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ABSTRACT

With growth no longer vigorously propelled by population increase, colleges and universities are forced to examine alternative ways for giving and receiving higher education. Perplexed by a shifting economy and increasingly competitive with each other, American campuses are clearly in transition. In these circumstances, how can colleges and universities plan and design the physical plant for higher education? This document gives an interpretation of demographic factors that will have a long-term influence on higher education, considers some basic ideas that affect academic trends, and then describes some pathfinding concepts. Chapters cover: (1) fiscal crisis; (2) population and college enrollment; (3) programs and people; (4) implications for the physical plant; and (5) eight strategies for the management of space. (Author/KE)

Educational Facilities Laboratories is a nonprofit corporation established in 1958 by The Ford Foundation to encourage and guide constructive changes in education and related facilities.

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Contents

Foreword

WE DIDN'T PLAN TO WRITE THIS REPORT, but we had been gathering material on four projects and suddenly realized that it would make good sense to combine the results because they had something in common. The four EFL projects that had begun with widely different purposes all came together in a single theme — *Campus in Transition.*

One of the projects was a partnership between EFL and the Academy for Educational Development (AED) to research and publish a handbook on campus planning for college administrators. Another project was with the U.S. Office of Education Experimental Schools (now part of the National Institute of Education, U.S. Department of Health, Education and Welfare) in which we prepared case studies of higher education institutions that responded to new demands without resorting to new building construction. These case studies were published in *Build if you must, but consider . . .*, and some are used in this publication.

While we were researching facilities, George Grier of the Washington Center for Metropolitan Studies was examining some of the demographic intricacies of higher education for us under an EFL grant to the Center. The result of this work underlies the chapter on population and college enrollments.

Under a grant from the Andrew W. Mellon Foundation, EFL was able to further develop the idea of generating revenue from college facilities, and most important, the grant supplied funds for editing, designing and printing *Campus in Transition.*

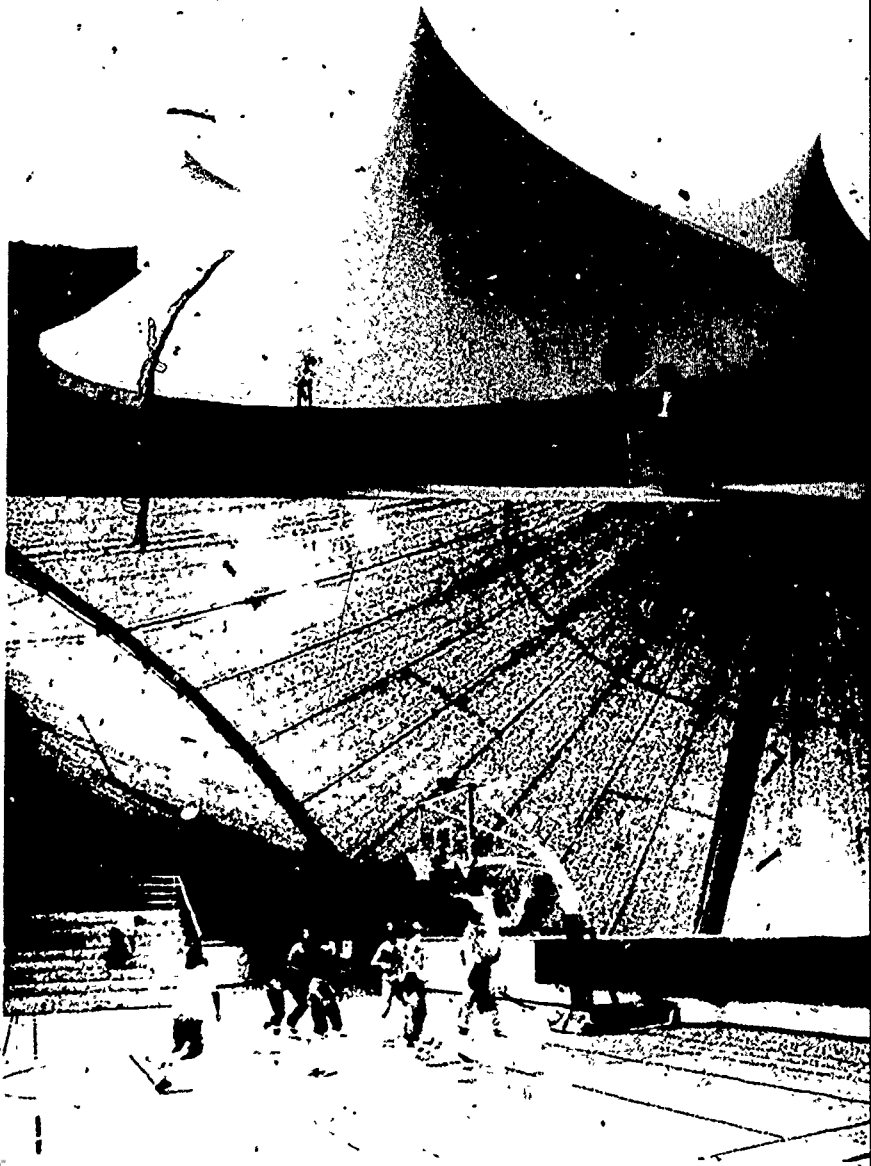
Two consultants who have served EFL well in the past, Richard Dober, planner, and Cyril Sargent, educational consultant, helped us organize the material and stitch the four projects together. We trust that from such mixed beginnings a cohesive theme has emerged that will give useful guidance for people with a daily responsibility to these campuses in transition.

Introduction

THE PATTERN OF HIGHER EDUCATION in the United States is remarkable in every dimension. It's size — over 10 million students in 1974 — is unprecedented. For more than 20 years, higher education has thrived in a period of great growth. In 1954 there were about 2.6 million students enrolled in U. S. colleges and universities. Ten years later this number had nearly doubled and stood at 4.8 million. By 1973, nearly five million more had been added — a truly astounding growth of 270% in 20 years. It was perhaps the most impressive, and certainly most expensive, affirmation of America's continuing faith in education.

But now with growth no longer vigorously propelled by population increase, forced to examine alternative ways for giving and receiving higher education, perplexed by shifting economy, increasingly competitive with each other, American campuses are clearly in transition.

In these circumstances, how best can colleges and universities plan and design the physical plant for higher education? To illuminate the state of the art, EFL developed this report to give a fresh interpretation of demographic factors that will have long-term influence on higher education, discuss some fundamentals effecting academic trends, and then describe some pathfinding ideas and concepts that are readily available to everyone concerned with the campus in transition.



1. Fiscal crisis

IN THIS ERA OF AMERICAN EDUCATION, any catalog of physical plant ideas has about it a cold urgency. It is written at a time when colleges and universities are in trouble; the kind of trouble that leaves little margin for error; the kind in which even a small miscalculation in management could spell the difference between existence and oblivion for some institutions.

Hard times are not new to the American campus. But there is hard, harder, and hardest. The severity of the fiscal condition on campuses today exceeds any in past experience, including the cataclysmic Thirties.

At the beginning of this decade, the quiet, private forebodings of college officials about the effects of economic forces on their institutions were made audible and public by The Carnegie Commission's release of its study *The New Depression in Higher Education* (1971). The American people were informed that higher education was "facing the greatest crisis it has ever had." The report warned that two-thirds of the nation's colleges and universities were either in grave financial trouble or headed that way. One-third of the private four-year institutions "were fighting desperately for survival" and "more than 100 private colleges and universities had exhausted their liquid assets and were hovering on the brink of financial disaster."

The Good Old Days

The doomsday tone of these announcements that strained the credibility of those outside Academe is not surprising. For some 10 years, people had grown accustomed to a fat-cat image of colleges and universities. And with good reason.

In the decade from 1957 to 1967 higher education had enjoyed the greatest prosperity and vitality in its history. Enrollments had doubled, income and operating expenditures had tripled, and expenditures for the physical plants had increased fourfold. Americans had embraced the belief that wholesale college education was a requisite for the good society. They had come to believe that college-level training in the sciences, in languages,

and in technology were essential to the national interest. And they had backed up these convictions with massive federal aid for education, increased state appropriations, and stepped up private gifts.

Simultaneously with these changing social attitudes, the postwar baby boom began to reach college age. Crowds of students hit the campuses — old and new — that were eager to receive them. This benign state of affairs did not mean that higher education had been free of its problems. But they were good problems. Such as how to provide enough classroom seats and dormitory beds to accommodate the new flood of students. Or the building of faculty offices and research facilities to woo hard-to-get professors. Or how to find space on land-locked campuses for plant expansion. Or concern that the new campus construction be well planned, both to accommodate the then-prevalent patterns of education, and to be adaptable to the changes in teaching, learning, and living patterns that, even then, appeared inevitable.

In general, the climate of the time is reflected in the quip, circa 1957, of Clark Kerr, then president of Berkeley: "I find that the three major administrative problems on a campus are sex for the students, athletics for the alumni, and parking for faculty."

Of course not all institutions had shared equally in the prosperity. Smaller sectarian institutions, black colleges and universities, and some public institutions were never able to match existing and anticipated enrollments with an appropriate physical environment. And at some prestigious and well-endowed private colleges the legacy of the 1960s was not equally spread among all campus constituencies. Like backwater villages in less developed countries, a few departments and schools were unable to work their way up the priority list for new construction because they did not meet government guidelines or were poorly represented in decision-shaping councils.

Some of the material in this chapter is drawn from various works written by Earl Cheit for The Carnegie Commission on Higher Education.

Architectural Abundance

With these minor though important exceptions, most institutions prospered physically in the two decades following World War II. On the average, a new campus a month was opened. Changes in educational means were matched with changing architectural styles. A simple listing of award-winning college buildings from those halcyon years would fill several pages.

But the times changed. By 1970 colleges and universities were looking for bodies to fill the classrooms and dormitories they had been so pressed to build. They were scrounging for budgets to maintain programs in the 1.6 billion sq ft of existing plant. The fiscal crisis was of such magnitude that it not only threatened the very existence of the small "invisible" institutions, but the operations of the most eminent ones as well.

The tone of this new era is capsuled by one academic vice president, who insisted that he wished no ill to any school, but he confessed to harboring the secret hope that a large, high prestige institution would be forced to close down due to financial problems. "It is the Penn Central phenomenon," he explained. "When small businesses go broke, no one notices. When something the size of Penn Central can go bankrupt, people take notice and assume something must be wrong, and then support measures to make things right." *

The New Academic Depression

The causes of the new academic depression are not central to this report. But insofar as they include factors that may continue to impinge on the decisions to be made about the physical planning and management of campuses, these overlapping and interlocking factors bear quick recapitulation. In the late 1960s and early 1970s they included:

- Inflation — it races on.
- Rising faculty salaries, pushed by widening use of and more effective collective bargaining.

*Earl Cheit, *The New Depression in Higher Education* (Carnegie Commission on Higher Education, 1971).

- Increased student aid as institutions have opened their doors to a larger percentage of the college-age population, and thus to more and more students from low-income families.
- The mounting of special programs for inadequately prepared students.
- An increase of graduate students more expensive to serve as a proportion of total enrollment.
- Increased costs related to the knowledge explosion: computers, sophisticated research instruments, extended library acquisitons and the like.
- Campus disturbances, which caused property destruction, increased insurance rates, upgraded security measures, and the like.
- The growth of public and social services, especially in the cities, that compete with education for tax dollars.

By 1974 these conditions, although not reversed, had been somewhat mitigated. The American Council on Education's 1974 fiscal analysis showed some signs of hope:

- Tuition increases were growing.
- State appropriations were larger.
- Federal support showed signs of improvement, especially for student loans and grants.
- Philanthropy gave evidence of a renewed commitment to higher education as far as economic conditions permit.

The last was most encouraging. Adverse reaction to student unrest had resulted in declining contributions from alumni and donors, but by 1973 private contributions to higher education upturned to set a new high: $1.75 billion, of which $323 million was specifically designated for physical plant.

Dimming this statistic, of course, is the relative value of the inflated dollar and the gloomy fact that also in 1973 endowment funds were worth 2.68% less than the year previous and yields on invested funds averaged only 3%. More recently the steep-

decline of the 1974 stock market has caused further serious fiscal injury to institutions large and small.

Additionally, the attractiveness of philanthropy has led more institutions to compete for the same dollars. The president of the University of Denver (an independent institution) reported recently that the public university in his state had more fund raisers on its staff than he had. In California, prestigious public institutions have launched fund-raising campaigns. At the same time, private institutions are seeking legislative appropriations for grants for middle-income students.

Again on the brighter side, the fiscal squeeze on private institutions in 37 states has been alleviated by legislative appropriations for tuition assistance to state residents attending colleges and universities both private and public. In some states, per capita grants are allocated directly to the institution on the basis of enrollment size or of degrees awarded to local students. Eleven states have created legislation that enables the government to issue tax-exempt bonds to raise construction capital in behalf of private institutions of higher education. The institutions are obligated to repay the bonds. Alabama and Maryland make direct gifts for new buildings. Like a water faucet, it is assumed this money flow can be turned off when the demand lessens.

