

Stony Brook Review

A MONTHLY PUBLICATION OF THE STATE UNIVERSITY OF NEW YORK AT STONY BROOK / OCTOBER 1970

"While students are organizing to reach out to the community, local governments with problems are being invited to bring them to the campus.

"The State University of New York at Stony Brook is preparing to initiate a program in urban science and engineering that will enable local government officials to make use of the university's greatest resource, the insights of its faculty and students. This

fall the school will invite local governments to submit their problems for study by its departments of engineering, economic and political, marine and health sciences. The program will enable Long Island communities to apply fresh thinking to old problems. It has the potential of making an enormous contribution to better government and better living on Long Island."

Newsday

NEW INTERDISCIPLINARY PROGRAM

TO ATTACK PROBLEMS OF

THE CITY

"The federal government must provide more and better information concerning urban affairs, and should sponsor extensive research into urban problems." — Daniel Patrick Moynihan, counselor to President Nixon

training a new breed of professional: the public sector technologist.

Using operations research techniques faculty members in the program at Stony Brook are now investigating solid waste sources and disposal, fire protection, possible new tax bases for the center city and surrounding suburbs, and the efficient processing of patients at state mental hospitals. Future research areas in the program may include pollution, police protection and noise abatement.

Care however will be taken to avoid the pitfall of "an engineering solution to a political problem" such as those encountered in the past when public transportation innovations failed because people would not forsake the convenience of their private cars. The new professional will be trained to take account of "the organizational and social constraints operating in the urban environment" in his systems approach to municipal problems.

The first class of 20 students—most of them having bachelors degrees in engineering, economics or the physical sciences—will begin their studies this fall with courses in the quantitative methods of applied analysis and in economics, political science and sociology. Case studies, field research, and a summer internship with governmental agencies, consulting firms or non-profit organizations, in addition to class studies, will ground the public sector technologist in the realities of his trade. At the end of two years he should be a new professional armed with the tools of science and a sensitivity toward human aspirations. □

In early July, the National Science Foundation awarded \$503,000 to Stony Brook for a new interdisciplinary masters program in Urban Science and Engineering which will go far toward implementing the federal government's commitment.

Carnegie Mellon and Stanford Universities are the only other schools with similar programs. "In another year, ten more programs will begin all over the country," Dr. Robert Nathans, program director at Stony Brook, said.

Last fall Dr. Nathans, in collaboration with two other Stony Brook professors, Dr. Edward Ames, chairman of the economics department, and Dr. Edward Beltrami of the applied analysis department in the College of Engineering, developed the proposal for NSF funding with the help of a \$60,000 grant from the IBM Corporation. Scientists from the New York City Rand Institute also cooperated on the project.

The program focuses the energies of the traditional academic disciplines of engineering, economics, political science and sociology on research projects relating to the technologically based problems of the cities and metropolitan areas. It does this while

Violence

Slum

I'm Black

This collection reads like a murder narrative of attempted murder...

