has retained consulting engineers to evaluate both the collection and disposal problems of the City, including future campus flows and reinforcement of the collection system which will be necessary after 1968. The University sanitary sewage collection system will consist of two main trunk sewers following the two principal ravines which serve as natural drainage paths for the campus, and lateral sewers feeding to the main trunks. The University will pay the City for sewage disposal on the basis of measured flow of sewage.

ELECTRICAL POWER. The University will purchase electrical power from Pacific Gas and Electric Company and will build, own and maintain the on-campus distribution system, which will be entirely underground from a service connection point. Utility tunnels for electrical power, communications and other facilities are not economical on this site because of distances and the comparatively irregular arrangement of buildings. Electrical power distribution will be in multiple duct banks encased in a concrete envelope poured in trenches; manholes will be provided for maintenance, taps, and sectionalizing switches. The distribution system will be of the radial type with parallel selective circuits, rather than being looped; this is the more economical solution on this site.

COMMUNICATIONS. Underground duct banks will be provided for telephone, television, fire alarm, and

other special communications facilities. The duct banks and manholes for communications will, where possible, parallel electric power ducts. A site for a communications building is provided in the Long Range Development Plan.

DRAINAGE. The campus is drained by two canyons which run north and south through the site. There is ample natural slope to these drainage channels from all parts of the site and buildings, courts, parking areas, and roads will all be drained to the natural channels.

AIR CONDITIONING. Central-plant air conditioning is not contemplated, since only special-use spaces will be air conditioned.

HEATING. Selection of a heating system for the campus core area is the subject of a separate study being made for the University. Such a study is considered necessary because of the distances between building groups, because of their separation by canyons and their great differences in elevation, and because of the line extension charges for natural gas service and the labor cost for high pressure boiler attendance. The study is considering whether heating plants should be provided for individual buildings, building groups, the entire academic core area, or a combination of group or area plants with individual plants, and whether this work should be phased in, if a central or group plant is deemed feasible. A site for a central heating plant has been shown on the Long Range Development Plan, providing for a minimum of distribution piping.

Natural gas for heating, cooking, and laboratory use will be purchased from Pacific Gas and Electric Company, which will build the necessary service main to the south boundary of the campus.

THE UNIVERSITY AND THE COMMUNITY

The potentiality of achieving a University-centered community and the possibility of influencing community growth so as to secure appropriate development in the campus environs were important factors in the choice of Santa Cruz as the site for the South Central Coast campus of the University. The first step toward the achievement of these objectives was taken with the consummation of agreements between the University and the local jurisdictions, in which the City and the County agreed to join in the preparation and adoption of a plan for the University environs satisfactory to the University.

The influences will be in two directions: the University, through its staff, students, and program of activities, will have a strong impact on the surrounding communities; at the same time the character of Santa Cruz will continuously affect the growth and life of the University campus. During the initial planning of the campus, the University has cooperated in the preparation of the plan of the City and the County for the University environs, and it will continue to use every opportunity to help shape the development of the surrounding community.

UNIVERSITY POLICY. A good community environment can assist the University in several ways:

In attracting and holding outstanding faculty, through provision of superior living conditions as well as opportunities for participation in the business, professional, and cultural life of the area.

In integrating living and teaching through provision of off-campus housing and a town center that will encourage close contact between town and gown.

In attracting and holding students by providing employment opportunities as well as cultural and recreational resources.

The central, basic objective is to build a community where town and campus are integrated. The topography of the terrain makes it difficult to find a place where the academic center and a town center might easily meet, but the development of a University-community center on the northwest borders of the campus, around the Cave Gulch area, should ultimately be possible. During the early years of the growth of the campus, it will be necessary to provide for close connection and easy access between the campus and the downtown center of the City of Santa Cruz itself.

A second aim will be to assist the Santa Cruz community in becoming the capital of the Monterey Bay coastal region. Because Santa Cruz is beyond easy commuting distance from the major urban centers of the San Francisco Bay area this development will be necessary in order to have available the types of

facilities that can be found only in a metropolitan center.