Fragile Stability

The 1971 Carnegie Commission had announced publicly that higher education was in trouble. Later word from the Commission is that in the years that have since elapsed, the nation's colleges and universities "seem to have achieved a stabilized financial situation. They have gone from a financial condition of steady erosion to one of fragile stability." Nonetheless, the Commission warns, "the basis for rejoicing is quite limited." Two reasons are offered: one, the "stability is dependent upon assumptions about the external situation that are uncertain and beyond the schools' control"; and two, stability "has been achieved largely through extraordinary cuts in expenditures that clearly cannot go on indefinitely."

What kind of cuts? Chiefly, the holding down of salary increases for faculty and the deferring of physical plant maintenance in economizing devices that, in time, tend to increase costs.

In more recent months, the limited availability and the cost of fuel have added another unexpected burden. The margin between red ink and black ink has narrowed, unexpectedly and seriously for some institutions. This has meant further cuts in academic programs, services and physical maintenance — across-the-board hiring freezes; reductions in library acquisitions, hours and services; larger faculty-student ratios and heavier teaching loads; closing of experimental courses; moratoriums on new Ph.D. programs; cutbacks in research and extension activities, reductions in counseling programs and extracurricular student activities.

Some critics find little harm in this. In their view, the cuts simply lop off the fat. Others assert that academic quality is impaired. The reality they believe is expressed in *Redder and Much Redder*, William Jellema's report for the Association of American Colleges: "Behind these mounds of deficits lie the broken remains of curtailed operations, of abbreviated departments, of decimated academic programs, of faltering plans and languishing aspirations, of innovation untried and of creativity curbed."

In the main, fiscal uncertainty will continue to plague administrators. For example, precipitous drops in personal income may cause many families to send their children to lower cost public institutions because they cannot afford high tuition fees at private schools and are not eligible for scholarship assistance. Not only are there problems of rising expenses at private institutions, but their income is also threatened. Therefore at private and public institutions the financial priorities are likely to favor retaining faculty and programs. Each physical plant decision will have to be carefully scrutinized and fully justified before gaining legislative appropriations or philanthropic funding. This future would be necessary even if higher education were not altered by other forces that give cause for fundamental recalculation, the growing decline in traditional enrollments, and the changing market for post-secondary educat.

2. Population and college enrollment

17

IT IS IMPOSSIBLE for college administrators to consider physical plant decisions without also considering the persons who are using or will be using these plants — a population that is in great flux at this time.

In former years that population was fairly predictable; it was a certain (if ever-increasing) percentage of the total age 18 to 24 population group who had completed four years of secondary school. What this clientele expected higher education to provide was even more predictable: four consecutive years of full-time undergraduate education (with three-month summer vacations) in traditional classrooms on a self-contained campus that (except for "commuter colleges") offered or even required dormitory residence, dining, and supporting services such as health care and recreation.

Some of that is still true. The 18 to 24 age group is still thought of as the prime market for higher education — the college generation. And many institutions have remained primarily residential (in fact, dormitory living is coming back into style on some campuses). But the push is on for new programs, new lifestyles, new kinds of education — without a professor at the front desk facing a 40-seat classroom, or calendars without full-time residence requirements.

Some of this push is coming from changes in educational methods, in technology, and in students' expectations. Much more comes from an enlargement of the market for higher education, from an increase in the number of persons *not* in the traditional college population who want or need the benefits of higher education but cannot or will not accept a traditional four-year residential program. This group is so large and its demands are so varied that it may be said to be making fundamental changes in the market.

And — undoubtedly luckily for the people of America — the colleges and universities of the United States are in a position to meet the demands of this market because their traditional market — the college generation — is also changing.

To understand this situation — even in oversimplified terms —

18

we must first examine what is happening to the demographics of the 18 to 24 age group.

Baby Boom

This 18 to 24 age group has traditionally been considered the prime college market. And part of the rise in college enrollments over the last 20 years came simply from the enormous growth of this group, the inevitable result of the postwar baby boom. U.S. Bureau of the Census statistics show that it jumped from 15.9 million in 1950 to 23.7 million in 1970, with a projected figure of 27.7 million for 1975.

Enrollments also rose significantly because a larger percentage of this group started attending college. In 1954, approximately 16.5% of them were enrolled in resident degree courses for credit; by 1963, it was 23.3%, and by 1973 up to 32.3%. This rate of increase, however, is showing signs of stabilizing, hovering around 30% from 1969 to 1972. (See Table I.)

TABLE.I

COLLEGE ENROLLMENTS 1953 - 1973

As a percent of the 18-24 age group

YEAR	PERCENT ATTENDING
1953	16.52
1959	20.51
1963	23.28
1969	30.24
1970	30.58
1971	30.25
1972	30.57
1973	32.30

U.S. Office of Education, Biennial Survey of Education in the United States Enrollments defined as taking of resident degree courses for credit.

For two decades then, higher education has had two forces going for it. America's propensity for education kept driving the rate of enrollment, and each year of the baby boom meant that 18 years later the size of the prime market had grown, too.

Enter the Baby Bust

The baby bust is a phenomenon that caught most Americans unaware. Everyone knew the birth rate went up dramatically in the years after World War II; few noticed when it started to slip from the 1957 high. Perhaps this was because the entire country was so growth-oriented; perhaps because what happened was not what the experts (or anyone who stopped to think about it) expected. They assumed that as the large number of females born during the postwar years reached childbearing age, there would be an "echo boom" of gigantic proportions. It hasn't happened and doesn't seem likely to. True, the United States population now includes many more women of prime childbearing age (20 to 29) than it did in the days of the baby boom, and, therefore, there is the potential for many more babies. But, in fact, there have been fewer births:

This decline in births and family size has been very dramatic: between 1960 and 1973 completed family size dropped from 3.7 to 1.9. But looked at historically the postwar period of high birth rates appears as a mere aberration on the long-term downward trend in the number of children per family. (See Figure 1.)

The recent rapid climb and then plunge of the fertility rate* has been inelegantly compared with the peristaltic action of a snake swallowing a pig or with a roller coaster ride. Certainly it has made and will continue to make planning precarious and volatile. But it must always be remembered that the number of births depends not only on the number of women of childbearing age, but also on how many of them actually do have children. It is the *combined* effect of changes in the two factors that affects the total number of births. If both the number of women and the fertility rate increase, then births increase; if both decrease, births decrease. When one factor increases and the other decreases, the result can be either a gain or a loss.

*The fertility rate is the number of births per 1,000 women age 15-44.

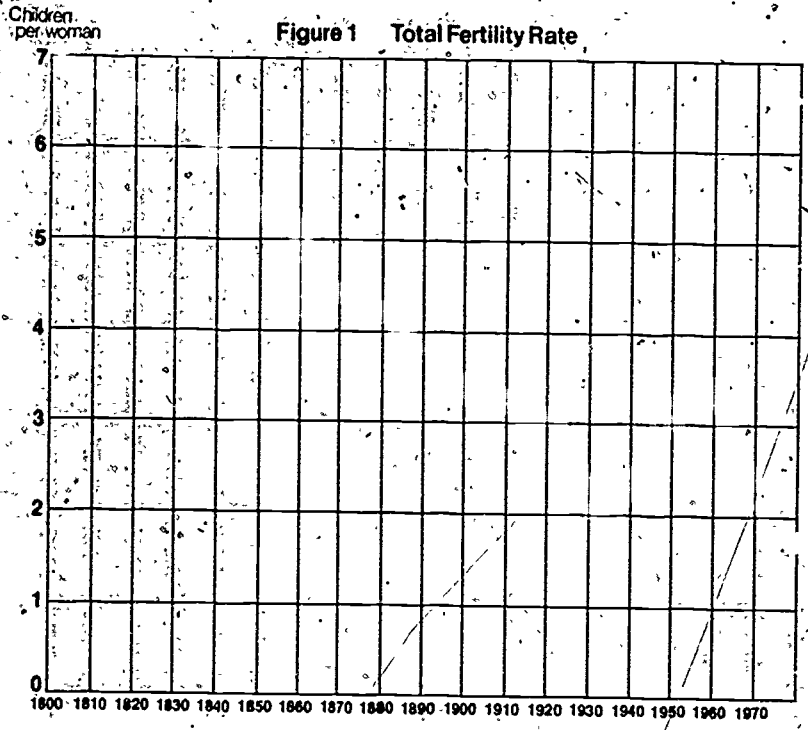


Figure 1 Total Fertility Rate

Adapted from: *Population and the American Future*, The Report of the Commission on Population Growth and the American Future. U.S. Government Printing Office, 1972.

Thus, for at least the next decade the drop in fertility rate will continue to be damped by an increase in the number of women of childbearing age. This group of women will increase from the 42.4 million of 1970 to a peak of 54.7 million in 1985. So, currently, there is a sort of cross up effect between the growth of the group of potential mothers and the concomitant drop in family size.

Implications for Higher Education

With the coming of the baby bust, doom sayers are already predicting regression, recession, and, in some cases, collapse for growth oriented organizations. Even the more optimistic futur-

ists are writing new scenarios about "zero population growth" and its impact on the dynamics of such institutions.

Will the colleges and universities become — or are they already — "no growth" institutions? Before answering that question, we should recall that higher education is in a very fortunate position vis-a-vis demographic changes: It has an 18-year "Early Warning System." Statistically, at least, this lag means that the colleges are still in the last phase of the baby *burst* (births peaked at 4.3 million in 1961). So they can count on an ever-larger pool of their prime age group through 1980. Only then will the baby *bust* take over and a major decline set in. And the size of that age group (and hence the size of the decline) is reasonably certain through 1991, since those children have already been born.

So one factor needed to answer the growth/no growth question is known well into the future. The prime age group (18 to 24) will increase from 27.7 million in 1975 to 29.3 million in

TABLE II

PROJECTIONS OF 18-24 AGE GROUP 1975 - 2000
(In millions)

1975 — All Series	27.7
1980 — All Series	29.4
1985 — All Series	27.5
1990 — All Series	25.0
1995 — Series D	27.3
Series E	24.7
Series F	23.6
2000 — Series D	32.1
Series E	27.5
Series F	24.9

Source: Unpublished tables furnished by the U.S. Bureau of the Census, May 9, 1973.
Note: "Series" refers to alternate projections made by the Bureau, based on varying completed family sizes.

22

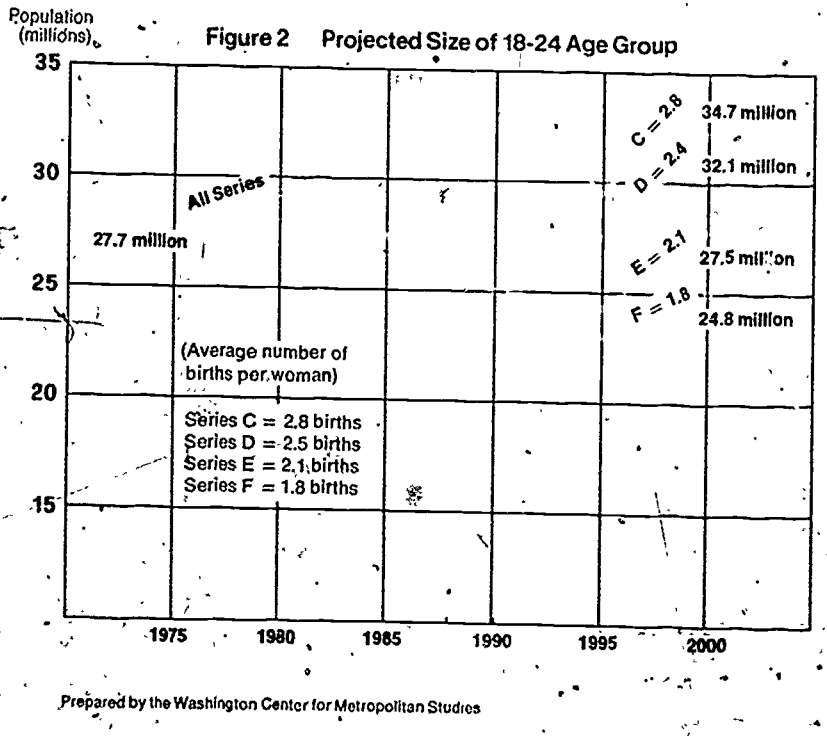


Figure 2 Projected Size of 18-24 Age Group

1980 and then begin a decline to 25.0 million by 1990. (See Table II.)

What will happen after 1990? We would do well to recall the observation of one of Damon Runyon's characters: "Nothing what depends on humans is worth odds of better than 8 to 5." But college administrators, like so many others, must at least make educated guesses using the best information available.

Demographers recognize both this need and the unpredictability of the complex factors they work with. The U.S. Bureau of the Census makes several varying projections (called series), each based on a different completed family size in the years to come. One assumes 1.8 children, very close to the latest actual level of 1.9; another projects a return to 1972's "zero population growth" rate (2.1 children per family); a third shows what will happen if we return to the 2.4 level of even so recent a year as 1970. (See Figure 2.)