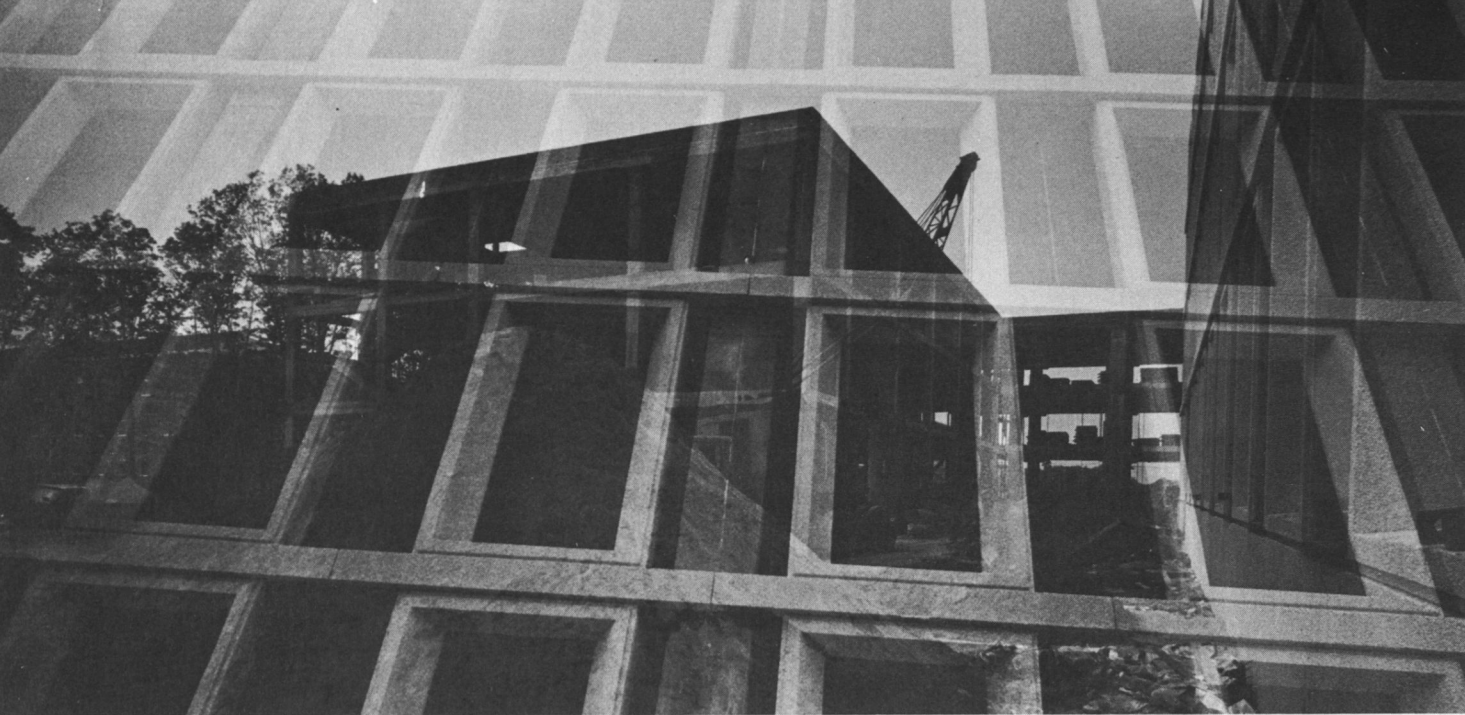
Unemployment is up 43 per cent from last year...

The federal government must provide more and better information concerning urban affairs...

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PROMISE AND PROGRESS The facade of a completed building superimposed on the construction site of an uncompleted one symbolizes the improvement amidst inconvenience that characterizes the Stony Brook campus this semester.

Though campus pedestrians and parking-space hunters may not realize it, there is finally light at the end of the utility tunnels and a silver lining to Stony Brook's dust clouds.

The surge buildings are in use. The Health Sciences Center is on its way. The quadrupling of the library building has begun. And the mammoth permanent homes for biology, chemistry, fine arts, math, physics and social sciences are in various stages of transition from blueprint to reality.

In short—while it may not yet be painlessly obvious — Stony Brook's \$500 million construction program is moving toward completion.

"We can finally see the main spaces being filled in," said Facilities Planning Director Charles Wagner as he gestured toward a four-foot-wide map of the campus. "There are still a number of projects in the programming and planning stages, which means they don't have architects, approximate schedules or money. Nevertheless, the master plan is clearly moving toward reality. We'll reach the point this year of getting at least to contracts on most of the major projects that will give the campus its main contours well into the future."

Essential in the transition toward that future was the construction, on the south campus, of the 11 one-story surge buildings: permanent structures with interiors that are easily re-adaptable for a variety of temporary tenants.

The buildings — named after the surging growth characterizing institutions where the concept is used—will provide 200,000 net square feet, space available for instruction-related activities.

The first six buildings were occupied this fall by the new health sciences schools of nursing, social welfare and allied health professions. The other five buildings are to be occupied

by the end of the calendar year. The built-in flexibility makes the space adaptable to the extensive lab needs of the physical sciences or for the simpler needs of the humanities.

The flexibility is achieved by putting office space and fixed facilities like bathrooms around the buildings' perimeters while keeping at least 66% of the center-core area fully adaptable for any combination of lab and classroom needs.

The trick is that most facilities—including lab equipment, light fixtures and almost anything else used by a tenant department—are planned to meet a structural common denominator called a module, which in the surge buildings is five feet. That means that, anywhere within the core, partitioning may be snapped into place at five-foot intervals of length or width, and that lab tables and equipment are easily redeployed to new space which is some multiple of those modules. Another aid to flexibility is having electricity and all other utilities come through the ceiling, thus keeping the walls free of light switches or other fixtures that would hinder rearrangement of space.