In addition to these major policy objectives, there will be numerous other areas of cooperative effort. For example, the building of apartments and low-rent housing in off-campus areas within walking distance will be encouraged. Although land will be reserved on campus for housing and other uses that private developers cannot, or will not build, it is essential that residential neighborhoods be developed in the environs area, with a high standard of public services and amenities, including schools. Another instance of joint activity will be traffic control. Because the University will be a major generator of traffic in the Santa Cruz area, and University-oriented traffic will influence the development of large parts of the community, the University should participate in route selection and establishment of road design criteria.

IMPLEMENTING UNIVERSITY POLICY. The initial bases for implementing these policies are the two agreements made with the City and the County. They basically provide for:

1. University approval of the Environs Plan, and a temporary freeze on construction and development to allow time for preparation and adoption of the Plan.
2. Provision of specific approach roads, services and utilities needed by the University, to be furnished by the local governments.

During 1962 and 1963 the University's planners and the City's and the County's planners have collaborated in the preparation of plans that embody the objectives of the campus and the community respectively.

Adoption of the University Environs Plan is the next step. The Plan becomes public policy after adoption by four agencies: The County Planning Commission, the County Board of Supervisors, the City Planning Commission, and the City Council. In addition, as agreements provide, the Environs Plan must be approved by The Regents of the University. After adoption of the Plan as public policy, implementing legislation must be passed and improvement programs formulated to make the policy effective. This legislation and the content of the programs will be of great concern to the University and, like the Plan, will involve close collaboration. Each public development proposal, State Highway proposal, and local bond issue should be carefully evaluated by the University in relation to the Environs Plan and to evolving policies and needs.

APPENDIX I

SPACE ALLOCATIONS

The plans on the preceding pages indicate locations of the buildings that will be built, shown at three stages of development. The following list by general

categories of buildings indicates the gross number of square feet of space that will be required at these three stages:

	1970	1980	1990
A. CENTRAL ACADEMIC AREA			
1. Library	100,000	210,000	550,000
2. Assembly & Exhibit	100,000	150,000	200,000
3. Administration	45,000	180,000	400,000
4. Humanities			
Arts	30,000	94,000	210,000
Languages	18,000	72,000	140,000
5. Social Sciences	30,000	115,000	223,000
6. Service	3,000	12,000	25,000
	299,000	833,000	1,583,000
B. SCIENCE CENTER			
1. Life Sciences	48,000	180,000	580,000
2. Mathematics	8,000	30,000	100,000
3. Physical Science	100,000	370,000	815,000
4. Engineering	110,000	430,000	840,000
5. Special Research		87,000	202,000
6. Service Facilities	4,000	15,000	35,000
	270,000	1,112,000	2,572,000
C. RESIDENTIAL COLLEGES			
	4 Colleges	15 Colleges	20 Colleges
1. Residential	440,000	1,650,000	2,200,000
2. Academic	75,000	245,000	600,000
3. Athletic	20,000	75,000	100,000
4. Student Activity	15,000	40,000	100,000
5. Library	16,000	70,000	160,000
	566,000	2,080,000	3,160,000
D. PROFESSIONAL SCHOOLS			
1. Business	50,000	50,000	105,000
2. Environmental Design	50,000	50,000	110,000
3. Natural Resources	25,000	50,000	80,000
4. Others, including Law, Forestry	25,000	100,000	300,000
5. Law Library		30,000	80,000
	150,000	280,000	675,000
E. ATHLETIC AREAS			
	45,000	150,000	330,000
F. STUDENT ACTIVITY AREAS			
CENTRALLY LOCATED	25,000	100,000	220,000
G. SERVICE FACILITIES			
	33,000	137,000	300,000
H. ANCILLARY FACILITIES			
1. Ancillary I & R Facilities	8,000	50,000	120,000
2. Ancillary Field Facilities		200,000	760,000
	8,000	250,000	880,000
I. SPECIAL RESEARCH & AFFILIATED INSTITUTIONS			
		320,000	600,000
J. HOUSING OUTSIDE OF RESIDENTIAL COLLEGES			
1. Single Student Dormitories		800,000	1,500,000
2. Married Student Housing		100,000	300,000
3. Staff Housing		1,220,000	2,400,000
GRAND TOTAL	3,724,000	6,297,000	12,620,000

APPENDIX II

STANDARDS FOR PARKING

The parking needs for the campus are based on experience of other University campuses as well as special calculations that take into account the particular Academic Plan and the special physical setting at Santa Cruz.