In brief, Series F, using the 1.8 rate shows that the decline in the 18 to 24 age group would continue until 1995, when it would include only about 23.6 million persons — a 20% drop from the 1980 high. But if family size should return to the "zero population growth" level, Series E shows that by the year 2000 the college age group would be back at the 1985 figure of 27.5 million and only 2 million below the 1980 peak. If, however, we return to a family size of 2.4 (Series D), there could be 32.1 million persons in the prime age group. (This range of 7 million between the highest and lowest of the three estimates illustrates the fine-tuned nature of population dynamics as the total size of the population continues to grow. Small changes in rates produce substantial changes in numbers.)

Which projection seems most likely? Who can say. But since a 2.4 family size would be an instant and dramatic turnaround, this projection seems less probable than either of the others. So the most reasonable assumption for the college age group would appear to be that it is at best on a "no growth" course through the end of the century but with the plunge-before-recovery not setting in until 1980. Assuming that the attendance rate holds up, colleges and universities should have a period of relative stability between now and 1980 in which to plan for the slump.

The Going Rate Equals Uncertainty — Now

Indeed, as a result of these demographic factors, many institutions are clearly throttling down for the Equivocal Eighties, especially, but not exclusively, those institutions serving full-time students in a residential setting. To put this concern over numbers into further perspective, we must examine in more detail the percentage of the prime age group who actually do attend college, a figure sometimes called the going rate.

And for the going rate there is no Early Warning System, no built-in period of preparation. It is a matter of immediate uncertainty and a cause for much conjecture and soul-searching on the part of administrators. Gross attendance figures can, of course, be examined to see if any of their components suggest changing patterns. But some of the shifts are so recent that it would be rash to speak of trends; they are better labeled flutter-

24

ings. And, of course, the period of the war in Viet Nam affected all college attendance data. With these caveats in mind, the shifting numbers do suggest a series of ripples, one or more of which could become a future wave affecting the destiny of a single college, a class of institutions, or all of higher education.

These ripples are easiest to describe in the form of questions: Are enrollments already declining? The U.S. Bureau of the Census says yes for 1973 but for the same year HEW says the total climbed (by 360,000) though at a moderate rate. (The Census Bureau figures are based on a national sample, the ones from HEW represent an aggregate of reporting institutions.) HEW is projecting further increases, and a survey of 700 institutions by Garland G. Parker of the University of Cincinnati estimates that the increase in 1974 is about 4%. Whoever is correct, competition is certainly keener for the existing market.

Who has captured this market in the past and who is gaining or losing now? New York State has looked at such trend questions carefully. It reports that between 1962 and 1972, 40% of the growth in full-time, first-year freshmen came from an increase in the number of high school graduates; 60% was accounted for by an increase in the going rate. Two-year institutions accommodated 62% of the total growth but took 87% of the new market. In contrast, four-year colleges acquired this 38% by taking 76% of the increase in the size of the high school graduating classes.

New York also reported that in 1972 for the first time the percentage of high school students planning to go to college dropped, with the four-year colleges standing to lose 3% while the two-year institutions would gain by 0.2%. Further, 50% of all the institutions with decreased enrollments in the past three years were in New York City or on Long Island and accounted for 80% of the total decline in enrollments.

Is there an emerging disenchantment with existing patterns of higher education? If so, who are the disaffected? Perhaps males

Since this book was written, the Census Bureau has published new data based on its annual sampling of 48,000 households. The bureau estimates that enrollments for all institutions of higher education reached 8,827,000 in 1974, up 7.9% from 1973.

of college age. Table III shows that the percentage of their age group enrolled in college has dropped steadily from 1969, whether one compares enrollments with the civilian or with the total population age groups.

Meanwhile, between 1969 and 1973, the enrollment of females was practically stationary, hovering around 20.5%. So, women remain underrepresented on the campuses. And, of course, racial minority groups have been and continue to be underrepresented. With only 10.9% enrolled in 1963, they reached 16% in both 1969 and 1973.

Is the 18-24 age group turned off by full-time residency? It might seem to be the case for a growing number, since at least one study has found growth in the number of part-time students to be the most significant recent trend, with part-time enrollments up 5.9% in 1973. Part of this growth may be due to the rapid increase of graduate students (HEW reports a doubling of advanced degree students between 1962 and 1971), and part

TABLE III

MALE PRIME AGE GROUP ATTENDING COLLEGE

(In millions)

	1963	1969	1971	1973
Civilian Population	7.6	9.6	11.1	12.1
Armed Forces	1.4	2.2	1.6	1.2
Total Population	9.0	11.8	12.7	13.3
Number Enrolled in Colleges	2.1	3.4	3.6	3.4
Percent of Total Age Group	23.2	28.6	28.2	26.8
Percent of Civilian Age Group	27.5	35.2	32.4	27.7

Source: Selected material from U.S. Bureau of the Census (P-20 Series), and from the Department of Defense.

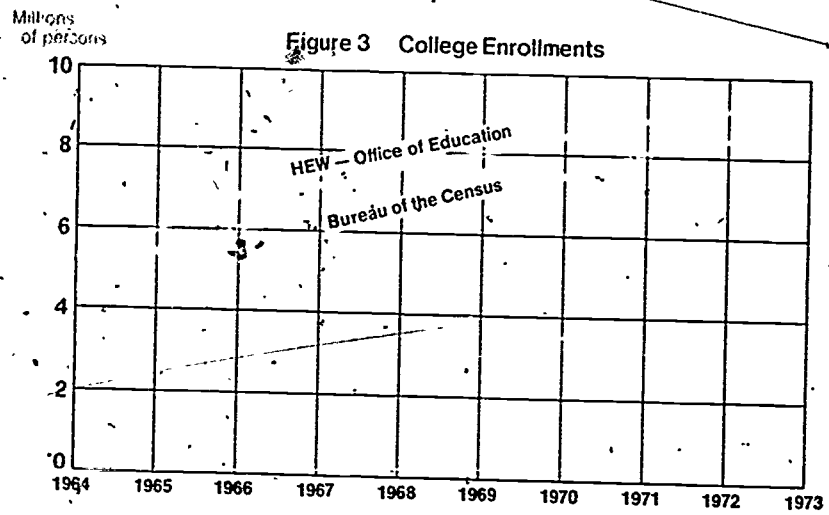


Figure 3 College Enrollments

Adapted from chart prepared by the Washington Center for Metropolitan Studies.

Source U S Bureau of the Census, *School Enrollment in the United States, October 1973* (Advance Report). Series P-20, No. 261 March 1974.

Projections of Educational Statistics, U.S. Department of Health, Education and Welfare, Office of Education Center for Educational Statistics.

Adapted from: *Population and the American Future*, The Report of the Commission on Population Growth and the American Future. U S Government Printing Office, 1972.

also to older *and* younger students According to the Census Bureau these two groups increased between 1969 and 1973 by 0.7% and 0.2% respectively while the attendance of the prime age group was dropping 3.3% (See Figure 3.)

Where are students heading when they choose a college or university? The same study showed that enrollments at state systems were up 2.1% while multipurpose schools (formerly teachers colleges and some state colleges) were down 1.6% Private universities eked out a mere 0.2% rise

Who is hurting most? According to a report by the Midwest Research Center of the 165 colleges that closed their doors between 1965 and 1975 most were religious or local institutions 20 had fewer than 50 pupils in attendance at the time of closing only five had enrollments of more than 1,000 Bluntly, New York State says that if enrollments drop below 400,000 by 1990 (the projected estimate is 371,000 undergraduates), We do not expect the State's present system of higher educa

tion could continue. A number of institutions would close and other institutions are likely to accommodate their enrollments."*

Perhaps these and other ripples will grow, perhaps they will disappear. At the moment it appears important to provide options that will back up the going rate, especially among higher education's newer clientele.

But what must institutions do to attract the young male student? To improve the representation of women? To attract and hold the minority or low-income group student? Is there a new and expanded role for the state colleges – those currently suffering most among public institutions? Is there a shift on between urban and suburban institutional attractiveness? And is the urban institution's future role increasingly that of serving the part-time and older student?

What can the small private college do to survive? Should it scrap adherence to the liberal arts and become more technically or career oriented? Or will its role be found in an emergence of the Learning Society — for all ages, for lifelong studentship?

What about possible major shifts in the allotment of educational resources? Are the private proprietary institutions — such as Xerox and Bell & Howell — going to expand disproportionately in response to needs that the traditional colleges are unwilling or unable to accommodate? What will national policy be for higher education especially as part of the game plan for the economy? Major new student-aid programs would be one obvious possibility, or the development of a 1975 counterpart of the Civilian Conservation Corps or The National Youth Administration of the 1930s.

Who are the potential new students and what are their needs? Will they, in fact, come primarily from the traditional 18 to 24 age group? Will they be nondegree, noncredit, and nonresidential? Will they be older, their goal retraining? Or is their interest in beauty and truth, in harmony between man and nature. Some answers are beginning to emerge.

*Statement by Associate Commissioner for Professional and Higher Education T. E. Hollander, June 18, 1974.

3. Programs and people

29

MONEY PROBLEMS AND ANTICIPATED DECLINE in enrollments may be distracting attention from a more profound transformation in higher education, one that could more than counterbalance population decline in the age groups that higher education has traditionally served. In fact, experts have guessed that the market for traditional programs may be as large as 36 million, i.e., four for every one student now enrolled in a traditional program.

What kind of programs could serve this market? What can today's administrators and educators be thinking about, planning for, starting to make available?

Clue one: The emergence of alternative learning opportunities sponsored and certified as higher education. These are primarily aimed to meet the needs of mature students who choose education as an act of volition and not of coercion, who cannot and do not wish to interrupt their lives to live on a campus, or even attend classes there.

The Educational Testing Service recently reported that within the past two years some 1,500 nontraditional programs (space-free, time-free or both) have been set up by institutions of higher education. These programs require new strategies for the delivery of instruction. They use TV, film, radio, audio cassettes, the telephone, science kits, correspondence packets, and the like. In some of these programs, the campus itself remains a base for study, but is only one piece of a much broader education environment that includes internships in museums, hospitals, businesses, government agencies, and so forth. In others, students move about to take courses at any one of a number of cooperating colleges. Still other models involve one-to-three week residential seminars and on-campus laboratory work in the sciences. And many use local study centers or public libraries where students can meet each other, receive counseling, or take exams.

These external programs may "come to overshadow much of traditional higher education," according to Dr. Samuel Gould, chancellor-emeritus of the State University of New York and chairman of The Commission on Non-Traditional Study.

Clue two: The appeal higher education has for those wanting to compete in a tight labor market. The U.S. Department of Labor estimates that by 1980, 80% of all jobs will require no more than a high school education. On the other hand, the same agency believes that by 1985 the country will require half again as many professional and technical workers as it now has. These additional five million skilled people will require higher education, and many of their positions will call for graduate degrees.

Clue three: Another clientele surfaces. This clientele comprises groups who typically have not been served by higher education — people from disadvantaged minorities who want equal opportunity; the new breed of women who wish to go back to school and into the labor market after raising their children; professionals who need to stay abreast of trends in their fields; adults preparing for second careers; early retirees who want to be in touch with the world or use the stimulus of formal learning for their own and society's benefit.

Clue four: The current speculation about higher education's role in times of economic depression. Campuses have existing physical plants, most of them already paid, and an available cadre of dedicated professionals (who may also need jobs in times of low employment). So if higher education's facilities are not being used to capacity, should it be seen as a strategic "standby" industry? Could higher education be used as the intellectual equivalent of the Civilian Conservation Corps? Taking perhaps four to six million people out of the labor market for a significant period would be an alternative to providing menial employment, cost less than usual relief programs, and require little new bureaucracy.

A New Species

Clearly there are so many elements at work changing higher education that no one can detail its future form. Some of these clues, however, give reason to believe that we are witnessing the genesis of a new species that will bear little resemblance to that of the past. If so, its DNA will be made up of new social de-

mands and new educational philosophies that are still inchoate but are beginning to evolve. And when this new organism called higher education emerges, it may be larger, more faceted, more pluralistic, and more animated than its predecessor.

Not the least influence on the new breed of higher education is the new approach to what constitutes intellectual competence. Custom used to hold that high estate could scarcely be achieved other than by going to college for four consecutive years. You went, you stayed put, and there, removed from the ordinary diversions of life, you were presumed to get educated. (You stayed put, that is, if you didn't drop out or transfer, either of which nonconformities had its own penalty.) A basic criterion for the final seal of approval was more often the magic amount of time served in a fixed collegiate location, than what had been learned there.

One more clue, then, as to changes. About 25% of the freshmen entering college in 1961 took more than four years to earn their first degree, according to a recent study by the American Council of Higher Education. This trend is continuing.

Many other petrified faiths and rituals that have dominated higher education now seem on the way out. Credit hours and geography are losing their legitimacy as measures of intellectual competence, and higher education is becoming a moveable feast — to be had on a fixed campus, an extension campus, on multiple campuses or no campus at all — and on a demand-feeding schedule.

Already, changing views of time and place are affecting standard operating styles. Witness the approval of deferred admissions, of dropping in and dropping out, of three-year B.A.'s and M.D.'s, of "common markets" where students may cross from one state institution to another without paying nonresident tuition (as in the case of the universities of Minnesota and Wisconsin), and like innovations.