In addition to the buildings' flexibility, their simple, rectangular shapes, their relatively low cost (\$19 million, including lab equipment for 11 buildings), and their speedy construction (work began only nine months ago), the surge complex has managed to achieve attractiveness as well as efficiency.

All buildings are air conditioned. The uniform asphalt floors and acoustic-board ceilings have a bright new look. The partitions, which can change the core's configuration in minutes, are painted to resemble walls even though they can be snapped in and out of place effortlessly.

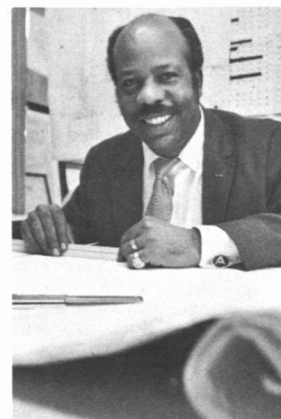
Externally, too, the surge complex has been handled with care. To pre-

serve the wooded surroundings, only 12 of 31 acres were cleared. A one-way reflective glass, which has the practical function of reflecting the sun's heat to make the air conditioning more efficient, soothes passers-by with reflected sylvan images.

Wagner says the surge site also reflects the planners' interest in preserving Stony Brook's natural environment. Some \$20,000 worth of dogwoods and other flowering trees were rescued from other campus construction sites, including the library and physics-math buildings, and are being replanted around the surge buildings.

Perhaps the most obtrusive of campus construction sites this fall is that surrounding the library. It is one of the most complex projects because business as usual must continue at the main library while it is being fully surrounded and absorbed. But the \$18 million project, with all the attendant inconveniences, is also one of Stony Brook's most important undertakings.

Its completion, in August of 1972, will give the University a main library commensurate with its overall growth, one that will be about quadrupled both in area (to be increased by 253,000 net square feet) and volume



"INSTANT BUILDINGS" Wesley A. Brown, left, has reason to be happy. As coordinator for Surge construction, he saw the terrain shown above in February transformed into finished buildings, right, for classrooms and offices — in just six months.

The Dust Clouds Have Silver Linings

24,000 net square feet costing \$2.1 million, will serve all departments with modern electronic teaching aids as well as providing television and film-making facilities.

Just east of the physics building, preliminary work is beginning on the new chemistry building which will provide 170,000 net square feet at an estimated cost of \$20.5 million.

The biology building, with 211,000 net square feet and a price tag of \$19.8 million, is due in August of 1973. It will be located at the southeast corner of the core campus to facilitate close cooperation with the Health Sciences Center being built across Nicolls Road.

The Health Sciences Center will include some 1.4 million net square feet in its 16 levels and cost at least \$200 million. The Center's six schools will begin classes in their permanent home in the 1973-74 academic year.

Three further core-campus projects which are not yet underway but which do have tentative schedules and available funding are:

—The fine arts building to serve the theater, music and art departments with individual and shared facilities. Work on this \$15 million building, with 137,000 net square feet, should begin next year southeast of the Stony Brook Union.

—The social sciences building, to cost \$13 million and provide 169,000 net square feet of space. Due to be started in the spring of 1972, it will be located on the east core campus, near the humanities building and the lecture center. Because of a linear approach — with several contractors proceeding from the same point rather than waiting for a detailed blueprint to go from architect to contractor and then to subcontractors — it is hoped that the building may be ready for the fall of 1972.



—Light engineering addition to cost \$7 million. On the southwest core campus, joined to the main light engineering building, this project will add 71,000 net square feet of badly needed engineering space.

In addition to instructional facilities, two residence hall projects will add on-campus living space for 2000 students.

The first of these is the Stage XII dormitories, part of which is already occupied with the rest due by Christmas. Located across the loop road from the west end of the core campus, Stage XII is being completed at a cost of \$7 million.

The Stage XV dorms, on which bids are due this fall, will be in the same area. This \$9 million facility, housing 1000 students, will be an innovative town-house or row-house arrangement, with each house containing six double rooms on each of two floors.