1. AREA ALLOWED

Parking areas are calculated at 100 cars per acre. It is assumed that this low figure will take into account the uneven terrain and the preservation of trees within the parking lots.

2. TOTAL NUMBERS OF CARS

The total number of cars to be accommodated on campus parking lots is based on the University's formula of 0.5 cars per student. In addition, one parking space is provided for each on-campus residence for married students, faculty or staff.

3. DISTRIBUTION OF PARKING SPACES

The colleges and professional schools are to be each provided with a 150 car parking area. The remainder of the cars are to be distributed among the major sectors of the campus. The number of cars in each sector is based on the population of students, faculty, staff and visitors in that sector; varying factors have been applied to calculate percentage of automobile usage. Finally, parking for undergraduates living on campus is provided north of the central campus areas.

4. WALKING DISTANCE STANDARDS

Parking lots have been located so that the following standards can be maintained:

First priority group —
to park at their destination:
Distinguished Visitors
Senior Faculty Members

Second priority group —
to park within 5 minutes walking distance of destination. Top administrative staff.
Faculty and commuting students
(college members are to park within 5 mins. of their own college).
Visitors

Third priority group —
to park within 15 minutes walking distance of destination.
Non-academic staff

Fourth priority group —
to park within 20 minutes walk of destination.
Students living on campus
(except in married students housing).

5. PARKING LOT ACCESS

Major parking areas have been located so that they are directly accessible from major public roads. They are generally peripheral to the central campus area and are approached on the major campus entrance roads. No attempt has been made to differentiate faculty reserves within the general parking areas. This would be the subject of a general campus parking administration program.

6. STAGING OF PARKING LOT CONSTRUCTION

Actual construction of parking areas will be scheduled according to the demand. Because of the unusual, non-metropolitan situation of the Santa Cruz campus, it is difficult to estimate accurately how this staging should be carried out. For purposes of planning, the following assumptions have been made:

(a) During the early years of the campus, parking should be provided for 0.5 of the total population of the campus — faculty and staff as well as students.

(b) At the mid-point campus growth, 1980, slightly more than 0.5 cars per student will be adequate.

(c) By 1990, 0.5 cars per student will be provided.

These assumptions imply that transit service approximating that of other University of California campuses will be developed as the campus population grows, in accordance with the recommendations of the City, County, and University Planners.

Parking Provided

Number of Parking Spaces

1970	1980	1990
2400 *	8200 *	13,750 *
24 acres	70 acres	120 acres

Centrally Located

* Plus 1 space with each on-campus residence for faculty staff and married students

APPENDIX III

THE CAMPUS PLANNING COMMITTEE

The Campus Planning Committee of the University of California, Santa Cruz, under whose helpful guidance this Long Range Development Plan grew, were composed of the following University representatives:

Dean E. McHenry, Chancellor

Charles D. Wheelock, Emeritus Professor, Marine Resources

James N. Pitts to June 30, 1963

Donald T. Clark

C. Donald Shane from July 1, 1963

Elmo R. Morgan, Vice-President, Business

John E. Wagstaff, Santa Cruz, Campus Architect

APPENDIX IV

THE MASTER PLAN TEAM

Master Plan Architect:

JOHN CARL WARNECKE & ASSOCIATES

John Carl Warnecke, Partner in Charge

Leonard L. Hunter, Partner: Administration

Thomas H. Creighton, Partner: LRDP Report

Robert L. Hart, Partner: Planning

Michael Painter, Partner: Landscape Design

Consulting Architects:

Anshen and Allen

Ernest J. Kump

Theodore C. Bernardi

Landscape Architect: Thomas D. Church

Consultants:

Planning: William E. Spangle, Jr.

Traffic: Wilbur Smith & Associates

Civil Engineering: Carl Kirker & Associates

Utilities Engineering: Kennedy Engineers

Geology: Cooper and Clark

Program: Alfred W. Baxter, Jr. & Associates

Photography: Ansel Adams

APPENDIX V

UNIVERSITY STAFF

Officers and Technical Staff members of the University (in addition to those who were members of the Campus Planning Committee), whose advice and guidance was invaluable in preparation of the Plan and the Report, included:

Robert J. Evans, University Architect

Albert R. Wagner, University Planner

Louis A. DeMonte, Berkeley Campus Architect

APPENDIX VI

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