Some existing institutions, public and private, are aggressively pursuing new markets, offering not only the traditional daytime and evening courses, but also early morning and weekend offerings.

- The University of Oklahoma allows adult students to combine home study with on-campus, part-time courses. Participants can bring their families to live in university cottages during the on-campus period.
- Mundelein College, in Chicago (one of many schools in all parts of the country), runs a Weekend College. Operating from Friday dinner through midday Sunday, it provides accredited instruction in selected fields, mostly those having immediate vocational and professional application.
- Harvard University offers the joy of learning (though not formal credit) to alumni and their families who wish to live in the Houses "off-season" and enroll in courses given by outstanding faculty.

Rearrangement of Resources

Programs such as these provide people with more options. Thus, they make education more accessible. But, they are significant in another way as well. They are a response to the outcry, from inside Academe as well as outside it, for greater efficiency in turning out the end product — the educated student. The drive toward such efficiency may lead to a broad look at the educational resources of the nation as a whole.

Proposals in the air could mean a vast reorganization of these resources: vocational programs transferred to industry-linked schools; community colleges taking over all public freshman and sophomore enrollments in some states; the emergence of upper division colleges for junior and senior undergraduates and, in some instances, graduate students; subsidies so that students admitted to public colleges can attend private institutions whose enrollment has declined; state-mandated interinstitutional cooperation in program offerings, physical planning, and so forth.

Consortium and efforts honored in principle may now flower in fact — particularly as a way of offering academic programs that no single institution can afford to carry. And where proximity permits, consortium efforts will include student services such as placement, recreational activities, and health care. The latter,

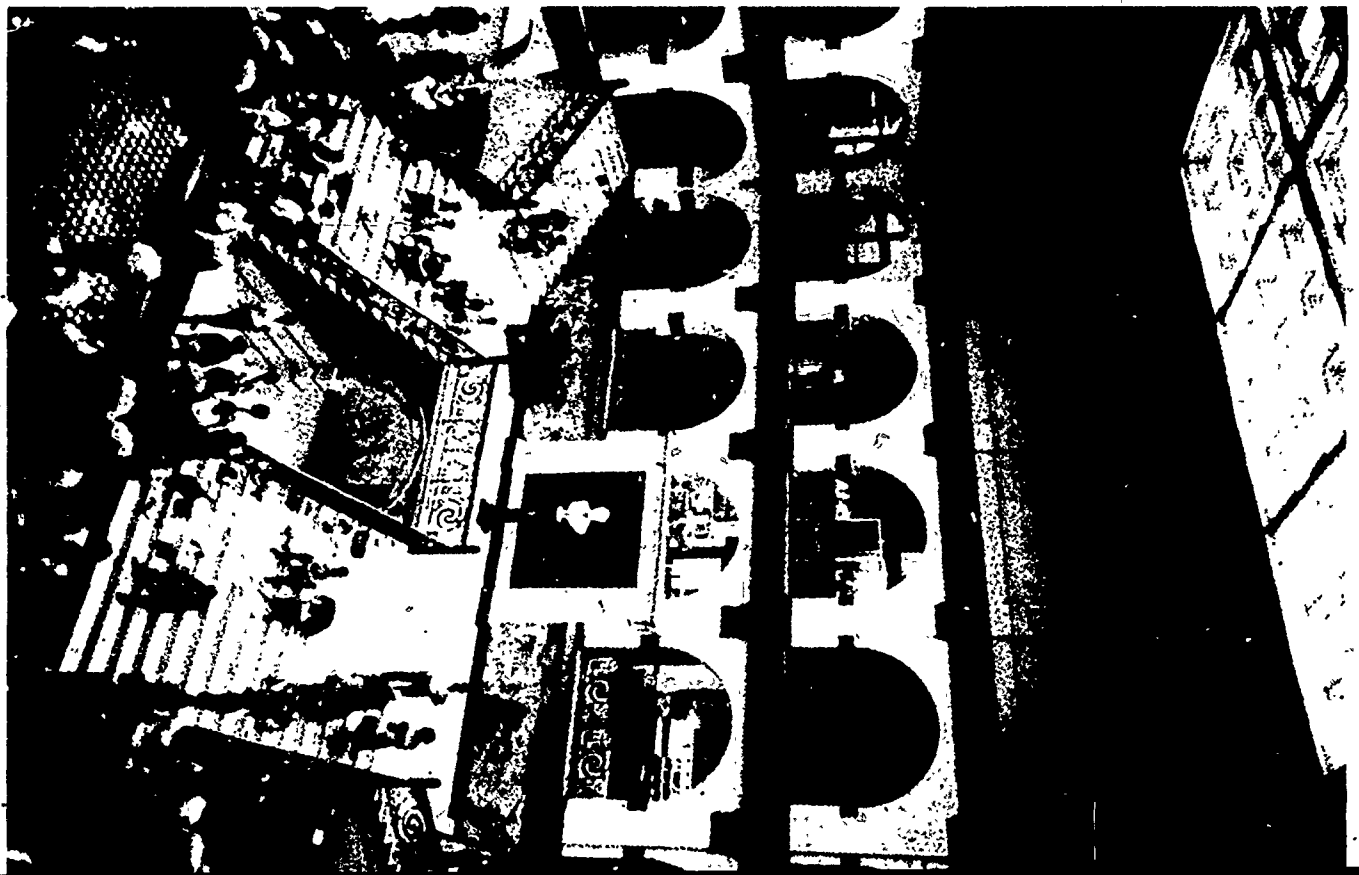
33

for example, is being planned in Northfield, Minn., where Carleton College and St. Olaf's College will share medical staff and facilities.

Summary

Higher education is clearly in transition. The growth of its traditional market is ending. But declines need not lie ahead if the institutions have the vision, the will, and the skill to change and respond. And surely the colleges and universities of the nation are the institutions that have the best knowledge and most informed professionals to address the problems of institutional and educational change. They are indeed the best instruments at hand to guide and contain the adaptation and changes that confront us all.

4. Implications for the physical plant



SOME OF THE TRENDS IN HIGHER EDUCATION don't imply a need for more physical space. The contrary perhaps. But new methods of instruction for off-campus students may require new and different equipment, as well as facilities to house it, at the central bases where that instruction is developed and transmitted. To the extent that more space may be needed for activities such as counseling or the assembly of nonresident students from time to time, the need can probably be met in borrowed or rented institutional facilities (such as public libraries or community centers) or in commercial space.

Many existing campus buildings, however, will be used for the new and evolving programs. They are convenient and ready. Academic entrepreneurs will be attracted by certain self-evident economies. One caution — income gained from nontraditional programs and apportioned to "maintenance" in the college accounting systems may be offset by increased plant expenditures necessitated by heavier use. The real worth of this new educational income is what managers call "contribution to overhead" — in effect, it can make a significant reduction in the overall costs carried by full-time students.

Community goodwill is another plus to be remembered in keeping classrooms full through part-time and special programs. This is especially true for private institutions, if the result is a continuance of tax exemption on land and buildings, or a lessening of the impulse to construct a competitive public institution nearby, or as an incentive for local philanthropy.

Facilities Remain a Live Issue

This, then, is the broader context in which college and university administrators must make planning decisions. The fiscal difficulties described in Chapter 1 have already led, in some places, to such rock-bottom moves as having the floors swept only on alternate days, mowing the grass less frequently, and turning the heat off earlier. Under the circumstances, to talk now of campus construction and building design may seem like an invitation to a Barmecide feast.

But the fact is, in spite of it all, that building activity will go on

apace. Much of it will be in the form of rehabilitation, remodeling and conversion of existing spaces. Some of it will be new construction.

Why? Evolutionary changes in teaching require adjustments in physical plant. All the TV gear, and other educational hardware, demand new kinds of room — as does the running of time-free, space-free programs.

Second, students and parents are shopping around. The quality of the physical environment must surely have some influence on where they decide to spend their ever-increasing tuition money. Thus, for marketing reasons, second-class facilities are counterproductive. The academic slum — faculty sheltered in converted hallways and broom closets; seminar rooms in 19th-century basement space; drafty, noisy classrooms, overheated and ill-furnished; and dormitories that would challenge Charles Dickens to describe — will be eliminated. Without such change survival may well be at stake.

Third, historic preservation, a mood engendered by a search for authenticity and spurred by the approaching bicentennial, will give further impetus to looking at ways in which older campus buildings can be attractively restored to useful life.

Fourth, as always, special eleemosynary impulses are not to be denied. Personal interests and allegiances will continue to bring donors and campus administrators together, encapsulating their noble intentions in new architecture.

Finally, there is another agent at work that will continue to involve administrators in decision-making and expenditures for facilities. That is, the aging process. There is, after all, a huge existing investment in the physical plant that must be protected and wisely used. Self-evidently, the trend toward cutting physical plant expenditures at many institutions will have to end. Some observers say that maintenance levels were not very high to begin with. Budget reductions in normal operating and replacement accounts will certainly be paid for several times again later when what was once a bill for minor repairs becomes a major expense item. Deferring matters which are best handled now is no solution.

37

That wise old investor, Billy Rose, used to advise, "never put your money in anything that eats or needs repainting."

It is a principle colleges and universities would like to subscribe to if they could — but they can't. In this country higher education's physical plant comes to some $64 billion worth of facilities (replacement value), and a lot of it, metaphorically speaking, needs repainting.

The geriatric decline of buildings may be faster or slower depending on the building kind, the extent of use, and the quality of maintenance. But, sure as death and taxes, parts grow old and need replacement. Pipes corrode, roofs leak, old wiring needs replacement, bricks need repointing, wood windows rot, plaster chips and cracks, furnishings grow shabby. Since there is little pizazz in repairing the plumbing, such details are often deferred in favor of more glamorous or more pressing priorities. As a result, the erosion of the environment is compounded — and so is the bill.

In the great construction boom of the past decade, older facilities were neglected because it was easier to come by money for new buildings. The U.S. Office of Education, in 1971, estimated that 5% of the existing plant was in need of immediate replacement, and 9.3% required extensive rehabilitation. For the latter alone, costs were estimated at $2.3 billion (in 1970 dollars).

Such issues must concern administrators regardless of whether their institutions are expanding or not. They are, by nature, matters that fall within the purview of ordinary management — *management*, that is, as opposed to mere administration. For *management*, properly defined, is the fullest exploitation of resources to extract their greatest yield.

Clearly, physical plant programs combining rehabilitation, maintenance, and new construction are the most efficient and economical mix, efficient for containing the new programs, new methodologies, and new clientele; economical in assuring maximum "return" on each capital dollar invested.

5. Eight strategies for the management of space

39

IN THE PREVIOUS CHAPTERS we have limned the scope of the problems facing administrators of higher education — limited funds, declining enrollments, unproductive space, etc. — and suggested that the salvation of colleges with such problems is to redeploy people and empty spaces, preferably at the least expense. This includes educating students away from a campus, attracting new types of students to a campus, and combining these two concepts to establish non-campus education for people who would not normally have attended college. The variations are considerable, and enough institutions have pioneered or improved upon techniques that we now have a considerable repertoire of case studies to draw upon.

In 1974, EFL published a report, *Build if you must, but consider . . .* that contained literally hundreds of examples of the approaches taken by colleges, universities and community colleges to improve their finances, enrollments, and facilities. From that report, we selected a few cases to briefly illustrate what is going on in the field.

□ Redeploying Campus Space and Time

Year-Round Campus Use

Classroom space can be freed for the regular academic year by opening up the campus during summer months and encouraging students to take on some sort of internship, work-study, or independent study plans at rotating intervals. This also evens out the use of back-up spaces — athletic facilities, food-service areas, housing, and the like — over the full year.

□ In 1971, Dartmouth College trustees voted to admit women without reducing the number of entering male freshmen and without incurring major capital expenditures. A year-round operation started in 1972 with the academic year divided into four 10-week terms. Students make one of three

40

choices: residence on campus; off-campus study for credit (not necessarily on a Dartmouth-sponsored program); or a non-credit "leave" for vacation or a job. In the fall of 1973, about 450 of the 3,100 undergraduate students were off campus. This system has enabled the college to make a net gain of 600 students (and a projected 200 more by 1975) without putting up any new buildings.

□ Kalamazoo and Beloit colleges have both had year-round calendars since the early 1960s. Each features a "Field Term" of structured off-campus study. Beloit raised its enrollment by one-half (1,200 to 1,800) without building new facilities, while Kalamazoo was able to operate its plant at 140% of rated capacity.

Gaining Space with Off-Campus Programs

Moving students off campus for part of their programs can conserve campus space without being part of a year-round program. About 200 institutions now have some kind of formal off-campus study program.

□ One of the most ambitious (and oldest) such programs is at Boston's Northeastern University. By 1974, this institution's cooperative education program involved 12,000 of the 13,000 full-time students. With 4,000 students off campus at any one time, Northeastern needs facilities for only 9,000. The schedule puts a student on a job for a three- or six-month period. The program's offices require space equivalent to 10 classrooms, but the college can carry 45% more students than its buildings could normally accommodate.

□ Martin College, in Pulaski, Tenn., has been operating since 1970 on a calendar of five 6-week blocks. This permits on-location study in urban centers, while the on-campus dorms and classrooms are kept full.