Another major change this fall was the completion of the 2000-car parking lot at Stony Brook Road and the start of regular shuttle-bus service to and from campus. This change was effected partly to achieve the long-run goal of fully eliminating cars from the core campus and partly because the numerous contractors—chary of levelling too many trees for their access, egress and parking—have had to take over space in center campus, including some near the gym and the library.

Other groundwork for the near future includes a \$1 million project, at the campus' north end, to rehabilitate existing athletic fields and add some facilities such as baseball diamonds.

To better serve all the existing and anticipated building needs, the University has also started a meandering, underground concrete utility tunnel, which will give workmen easy access to gas and utility pipes that are now, at times, buried deep underground. Also planned is a new electric substation, a heating-plant addition for conversion from steam to high-temperature hot-water heating, and a central chilled-water plant for supplying the individual building air conditioning systems.

As a result of the varied projects, one can see, hear or touch some construction site from almost any point on campus. Underway or scheduled are projects costing \$350 million which collectively will expand university facilities by 4.5 million gross square feet, and stabilize the face of the campus for years to come. □

University Helps Boost Long Island Economy

Stony Brook's basic purpose is to provide educational services — primarily to Long Island, which runs the gamut from urban to rural along its 125-mile length, and Long Islanders, who now outnumber the people of 25 states. But as the University has developed in value as an educational resource for Long Island, it has also become a significant financial asset to the area.

Though less than a decade has passed since groundbreaking for the campus, it now seems to rank as one of the chief contributors to the Long Island economy.

A recent comprehensive check on the university's economic impact confirms an undeniably massive influence on the surrounding area. During the 1969-70 fiscal year, Stony Brook's direct—and readily traceable indirect — impact began in the immediate Three Village area and rippled through Suffolk and Nassau counties to the tune of more than \$50 million.

The actual scope of such monetary impact may have been greater than this since exact figures are difficult to come by and quite conservative estimates were used. The data were reported to the State University Chancellor's Office in Albany as part of an overall review of the State University system's economic impact.

The report indicated that funds totalling about \$150 million were budgeted by the various constituencies of the University during 1969-70. This amount included state appropriated dollars in the campus budget; funds authorized for capital construction on campus by the State University Construction Fund and Dormitory Authority; state, federal and private research grants; Faculty-Student As-

sociation funds; student activity fees; monies; and other funding. These dollar amounts far exceeded actual expenditures, mainly because much of the \$113.6 million authorized for construction during the year funded projects that were just beginning and did not yet require major outlays. However, the overall dollar figures do indicate the magnitude of Stony Brook's economic impact during 1969-70. The figures, for example, reflect employment of some 4100 people making Stony Brook one of Long Island's largest employers. Most of these people, 2764, were directly employed through the state-appropriated campus budget. This state-funded employment generated the additional jobs through supporting agencies on campus such as the food service, Research Foundation and Faculty-Student Association.

Payroll allocations in Stony Brook's 1969-70 state budget appropriation amounted to \$19,000,000. Since about 93% of the university's employees are Long Island residents, the Long Island payroll totaled about \$17.6 million, with related campus payrolls raising that figure to more than \$22 million. The mean income for all campus employees was \$8500, about \$2000 above the mean for Long Island as a whole.

Thirteen major construction projects were underway on the campus during 1969-70, involving \$34,375,000. From 50-55% of this money represented labor costs with most of the labor force coming from Long Island. Additional amounts ranging from 15-31%, in most cases, were spent on Long Island for construction materials, resulting in total Long Island expenditures estimated at \$16,380,000.