□ Warning — not all such programs save space. Worcester Polytechnic Institute in Massachusetts moved toward a flexible humanistic undergraduate program in 1970. Included

were two "project" requirements: one in the student's major field, and one relating this to social needs. Work may be on or off campus. Worcester's enrollment grew from 1,430 to 2,106, countering the national trend in engineering students. But the plan increased the need for campus space — for independent laboratory projects and for faculty office space. The school has started conversion of attic space and a former Buildings and Grounds garage.

Using Space for New Clientele

Few movements have put campus space managers more on their mettle than the influx of new kinds of students — students who are adult, elderly, working full time, or otherwise outside the traditional prime market.

- The C. W. Post Center of Long Island University manages space and time to accommodate 300 weekend students. Courses are scheduled on six consecutive Saturdays or Sundays; alternatively, two intensive weekends are linked with a five-week period of independent study. The library, bookstore and food facilities are kept open; a nearby private school provides child care as needed. Income from the program far exceeded expenses.

- The University of Oklahoma offers guided independent study and a B.L.S. degree to adults who are on campus for seminars and counseling during several weeks in January, June, and July only. The rest of the time the students work at home, so strain on campus facilities has been negligible. The program has first call on space in the University's Continuing Education Center.

- A program similar to Oklahoma's has been in operation since 1970 at Brockport College of the State University of New York. Shifting from noncredit courses for adults to a Liberal Studies degree program, the college drew 700 additional students. In 1973, dormitories were opened to 250 to 300 adults. No change in facilities and no new construction were required.

42

Time-Shortened Degree Programs Save Space

A more drastic change — with more impact on campus space and time — is that of offering a four-year degree program in three years.

□ The C. W. Post Center of Long Island University runs a FAST (Freshman Academic Study for Talented High School Seniors) program. In place of the regular high school curriculum, 12th-grade students are taught the entire freshman college year by C. W. Post faculty in the classrooms of participating high schools. The students save a year, and campus space is freed.

□ Appalachian State University, Boone, N.C., admits high school students to its college courses for freshman credits and sends its college students to use the staff and specialized facilities of local high schools. Duplicate courses are avoided and, as the program has tended to stimulate independent and off-campus study, much space is released.

□ Thirty or so institutions are known to have adopted such plans. But many have discovered lapses of quality of academic programs, unexpectedly meager student interest, and no real cost savings. In contrast to this finding, the Carnegie Commission on Higher Education reported that the three-year programs averaged operating cost savings of between 10% and 15% and savings on construction costs of about 33%.

Summer Programs

□ Cornell University charges adults $145 per week and their children $90 for its summer Alumni College. Cornell believes it is a good way to use expensive facilities and staff during the slack season. About two dozen institutions (including Harvard, Princeton, Pennsylvania, Drew, Stanford and Pomona) have tried this approach with sessions lasting from four days to two weeks and drawing up to several hundred people. Warning: many of these programs have not made money.

□ Several institutions have opened their dormitories to traveling students, despite predictable pique from motel-hotel

interests. (For this reason, Northern Michigan University, which had accommodated 2,000 tourists per summer, stopped the plan.) North American Student Centers of Salt Lake City coordinates this program.

□ What kind of space yield you obtain from such new formats is not easy to compute. The State University of New York tried to compare the space needs of conventional formats with those of some new ones, for a future period. Its tentative conclusion was that a combination of year-round enrollment and adjusted student/faculty ratios would make possible a space saving. Adding some form of nontraditional instruction would double this projected saving.

Such computations required very precise inventory and projection figures that, unfortunately, are not always at hand. Additionally, a decision to redeploy space and time — and how to do so — depends on an institution's educational goals, location, staff, financial stability and prospects, and many other variables. All of these factors underline the need for careful planning.

■ Non-campus Facilities

According to a 1973 report of the Commission on Non-Traditional Study (Samuel Gould, chairman), the potential market for higher education (not counting the regular prime market of "college-age" students hovers around 104 million persons aged 18 to 60. To provide space for even a fraction of these people, it is clear that non-campus facilities will have to bear the brunt of the load.

The Dispersed Campus

A dispersed campus operates in several leased or rent-free facilities in the surrounding community. Sometimes there is no campus at all.

44

■ When Wayne County (Mich.) Community College lost several bond issues to build new facilities, it began to hold evening classes in local high schools. The first year (1968), the administration expected 2,000 students to register, and 6,000 showed up. In a sense, WCCC is the ultimate in dispersed campuses. It has rented space for classes wherever they could be reached most easily from students' homes or places of work: the list of properties in use reads like a real-estate directory. It includes public and parochial schools, a Jewish Community Center, the downtown YWCA, part of a shopping center (later abandoned), space in hospitals, a housing project, and youth homes. The college is tied to these facilities only on short-term leases, so a program can be dropped without leaving classrooms empty. An initial 56 centers was cut back to 27 as the concept was fine-tuned in the face of experience, improved management, vandalism in some centers, and program changes.

■ In the close-knit community of Kalispell, Mont., is the Flathead Valley Community College, a "campus" of leased, rent-free, and purchased buildings, put together by the citizens. They bought an Elks building for central administrative space and student social areas, and a former auto showroom for classrooms. Space is leased in lodge buildings, and rent-free space has been provided at a railroad depot, the VFW Hall, and a 4H building. About $24,000 has been used in remodeling the purchased buildings.

■ El Paso Community College, Colorado Springs, is building up its non-campus space throughout a six-block area of town with short-term leases (one to six years). Facilities include: an office building remodeled to house science and dental labs, data processing facilities, and classrooms, a supermarket converted to a learning materials center, and nursing education, and police science facilities; an auto shop used for auto shop training; two residences for a child development center; a packaging shop converted to a construction technology lab, six buildings put up by a developer to the college's specifications and leased back for student services, business offices, business education classrooms, food technology space, and auto and welding shops.

45

■ Lacking the funds to build a teaching hospital for a new school of medical sciences, the University of Nevada at Reno arranged with six hospitals throughout the state to provide space and equipment. This scheme not only falls in with the school's philosophy, which calls for increased contacts with the community, but also gives students early experience with patients.

Community Facilities

Outreach centers differ from the dispersed campus chiefly in that the centers are deliberately focused on specific groups in the community. Outreach centers can serve many purposes: veterans' counseling, university extension courses, adult or continuing education, health-care training programs, high school equivalency training. All kinds of facilities are grist to the outreach mill.

■ The New Jersey Prison Program has, since 1971, been offering associate degrees to 500 students in classes at seven of New Jersey's prisons. Mercer County Community College has coordinated the project, in which two-thirds of the classes are live, the rest via television. A bus has been adapted as a mobile science lab at a cost (including the bus) of $22,000.

■ One of the least developed channels for outreach programs is the public library. An ambitious effort to make up lost ground is the Dallas Public Library's Independent Study Project. It signed a contract, in 1971, with Southern Methodist University to provide a way for adults to get college credits through self-education. SMU furnished study guides and faculty assistance and administered exams. But all facilities belonged to the public library — with five branches used as resource centers. Jean Brooks, director of the project, and David Reich have written a book on this theme, *The Public Library in Nontraditional Education* (ETC Publications, Holmwood, Ill., 1974).

■ The military, too, have been the target of outreach efforts. In Honolulu, Chaminade College offers regular college programs at eight military posts (as well as at two hospitals). A mobile office registers students, collects fees, and sells books and supplies.

46

External Degree Programs

External degree programs, as distinct from the dispersed campus and outreach approaches, require a few formal facilities. Whether students are reached through personal contact and correspondence, or by electronic means, the student's space needs are largely at his home, place of work, or public facilities in the community.

- Minnesota Metropolitan State College at St. Paul has offered an external bachelor's degree since 1971; by 1975, it expects 1,500 enrolled students. Most of the current 500 students work full time, and their average age is 33. Students receive credit for "observation and participation in everyday life situations," as well as for independent study. Space needs are few. For orientation meetings and the occasional seminar, facilities are rented from a list of about 100 places. Otherwise, learning goes on at museums, hospitals, factories, political campaign headquarters, or at home.

- Aside from a central office in Montpelier, the Community College of Vermont has no facilities, either built or leased. Instead, a network of 600 nonprofessional teachers reaches low-income, nontraditional learners in facilities existing for small-group lectures, and by monitoring experimental learning and independent studies.

- The San Francisco field center of Antioch College's University Without Walls pulls together the program's various independent study and internship projects in the Bay area, which all focus on problems of planning and improving the environment. The center's only facility is the third floor of a converted warehouse. This is a large (7,000 sq ft) open space divided as needed to accommodate offices and some social space.

- The Empire State College (a unit of the State University of New York) is located in Saratoga Springs but has no central campus. It draws on community resources and on the SUNY institutions to provide a decentralized base for learning. These resources include five regional learning centers; an office building in downtown Manhattan; space at SUNY's Buffalo, Albany, and Long Island campuses; a former convent in Rochester;

and a former college library in Saratoga Springs, which serves as the Administrative Coordinating Center. In addition, there are 11 learning units — smaller outreach divisions on the SUNY campuses. Recently, Empire State has added 11 satellite units to serve special interest groups.

Technology-Based Programs

Like more conventional external programs, technology-based programs transmit education over distances. But there are three big differences:

- *Space is needed from which to beam programs.*
- *Space is needed to receive programs.*
- *Capital is needed to pay for equipment at both ends.*

■ In 1970, the Oklahoma State Legislature approved a system-wide program consisting of a closed-circuit, "talk-back" method designed to deliver higher education to remote communities and industries. The Oklahoma system now embraces 14 institutions and four fee-paying industries. Seven institutions act as transmitting stations and use regular classrooms as studios.

■ Stanford University's Instructional TV Network, a four-channel, low-power system, beams live graduate courses, chiefly in engineering and business, to receiving classrooms provided by industry in the San Francisco Bay area. An FM radio system allows students to talk to the instructor on the Stanford campus.

■ One of the largest technology-based systems is the TV College of the City Colleges of Chicago. It uses open-circuit, rather than closed-circuit, transmission so students can receive lectures at home. Since it began in 1956, it has had some 215,000 course registrations (about half of them for credit); in addition, programs reach an estimated 280,000 viewers who are not registered. TV College owns no production facilities, but leases them from the local public broadcast station (WTTW), which also transmits the programs. The only other space used full time is a staff office, located in a commercial office building. Classrooms for exams, lab sessions, and conferences

are provided during off-hours at four branch campuses of the City Colleges. Students may also study at four branches of the Chicago Public Library.

■ An industry-oriented network interconnects nine colleges and universities with a small group of blue-chip corporations that have offices or plants in a 2,000-sq-mi area of north Texas. The network is known as TAGER (The Association for Graduate Education and Research). TAGER began in 1967 at a time when highly trained technical people were scarce in the area and industry was ready to support a system that enabled employees to study without losing time from work. All classes are live, and talk-back enables students in any classroom to question the professor and participate directly in the class. Production facilities are in regular classrooms. Receiving facilities for the highly specialized courses are in other classrooms or member colleges or at member industries.

△ Modernization

As recently as 10 years ago, during the great building boom of the 1960s, college administrators were likely to demolish the obsolete or merely old building on campus and put a new one in its place. These older structures, often built of sturdy masonry, with high ceilings and generous blocks of space, have now been rediscovered as great treasures. At the same time, with the cost of new construction for even uncomplicated buildings running to $45 per sq ft (and more in the big cities), modernization, rather than building new, can cut costs by half or even more.

Renovation of Academic Buildings

△ One of the more comprehensive modernization plans is that of Oberlin College. It all began when the opening of a new library building made it possible to plan to convert the old

49

Carnegie Library into faculty offices, seminar rooms, and classrooms. But Carnegie was but one of a group of five buildings of special significance to Oberlin. The Big Five, all designed around the turn of the century, grace the college's main quadrangle. All are deteriorating or obsolescent. But all are handsome, classical, historic buildings, dear to the heritage of the college. Of particular concern among them was Finney Chapel. Its acoustics are excellent, good enough to receive words of praise from the Cleveland Symphony Orchestra. Like most chapels, it is more a sentimental remnant of the past than a functioning agent of the present. But sentiment does not pay the heating bill. So what to do about Finney? Demolish it? Or recycle it, trying to respect its architectural and symbolic integrity, but making it pay its way? Oberlin concluded that it had to plan to complete the modernization and development of the campus that had been started 15 years earlier.

The decision was to eschew the recommendations of architects who had advised tearing down the Big Five and building new. The buildings were found to be structurally sound. Equally important is that a part of Oberlin's history will not be erased by the wrecker's ball. Both tradition and esthetics will be preserved for future generations of students and townspeople. For Finney Chapel, the recommendations call for outfitting it with audio-visual equipment, projection facilities, and sound insulation and upgrading to meet safety codes. Thus, without violating the chapel's exterior architecture or its interior character, Finney can serve in the 20th century as well as it had in the 19th; this time around, as a communications and theatre center.

△ In the past decade, the North Dakota State School of Science has grown from 1,647 students to 3,337. In the process it has modernized seven of its buildings to provide specialized technical facilities. The college felt that to attract funds for new construction, it had first to prove its ability to make do with a modest budget. So, although a new library was built, most expenditure has been on reconstruction. A 60-year-old gym was converted to a theatre, music practice rooms, and dental hygiene facilities, for $35,000. In "Old Main," formerly a library and teaching facility, 6,200 sq ft of space was captured at a cost of

$29,500. The former library reading area became a data-processing center by replacing wooden floors with steel trusses and concrete floor slabs to support machinery. Wiring was placed throughout the floors to permit flexible location of equipment in business education labs. In three shop areas with 21-ft ceilings, balconies were installed at one end to provide space for additional students. The old student center was converted to a college health center and two classroom labs, while the automobile dealership building (owned by the alumni association) was remodeled to accommodate a licensed practical nursing center and continuing education facilities. Cost was about one-fifth that estimated for new construction.

△ In Seattle, the University of Washington recently carried out an ambitious major modernization of its field house and basketball pavilion, which dated back to 1927. What started out as a space for 13,000 has become, at the slight price of reduced seating (to 11,500), a flexible multipurpose auditorium and reaction facility. It provides not only for basketball but also for tennis, track events, lectures, concerts, and graduations. The work, which was done in four phases, handled some 181,000 sq ft of space for a total cost of $3.5 million (or just under $20 a sq ft). Notice that the design illustrates the countrywide trend of offering students lifetime sports instead of traditional team games, and the economic necessity of making a sports center serve other activities.

△ New York City's Cooper Union, which has occupied its Foundation Building since 1859 (when Abraham Lincoln addressed its students and faculty), was renovated at a cost of $11.5 million to bring this landmark building up to modern requirements. It now houses the entire school of art and architecture, the library, the divisions of humanities and social sciences and of adult education, and offices for the administration. In keeping with modern need for flexibility, interior walls were removed at great cost to create open-space work areas; fireproofing and airconditioning are installed. The project was completed in 1974. It is another example of the structural and mechanical drawbacks of an old landmark being overriden by assets of location and architectural character.

Conversion to Alternative Use

To take an existing and probably obsolescent college structure and convert it to a new use, taxes the ingenuity and imagination of both administrators and architects. Yet often this solution is a very practical one, especially when a building, whose fabric and structure are sound but whose function has disappeared, can be used for a new academic program that lacks a home.

△ Estabrook Hall now houses the school of architecture at the University of Tennessee in Knoxville. Built in the 1890s, it was used as a storage building, filled largely with junk machinery left over from the Civil War. Just when it was about to be demolished, the dean of the new architectural school discovered it in his search for a home for the school. He found that the building, with its arches, solid construction, high ceilings, and a magnificent light well met the requirements of both space and character he wanted. Six months later, the converted building was ready for full-time use. Partitions had been ripped out to form open interior spaces, filled with movable partitions and modular furniture of great flexibility. Important parts of the old building, such as the maple floors and the exterior, were saved. Costs were kept down as design was done by an architect faculty member and construction by students and the university's maintenance crews. The work was funded out of the university's maintenance and operating budget.

△ Indiana University converted a turn-of-the-century graduate library into a single facility for student services and for the production and storage of audio-visual presentations. It is one of the oldest buildings on campus; it is centrally located and serves as an excellent site on which to consolidate services hitherto spread about over the campus. Remodeling its 100,000 sq ft took about three years to plan and carry out, and cost $3 million. Officials say that a new central facility of similar size would have cost about $5.6 million.

△ A classic, often cited example is Harvard University's Boylston Hall. Since its completion as a chemistry laboratory in 1858, it has known five incarnations, the latest in 1965, when it was completely gutted, four floors becoming five, with a

52

mezzanine. In this transformation, it serves as a center for modern languages.

△ Brown University has decided to convert its Victorian and beautiful Lyman Gym and Colgate Hoyt Pool into an experimental theatre and dance studio to absorb the needs of a growing department. The central gym area is to become a 150-seat theatre, adaptable to different stage and seating arrangements, with the running track used as a balcony. A cafe theatre, library, dressing rooms, and miscellaneous film labs and dance studio spaces will be included by building a floor over the pool. The estimated $1 million cost compares with the $6 million or so which a similar peforming arts center would cost new.

△ Former science buildings can be successfully remodeled into almost any other use that a college needs. Three examples: Emory University in Georgia recycled a 50-year-old chemistry building for general classroom use; Carleton College, Minnesota, will remodel a chemistry building into a humanities building; and Wittenberg University in Ohio is renovating an old science building for the use of fine arts.

▲ Found Space

Although additional space is not a universal need among institutions of higher education, there are exceptions. One solution is to acquire space in a building that has not previously been used for education. This method is more often available in towns and cities than in rural locations, particularly when a building is required close to the campus. There are, however, plenty of rural examples, particularly in areas being hit by metropolitan expansion. Found space, as such a facility is called, has often turned out to be an economical, educationally sound, and socially popular solution. It can also be, as many administrators, faculty and students and alumni have discovered to their delight, a challenging, invigorating solution. Clearly, its quick response and relatively modest cost features have made the approach

53

attractive. Notwithstanding problems of zoning, building codes, and upgrading to higher standards of comfort, facilities found in existing industrial, public, commercial, office, and, in some cases, agricultural and private estate buildings have become a welcome source of usable space. Especially desirable in an America increasingly aware of its historic heritage are the often rich and sometimes picturesque qualities of the older buildings in which higher education has found many new homes.

▲ Kell Hall at Georgia State University, in Atlanta, shows how an instructional program evolved step by step with the acquisition of found space, which has been remodeled and enlarged as needed. This space was a seven-story parking garage that the university bought in 1946. Since then the building has been remodeled four times to suit expanding and changing needs of the university. Kell Hall now houses labs and administrative offices. The original two floors started out as offices, classrooms, and a cafeteria. Renovations in the last 10 years have changed the space arrangements. The sixth and seventh floors used to house the music and art departments but they were replaced with science labs and geography classrooms.

▲ When Duquesne University purchased 21 acres of land from the Pittsburgh Urban Renewal Authority it acquired at no extra cost a concrete frame structure built in 1917 to house the horses and wagons of a dairy company. Later, the building became a repair garage, and now houses Duquesne's college of art.

▲ Indeed because of their sturdiness and large-size spaces, garages have become a popular type of found space. The new school of architecture at the City University of New York is in a remodeled parking garage accommodating 1,000 students

▲ Vincennes University, in Indiana, is now housed in a series of renovated military and industrial buildings donated by the city of Vincennes. This found space includes a municipal water purification plant, a fruit and ice storage plant, a large former brewery and distillery complex, and a series of army surplus buildings. Enrollment at the university has soared from 300 to over 3,000 students in the past 20 years and found space of this

nature has taken the space pressures off the administration.

▲ Detroit Institute of Technology, which for 10 years occupied a downtown seven-story building that had housed labor union offices, moved into the headquarters building of the S. S. Kresge Company in 1973. This building, valued at $12 million, was donated to the institute. Although remodeling has been costly because of the work needed to meet state and city code requirements, it still compares very favorably with the equivalent cost of new construction.

▲ In Dallas, El Centro College, the first campus of the County Junior College District is in five buildings that used to be a department store occupying a full downtown city block. By renovating this complex, El Centro created an indoor downtown campus of over 250,000 sq ft. The major facility is a nine-story structure built in 1910. The structural frame of the building was used as a grid, which allowed much flexibility in the arrangement of spaces.

▲ In Welldon, N.C., Halifax County Technical Institute found an 11-acre property with three buildings that were at one time a 68-unit motel, a restaurant, and a service station. Site and buildings were bought in 1968 for $60,000 and remodeled into college facilities for another $40,000. Cost of a new facility had been estimated at $1 million.

▲ In 1965, the Maryland Institute College of Art acquired the unused Mount Royal Station, its 3.75 acre site, and air rights from the Baltimore and Ohio for $250,000. Remodeling doubled the usable space at a total cost of $600,000, and preserved an elegant historic building.

▲ Four churches have served as useful space for expansion by the University of Akron, with its history of substantial growth over the past 20 years. An Episcopal church, donated to the university in 1953, now houses the department of music. The Pentecostal Church of Christ is used as a ballet center, and St James Methodist Church, which the university acquired in 1971, is used as a general academic facility. A bonus at St James was a generous 2 5-acre parking site. The university recently acquired a fourth church, the Second Baptist Church.

▲ In Portland, Maine, Westbrook College needed a library. It acquired, in line with a legal agreement dating back over 50 years, a Unitarian church next to the campus that was rapidly losing its congregation but was over 100 years old and in excellent Gothic Revival Style. The college has kept its good image in the community by saving a landmark and has gained a new library at about one-eighth the cost of a new one.

▲ A handsome post office and a former U.S. court building came to the University of Texas, in Austin, through the Surplus Properties Act, and have been remodeled into attractive offices without spoiling their exterior character.

▲ Three large barns and a farmhouse stood on the site of a 200-acre horse-breeding farm in Lincroft, N.J. These found spaces were bought by the Monmouth County Board of Freeholders and converted into open-plan learning areas and offices for Brookdale Community College. The novelty of the environment has been a useful asset to the educational program, to the point where some new facilities erected on the site follow the design of the original structures. Renovation took five months.

There are, of course, risks in using found space; and far-flung, separated facilities can harm the unity of an institution unless, of course, a dispersed campus is a deliberate institutional goal. All in all, however, using found space can serve useful social, as well as educational, purposes. In urban situations it helps to shore up our downtown areas by generating activities during the day and night and often on weekends. Further out, handsome buildings, often surrounded by green land, can provide a functional oasis in the midst of suburban sprawl.

◇ Interim Facilities

Interim facilities are not uncommon. The term refers either to space that a new institution rents or buys for short-term use while it waits to move to a permanent campus, or to space an existing college or university uses temporarily to accommodate

a new program or unforeseen event.) The use of leased facilities can provide an alternative to building "temporary" new space. However, a word of caution lest "temporary" turns out to be 10 to 60 years, with expensive maintenance.

◇ Two examples of campuses starting out in leased space previously used for academic purposes are Pittsburgh's Community College of Allegheny County, and Lurleen B. Wallace State Junior in Andalusia, Ala. In Pittsburgh, initial facilities included two former seminary buildings, a vacated vocational school, and an elementary school. Wallace leased space in a junior high school.

◇ An outstanding case of an initial campus inside general space is Governors State University in Park Forest South, near Chicago. GSU was asked by the Illinois Board of Higher Education to begin to operate two years before the 1973 completion date of its permanent campus. Accordingly, it leased a 100,000-sq-ft, open-span warehouse for $5.85 per sq ft per year. It then divided this very large, single-story 20-foot-high space into four areas — one for each of the four colleges that make up the university. Common functions (learning resources, communications instruction, administration, and student commons) were placed in the center, separated from the colleges by ceiling-high partitions to control noise. The decision to lease this kind of space brought with it the chance to test the innovative open-plan learning environment that would be the mark of the permanent campus. Renovation almost equaled one year's rent, with most of the money going into partitions, equipment, and wiring, as well as carpeting and ceiling tile for noise control.

◇ The Community College of Denver, awaiting the 1975 completion of its Auraria Campus, has leased space that includes former auto showrooms, an auto parts warehouse, garage structures, and a small office building. It adds up to 75,000 sq ft; yearly rent averages $3.50 per sq ft and about an equal amount was spent on one-time renovation.

◇ Sinclair Community College in Dayton, was able to lease an inventive mix of facilities to tide it over while its new campus was being built. A 1929 YWCA building, a group of renovated mansions, classrooms in two churches, and the office building

57

of a local press were all used at an average rent of $4.50 per sq ft. The major problem was the lack of science facilities.

◇ As a rule, public institutions can acquire surplus military bases for a nominal sum. In Jacksonville, for example, Florida Junior College obtained a group of 98 buildings, which had served as navy barracks, for no charge at all. The college has used the buildings both for initial and temporary space.

◇ Aside from their low cost, military bases as an initial campus have the benefits of having utilities already in place. In Seattle, a former navy barracks barge is used for classrooms, an Ohio community college bought an old army hospital for $1.00, and in New Jersey and Texas whole army bases have been converted into colleges. There are, however, a couple of possible drawbacks. Military bases tend to be located away from urban areas and public transit. Additionally, structures were often not built to last, and maintenance may be costly.

◆ Cooperation

Sharing facilities can be a way of responding to increased financial pressures without loss in quality or diversity of educational programs. It has also proved to be a sound way of actually expanding resources and creating new programs, especially in fields that require costly equipment and specialized facilities, such as the health sciences, earth sciences, and other technically oriented disciplines.

Consortia

Voluntary consortia, mostly private colleges and universities, have grown the most since the early 1960s, when the space and financial crunch first began, but two of the best known began in the late 1920s.

◆ The Claremont University Center was founded in 1927 "to combine the freedom, individuality and intimacies of the

small college with the ampler facilities and equipment which are warranted (and indeed only practical) when considerable numbers of students are brought together." Today, six independent colleges make up Claremont. Space economies include a central library, a computer center, central health facilities, a science building shared by four of the colleges, a central heating plant, a central administration building, and an auditorium.

◆ The Atlanta University Center began as a voluntary consortium two years after Claremont. Also made up of six institutions, it is run by a board of trustees headed by a chancellor. Aside from 10 acres of land owned by the center for joint use, shared facilities include a central library, a chapel, joint administrative offices on one campus, and a joint computer science department on another. Exchanged-classroom use is extensive.

◆ One of the largest consortia is the Worcester Consortium for Higher Education, Inc. at Worcester, Mass. It includes 11 institutions (three public, five private, three church-related), with a total enrollment of some 22,000, plus a dozen or so associate members such as the Worcester Art Museum, the Historical Society, Old Sturbridge Village, and the Worcester Science Center. Aside from a shared computer center and coordinated library book and magazine purchasing (which reduces storage), the consortium is planning a sports center for use by all members and a jointly-run downtown center. The consortium dates from 1969 and its programs have deliberately been allowed to grow piece by piece, rather than under a grand long-range plan. This has lessened fears of the smaller member institutions of becoming tiny cogs in a big university.

◆ Individual members of the Nashville University Center have a history of bilateral arrangements dating back to the 1930s, so the formal founding of the five-member center in 1969 was a logical step. Three of the members (Vanderbilt University, Peabody and Scarritt colleges) had incorporated their libraries in 1936 into what by 1973 was a 1.3 million volume system. The other two members (Fisk University and Meharry College) will now be included. Broad cross-registration among members has served to open up joint use of classrooms and specialized facilities: this has been helped along by

59

a $30,000-a-year shuttle bus service connecting the campuses. Thus, two members have dropped their art history programs (which can now be taken at Vanderbilt). Vanderbilt, in turn, has cut back on its studio art courses, which can be taken at Fisk and Peabody. Other programs, such as psychology, linguistics, and mathematics, will undergo similar consolidation. Shared health services and plant and security management are planned. Vanderbilt has bought a warehouse to serve all five institutions, and Fisk has joined with Meharry to put up a building for basic sciences.

◆ In the Finger Lakes region of New York, four private liberal arts institutions (Alfred University, Cazenovia College, Elmira College, and Hartwick College) share facilities regionally and internationally in two ways. One is shared sponsorship of field stations devoted to environmental studies; the second is operation of a regional graduate center in an area previously without master's level programs. The College Center of the Finger Lakes, as the consortium is called, operates a year-round lab and docking field station on Seneca Lake, at Watkins Glen, N.Y., for courses and research in fresh water and other natural science subjects. By 1972-73, rising use led to building a dorm and adding a second 65-ft vessel. The new priority on environmental studies also led, in 1971-72, to an invitation from the Bahamian government to establish a San Salvador field lab at a former U.S. Navy installation. The international center has labs, dorms, a dining hall, and faculty quarters.

Shared Library Facilities

In 1958 a group of 12 small colleges in the farm belt decided to set up joint programs of enriched work-study and community involvement, as these were clearly beyond the resources of any single member. The Associated Colleges of the Midwest has become one of the pioneers in pooling instructional resources to draw students.

◆ On a larger scale, the Ohio College Library Center serves 50 Ohio colleges and universities, plus several public libraries,

the State Library, and two school systems. Centralized computer-based cataloging has reduced costs and space requirements and allowed them to slow expansion of their libraries through sharing of little-used materials.

Shared Continuing Education and Outreach Facilities

Institutions that seek involvement in the community can look to a pioneering effort in Harrisburg, Pa., where a center for higher education is supported by five members ranging in enrollment from 1,000 to 30,000.

- The University Center at Harrisburg offers a broad series of courses hitherto provided by a disparate series of extension courses formerly given by the members (since Harrisburg had no college of its own). The center occupies seven buildings on a six-acre campus that was bought from HEW for one dollar.

- On Long Island, the Wyandanch College Center was established by four independent and four state colleges to offer freshman level and high school equivalency courses and adult programs. Three out of four students are over 21, and courses are tuition-free to all who qualify.

○ College Housing

Dormitories have caused administrators some of their most troublesome space management problems in recent years. In the "old days" the problem didn't exist because students took it for granted that they would live in dorms, and colleges had close to full occupancy in their residences. Then life-styles changed and students elected to live off campus because they wanted to come and go at whatever hour they chose, and have visitors whenever it suited them. There was also an economic advantage for students to share private apartments or houses and cook or eat in snack bars. Part of the disenchantment with dormitories was caused by the dismalness of double-occupancy

61

rooms stacked in buildings that contained few amenities for social or physical recreation.

Many colleges faced a situation in which rent for residences did not equal mortgage payments for the buildings, so administrators were dipping into their treasuries (or their deficits) to pay for unused space. They looked for ways to bring back students to dormitories, the cheapest being to relax the rules about curfews and visitors. Almost all administrators making changes in campus housing arrangements have sought to find out from the student consumer what his or her needs and expectations are. This in itself is a new attitude for many colleges.

These opinions led colleges to modify existing dorms to provide flexible living space, such as suites or apartments. And, colleges with the funds and needs for new residences built small apartment buildings, some of which look like ski villages. A combination of administrative remedies, increasing costs of living off campus, and changing student mores have led many students back into dorms. The following sections illustrate how some colleges have responded to the dormitory crisis.

Small Living Groups

A key concern focused on the sizes of living groups. This has led to apartments or other arrangements that allow small numbers of students to socialize freely. Most good suite-type arrangements have been designed for groups of three to four or four to eight students. A very popular arrangement is several single bedrooms grouped around a common living area, including a kitchen and bath.

The importance of scale was also recognized. behavioral scientists point out that people do not respond well to large impersonal spaces. This reaction is usually coupled with a concern — conscious or not — for neighborhood or community.

Additionally, there is a need to provide a feeling of warmth. This means warm hues. "soft" surfaces such as carpeting and, in some cases, wall coverings, proper acoustical and thermal control, congenial and flexible lighting, with sufficient electrical outlets, and the means for students to "personalize" their spaces.

○ . Taking a cue from urban planners, Humboldt State University, in California, has provided a variety of living options. First, there are special halls for interest groups. At Hemlock Hall, the theme is communication, and the attitudes are "trust, concern, responsiveness, respect, acceptance, support, and encouragement." The theme of Madrone Hall is "group awareness." Its aim is to make students feel that they are part of a community with which to share ideas and experiences. Alder Hall offers an atmosphere congenial to study without a "library silence."

Other kinds of living facilities reach out to individual preferences. For example, Canyon Halls house 400 students: on each floor 18 students of the same sex form an organized "living group"; facilities such as snack kitchens and laundry rooms are available, and residents have access to sewing machines, typewriters, and stereo, and TV equipment. The commons building for this complex is close by and offers mail, vending, dining, meeting, library, and lounge spaces. Recreation facilities include saunas, games, universal gym, and a color photo darkroom. A different kind of housing is found in Humboldt Villages, which is made of large mobile home units with or without kitchens. To make th. mmunity-living approach work, the housing office has a strong staff and is decentralized in operation. Each complex has its own governing unit.

○ Concern for the community of learning triggered a restructuring of two residence halls at the University of Denver. Johnson-McFarlane Hall became Empirical Hall, with stress on the scientific community. Facilities were modified to fit the students' concern for observation and experiment. A computer terminal was put in, connected to the university's center, and noncredit seminars in computer programing are offered every resident. There is also a darkroom, a horticulture lab, a library with a tape listening system, and a conference-room 'study-room complex. A full-time resident director and six graduate student assistances (one for each discipline) serve as both management and resource people. By the third year of use, 35% more students were returning to the residence — up from 8% in the initial year. There had also emerged a fairly high degree of

63

community and internal cohesiveness. Thereupon a second hall was established for students interested in the arts, philosophy, and English. Extensive remodeling created three centers that provide a wide variety of tools for expression, inquiry, and research. Facilities include a closed-circuit radio station, a small theatre, dance and art studios, music practice rooms, a library, a listening center, and a darkroom. Both halls focus on developing a community spirit, within and across disciplines. Residents' enthusiasm for the project is high, the number of upperclassmen in the halls has doubled, and residents' grade-point averages are higher than other students'.

○ In 1971, American University decided to do something about its "shelter-cum-economy" high-rise dormitories. Even the furniture had been selected for reasons of economy — it was built-in because then its cost could be incorporated into the low-interest capital loan. Aided by a grant from the Kresge Foundation and a loan from HUD, the University sought to redesign a typical floor. I.I.I. provided funds for student participation in the planning. "Monotonous," "sterile," "impersonal," "cold," turned out to be the students' image of living conditions. But when a theme responding to their complaints was sought a sense of community quickly surfaced. How many students could live on a floor harmoniously? The cutoff point was thought to be 55 to 60. Combining double rooms and suites for four or eight students provided opportunity to develop closer relationships for those who wanted them. Other changes included soundproof rooms (replacing some of the trunk rooms) and quiet lounges, in lieu of the closet-like study rooms. A complete kitchen and eating area was developed by combining space which had been allocated for a small study room. It is large enough so that the study space can be used for watching TV, listening to music, and reading. A student committee selected the furnishings. They have much variety but are all movable — even the wardrobe closets, which can serve as room dividers.

○ A badly placed entrance was one of several factors leading to major renovation of a 1918 residence at Bowie State College, Md. The main building entrance was approached from

a service road and did not relate the building to the common campus formed by the other buildings. Additionally, the heating system was faulty, bedrooms were small and overcrowded, and bathrooms were insufficient. And residents could get no sense of "territory." Eventually, students responded with a boycott. As a result, the interior was gutted and rebuilt. Suites were arranged, each consisting of 10 rooms, a bath for each cluster and a small lounge between suites. The building now has a "personal scale" — small flights of stairs, short corridors, intimate room sizes. Corridors are painted in warm tones, and attractive lighting fixtures are hung next to individual door entrances. And the main entrance was moved to face the other buildings.

○ The University of Washington, faced with the question of how to use space that was designed for students with different cultural backgrounds, life-styles, and values than those of its current student body, hired a research firm to survey students' reactions to the resident halls. The study found that most occupants were from outside the Seattle area and possessed little knowledge of alternate accommodations. This made it convenient to select housing sanctioned by the university. Important concerns were proximity to classes and campus facilities and the potential for social contacts. A key reason for satisfaction with residence halls was cost, others were cleanliness (including good custodial services), nonrestrictive rules and regulations, an effective security system, a co-ed visiting program, and freedom from meal preparation and other chores. A chief irritant was noise; others were rigidity in meal selection and eating hours, cramped quarters, a lack of privacy, and high costs. The study developed a profile of the student most likely to move into a residence hall. "A male, upper division or graduate student, who shares an apartment, has lived in his present quarters for a fairly brief period and pays approximately $975 per year for room and board."

Using the survey results, 16 improvements were pretested for effect on the acceptance of residence halls. The five that proved most appealing were: optional meal purchase plan (73%); suite with living room, kitchen, bath (72%); wall-to-wall

65

carpeting (70%); more social, recreational, cultural events (69%); freedom to decorate rooms (63%).

Then, using the information from the opinion survey, the housing staff began an extensive advertising campaign stressing the assets of campus living. Investment was low since costs could be made up easily if even a few students were reached. In addition, the public relations spinoff was extremely valuable: students looked forward to reading the ads, and they commented on them, developing strong rapport with the housing office. In the meantime changes in the dorms were made as necessary. The entire program stresses assets while dealing with defects and is drawing students into the whole process. At the beginning of 1974, the halls had 99% occupancy.

Alternative Use of Campus Housing

Despite the best efforts of a college administration, there can be times when there is no chance of filling a dormitory — the outside attractions are too strong, or the enrollment drops. What does a college do with its empty building? The obvious solution is to convert it to another use. Several colleges have shown ingenuity and sound business sense in funding renovations that have enabled them to use the building for another college activity or generate income from tenants.

O Michigan State University had a new college of human medicine and osteopathic medicine for which the legislature had agreed to fund operations but no major capital expenditures. So it was installed in one wing of a 1,200-bed dormitory complex. For $2.4 million in renovation money, the new school obtained offices, labs, storage, and central airconditioning.

O Mankato State College, in Minnesota, converted empty dorm space into a college health center, a day care center, and a center for the mentally retarded.

O Even brand new campuses can find conversion useful. The State University of New York at Buffalo is changing the first three floors or one recently completed dorm at the Amherst campus into a health sciences library; the other nine stories will be remodeled for academic use.

○ Just after building 1,000 new dorm spaces, the University of Alabama found its enrollment was leveling off, and it was losing large sums on dormitories and food service. Four actions were taken to find new uses for the dorm space: an entire dorm was leased to The State Mental Health Board from 1971 to 1973; day care centers and offices, funded under contract by the Appalachian Regional Commission and HEW, were introduced in three dorms; one tower dorm became a conference center, used by the university for outside groups and for its continuing education courses; and part of a dormitory became faculty and administrative offices at a cost of $1 per sq ft.

● Generating Revenue from College Facilities

Sound space management often includes letting other people use — and pay for the privilege of using — empty or underutilized facilities. A dozen years ago, when college administrators were struggling to find space for each body and program, this was rarely necessary on the campuses. Now, with dropping or changing enrollments innovative institutions are finding many different takers for varieties of existing space. There's often a bonus of improved community relations or publicity, too. All of the following examples have been condensed from E.R.I.'s 1974 publication, *Generating Revenue from College Facilities.*

Renting Facilities

An increasing number of colleges are supplementing their incomes by charging modest fees for the use of theatres, conference rooms, athletic facilities, and other spaces.

● Westbrook College, in Portland, Me., rents classrooms, auditoriums, theatres, and domitories to community groups and professional organizations. The Portland medical center often rents space for two or three-day training programs. Since standard per diem charges are established for each facility, local organizations can estimate their costs ahead of time.

● At La Verne College, in California, hourly rates have been established for renting space and recreation equipment in the new student activities center, two tent-like buildings that resemble a circus "big top." From the rent income, LaVerne expects to net between $20,000 to $40,000 during the 1974-75 academic year and an equal amount during the summer months. In addition to rentals, the college also sells membership privileges in the center's facilities and operates a free recreation program for neighborhood youngsters two afternoons a week.

New Users at the Student Union

Income, better community relations, and a growing understanding of what an institution has to offer can all be generated by opening campus facilities to nonstudents.

● At the University of Wisconsin, in Milwaukee, the student union sells memberships to townspeople, alumni, and senior citizens. For a modest yearly fee, members are allowed to use the cafeteria, bookstore, and all recreation facilities.

● New Orleans' Tulane University keeps its student center filled during the summer by running a day camp program for local teenagers. Except for a brief intermission, Tulane's program has operated continuously since 1952, and there are now about 120 teenagers supervised by a director, eight counselors, and two instructors. Enrollment fees supplement allocations for furnishings and equipment and also pay salaries for staff and college students who need work during the summer.

Meanwhile, Back at the Dorms

As already mentioned empty dormitories are rather easily converted to other purposes, and there is a brisk market in leasing them for education-related purposes.

● The University of Oklahoma, in Norman, leased an entire 12-story dormitory and parts of other buildings, to the U.S. Postal Service for an in-service training school, called the Technical Center. More than 400 postal employees live in former student dorm rooms and use the lower floors for classes and a cafeteria. Under its three-year lease, the Postal Service paid

for renovations. The university uses the income to amortize the debt on new facilities and to maintain its own housing complex.

- Mankato State College rents an unused dormitory to a private nonprofit corporation for the retarded for $3,300 a month. Now called the Meyering Center for the Retarded, the dormitory, including lounge and food facilities, is a group home for 40 to 50 adults. According to Meyering officials, there are some unique advantages in an on-campus group home: residents often attend campus activities, and college students are an inexhaustible source of volunteers. Another advantage is that the dorm lies within 15 minutes of downtown Mankato.

Football Financing

Sports facilities are a lucrative source of income. Colleges and universities rent stadiums and coliseums to all comers, from professional football teams to rock concert producers. The universities of Michigan, South Carolina, and New Mexico all have joint-use arrangements with various service agencies in their home cities. In fact, the high revenue colleges can expect from renting sports facilities is frequently used to justify huge capital investments in stadiums and coliseums.

- During the 1972-73 school year, Hofstra University, N.Y., netted $120,000 from rentals on its stadium and gymnasium.

- The University of Pennsylvania built four airconditioned indoor tennis courts in a new facility that is available for rental to students, faculty, and the community. The local commercial rate for indoor tennis is $12 to $13 per court hour. Rather than compete with private enterprise, the university turned its new courts into a learning laboratory by offering a variety of tennis courses and clinics for the community. The university also rents its four courts for $3 per hour to students and $5 per hour to faculty. The university reports a $90,000 gross in the first year.

Summer Camps and Conferences

Although they receive no profits, many colleges and universities do reap financial benefits from extensive summer camp and

69

conference programs. Ranging from football and basketball to music and tennis, these camps fill up empty college dormitories and employ idle personnel during the slack summer season. And empty college buildings are, of course, ideal for conferences and usually less expensive than comparable commercial facilities.

- In North Carolina, a pair of small Presbyterian colleges, Davidson and St. Andrews, are noted for their extensive summer camp programs. Davidson's success in basketball fathered a bustling basketball camp program for neighboring high school teams.

- St. Andrews concentrates on football and music. It benefits from a North Carolina state regulation that allows a maximum 14 days of preseason training for high school football teams. To make the most of this short period, school districts try to run concentrated two-week training seasons at out-of-town camps. Although the college has no football program, its recreation facilities are ideal for such high school camps. Last summer, St. Andrews ran 16 music and football camps and thus kept its dormitories filled, its recreation staff employed, and its operating costs down.

- Westbrook College, in Portland, Maine, opened a new conference and convention service in 1974, which provides room, board, and a happy hour for $15 per day per person. In addition, the college will plan meetings, arrange schedules, print materials, and organize social and leisure activities. Conventioneers stay in college dormitories, use campus facilities, and while away their idle hours in city recreation facilities.

Vacation Package Plans

The vacation package plan is a new revenue producing program whereby empty dorms and campus facilities are rented to tourists seeking summertime bargains. An increasing number of colleges and universities are going into the vacation business, with over 145 colleges in the U.S. and Canada now offering summer vacation plans.

- In 1974, for $3.50 a day, anyone could stay in a dormitory at California State University in Long Beach. For $10 more a

70

vacationer could loll on the Biscayne College campus in Miami. There is even a guide to these facilities. *Mort's Guide to Low-Cost Vacations and Lodging on College Campuses,* $4.50, Mort's Guide, CMG Publications. Inc., Box 630. Princeton, N.J. 08540.

● The Lock Haven State College in Pennsylvania's scenic Allegheny Mountains has a vacation package plan for groups. Families rent space in the dorms, and the college provides tennis courts, swimming pools, and golf courses. Vacationers can also visit nearby state parks and take in the summer theatre presentations. Part of the plan includes a package of family-oriented services featuring an educational program for all age groups.

Property for Profit

To generate a continuous annual income, many administrators are seeking methods of leasing on-campus land and facilities to private enterprise. Colleges as varied as the University of Denver and Brookdale Community College, in New Jersey, are studying the architectural, legal, and financial feasibility of mixing commercial offices and stores into plans for new campus facilities. Admittedly, there are legal and financial difficulties in planning mixed use of commercial and nonprofit property. Nevertheless, a few colleges have developed viable methods.

● Millsaps College, in Jackson. Miss., financed and built a complete Holiday Inn on a remote corner of the campus, then leased it back to the Holiday Inn Corporation. Both college and the hotel corporation must renew the agreement every two years. The motel is just the first facility in an overall plan to develop one part of the campus into a college, city, and community convention center. At this time. Millsaps is seeking additional tenants for this area. and a nonprofit corporation, whose board is composed of the college trustees plus two outsiders, has been organized to promote the development.

● The University of Pennsylvania. in Philadelphia, filled a growing need for access to commercial services by becoming a nonprofit developer of temporary commercial loft space on

campus property. The university constructed these facilities and leased them at low cost to various shopkeepers. The new commercial establishments are tax-generating even though they are on tax-exempt. university-owned ground. (The zoning board considers them auxiliary users of the institutional district while the university acts as nonprofit landlord.) The capital costs for the buildings were covered by the university but are amortized by the rental fees, which are calculated per square foot, with taxes and administrative costs added. If the university could charge higher rentals. it would make a profit but current legal interpretation of its nonprofit status prevents this. In the end. however, the university intends to come out with good loft space capable of being converted for university use.

The University as Developer

Before revenue sharing changed urban renewal, many American universities acted as a city's nonprofit agency for acquiring low-cost buildings and services. Today a city does not need a nonprofit fiscal agent in order to receive revenue-sharing funds. Therefore, some universities are using their own urban renewal expertise for developing their own property to generate extra revenue.

- George Washington University has constructed two office buildings for lease to commercial organizations. The sites are in an area that is zoned for commercial use and is now too valuable to be used for educational purposes. The income from the buildings will pay off mortgage and construction loans within 30 years, it will also make $60 million for an endowment for the university. In the far future. the facilities can revert to educational uses.

- In San Francisco. the Hastings College of Law intends to construct a community-legal complex that will include office and commercial space. academic buildings. parks. low-cost housing. and a professional building. The project will cost $50 million – $25 million has been pledged by private investors, another $7 million is available through state property funds. and the remaining $18 million will come from gifts and grants.

solicited from community foundations and government organizations. Hastings will purchase the land, and private enterprise will put up all the buildings. The college will receive the academic building free but will not receive any income from leases on the other buildings. Alternatively, the college has the option of financing construction of its own academic building and lease the remaining land for income.

- North Carolina's Campbell College parlayed 200 acres of unused college land into a resort golf and country club surrounded by a residential development. The college started selling lots in February, 1974, to finance construction of the golf course. Campbell expects the income from sales to equal the cost of the golf course and country club. After residential development is complete, the college expects to collect membership fees from the club, and to see the value of its remaining land holdings to rise tenfold.

73

Summary

In this period of retrenchment and depression, your institution is not too likely to be embarking on a new building program. It may be anticipating no expansion, no change in its mission, no drastic reorganization. Still, this will not mean a moratorium on the problems of physical planning.

More than ever, it will behoove you to make every square foot of your building space yield maximum benefits and to use every asset of your campus in the most effective way possible. Moreover, you will continue to be responsible for protecting the quality of your physical environment. You will have to meet building needs that have been held in abeyance. You will have to avoid skimping on maintenance when it may prove costly in the long run. And you will have to make it possible for your plant to respond to changing conditions.

The times being what they are, it will take agile fiscal footwork to meet these responsibilities. You will want to view new construction as a solution of the last resort. Hard-to-come-by dollars are better spent on people, programs, and services than on buildings. You may want to look, therefore, to the redevelopment of existing facilities. Or to the recycling of old structures to endow them with useful new life. You will want to look to long-run planning strategies, not the nearest expedient, to save money in the end. And if, upon hard examination of all the facts, you find there is no choice but to build new, you will do so with fuller knowledge of the approaches that offer bargains along with quality, so you can buy more with less.

Finally, keep in mind the historic perspective higher education in the United States has thrived on adversity. Early pioneers fostered institutions in the most unlikely places. Civil War and significant foreign immigration — English was not the common tongue for millions in 19th-century America — did not stifle the growth of colleges and universities. Industrialization, urbanization, high technology were accommodated Once again situations confront change. Those prepared to challenge and respond, in ways unique to their own situation, will survive. Those colleges and universities that can't or won't will disappear, as have many in the 300 years now passed.

74

Reports from EFL

The following reports are available from EFL at 850 Third Avenue, New York, N.Y. 10022

Career Education Facilities A programming guide for shared facilities that make one set of spaces or equipment serve several purposes. (1973) $2.00

Community School Sharing the Space and the Action How schools share facilities with other public agencies to provide improved social services. The book discusses financing, planning, building, staffing, and operating community/schools. (1973) $4.00

The Economy of Energy Conservation in Educational Facilities Recommendations for reducing energy consumption in existing buildings, remodeled projects, and future buildings. Explains the importance of including long-term operating costs and evaluating capital costs of electrical and mechanical systems. (1973) $2.00

Fewer Pupils/Surplus Space Looks at the phenomenon of shrinking enrollments, its extent, its possible duration, and some of the strategies being developed to cope with unused school space. (1974) $4.00

Five Open Plan High Schools Text, plans, and pictures explain how five secondary schools operate open curriculums in open spaces. (1973) $3.00

Generating Revenue from College Facilities Strategies used by institutions of higher education to produce income from their land and buildings. (1974) Single copies free, multiple copies 50 cents each.

The Greening of the High School Reports on a conference on how to make secondary school healthy. Includes the life-styles of adolescents and ways to accommodate them, open curriculums, and alternative education programs. (1973) $2.00

High School, The Process and the Place A "how to feel about it" as well as a "how to do it" book about planning, design, environmental management, and the behavioral and social influences of school space. (1972) $3.00

Learning About the Built Environment A sourcebook of guides and resources for teachers, and mini-courses, activities, programs, games, simulations and films for students. Available from the National Association of Elementary School Principals, 1801 North Moore Street, Arlington, Virginia 22209. (1975) $3.00

75

One Out of Ten: School Planning for the Handicapped Implications of the new laws for the handicapped, and alternative methods of educating handicapped children in public schools. (1974) Single copies free, multiple copies 50 cents each.

Physical Recreation Facilities Illustrated survey of places providing good facilities for physical recreation in schools and colleges—air shelters, roofing existing stadiums, shared facilities and conversions. (1973) $3.00

The Place of the Arts in New Towns Reports the experiences of arts in new towns and established communities. Gives insights and models for the support and planning of programs and facilities for arts in new towns. (1973) $3.00

Places and Things for Experimental Schools Reviews every technique known to EFL for improving the quality of school buildings and equipment. Found space, furniture, community use, reach out schools, etc. Lists hundreds of sources. (1972) $2.00

Reusing Railroad Stations Advocates combining commercial and public use of discarded railroad stations to preserve part of our heritage, keep urban centers alive, and provide facilities (including educational) for public services. (1974) $4.00

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