The most graphic instances of monetary input were noted in the

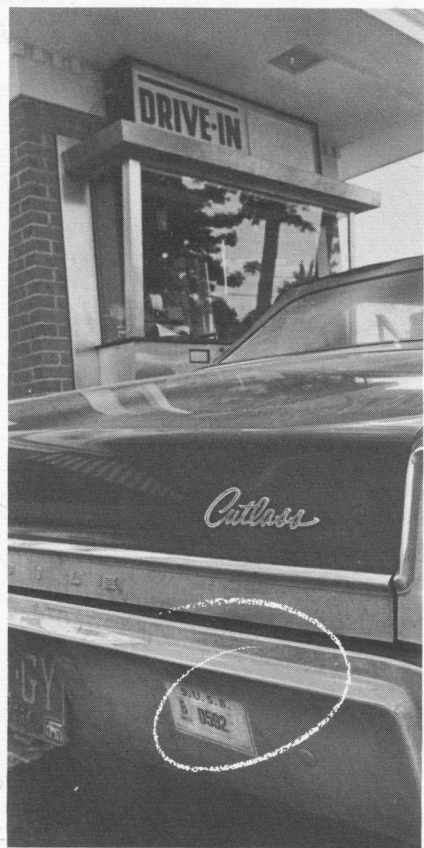
Expenses

food (student food service)	\$2,200,000
electricity	500,000
telephone	450,000
fuel oil	200,000
garbage removal	72,000
water	40,000
window washing	23,000
carpet and drapery cleaning	10,000

YOU THINK YOU HAVE BILLS TO PAY This list approximates a few of the expenses of the University during the 1969-70 fiscal year — and indicates some of the money which the University regularly pumps into the Long Island economy.

university's expenditures for supplies, equipment and services during the year. Of a \$9.7 million state budget allocation in this area, a minimum of \$3.8 million is estimated to have gone directly into the Long Island economy. Included here was a \$1.5 million slice of the university's \$2.2 million food service contract for the year. Nearly \$500,000 of this involved food purchased on Long Island with the remainder covering food service salary, wage, supply and maintenance expenditures. Stony Brook's electric bill for the year was about \$500,000, all of it money injected directly into the Long Island economy. The same was true of the \$450,000 telephone bill for the campus. A Long Island computing services contract amounted to another \$500,000. A garbage removal contract with a Long Island firm added another \$72,000. Other service contracts on Long Island, ranging from a window washing contract to one for bus service, added \$390,000.

Stony Brook makes large and small purchases within the local region whenever possible. As a result, a half-dozen staff members in the campus purchasing office spent most of their time during the year on the telephone placing



BOOSTING THE LOCAL ECONOMY is the paycheck of this university depositor at a nearby bank. Payroll allocations in Stony Brook's 1969-70 state budget appropriation amounted to about \$19 million.

supply and equipment orders with area businessmen.

Indirect expenditures appear to have a major effect upon the area economy. The financial aid office estimates that the minimal amount Stony Brook's 8800 students spend in the area during 1969-70 for miscellaneous living and entertainment costs was nearly \$10 million. Automobiles driven by students, faculty and staff members accounted for another major Long Island economic input factor. Estimates by the university's parking office indicate that, even in the most conservative terms, this impact exceeded \$500,000.

If each driver averaged 10,000 miles, doing half of that driving on Long Island and getting as much as 20 miles to the gallon, Long Island service stations received well over \$500,000 for gasoline alone. Tires, oil, lubrication costs and general repairs inevitably added to the total.

A similar hidden impact factor involved campus visitors. About 50,000 persons visited the campus during the year, including library users, conference attendees, prospective students and their parents, parents of current students, salesmen, and people attending concerts, lectures and other public events. Conservative estimates of expenditures by these visitors amounted to a minimum of \$280,000 during the year.

The university's economic impact—in the broadest sense of that term—goes far beyond such monetary terms. Of greatest importance, the study emphasized, is the intangible impact derived from its educational, scientific and cultural resources. The impact upon the entire region of Marine Sciences Center research on water pollution control cannot be measured. Nor can the impact of services offered for specific community groups such as teachers and businessmen by the Technical Assistance Office, Center for Continuing Education and other offices. But the benefits of such programs loom large nevertheless, as does the university's general potential to attract knowledge-oriented industry to the area.

President Toll's observations on the university's economic impact a year ago apply in greater measure to the expanded impact figures this year. "Monetary impact is by no means the university's major local effect," he said, "for that comes from the contributions of its graduates, the research discoveries of its faculty and students, and its general service and cultural involvement with its own neighborhood." □

Disadvantaged Youths Learn & Earn on Campus

Sterling Bailey of Port Jefferson is 23 and black. He served in Vietnam prior to being discharged from the Army this spring with no marketable skills except that of playing the saxophone. "I thought about staying in music," he said, "but it looked too unstable. The fact is I didn't know where I was going."

In June Bailey was hired as a trainee technician in the physics department's Nuclear Structure Laboratory at Stony Brook and now has the chance to become a highly skilled general technician or a specialist, for example, in vacuum technology, mechanics or electronics.

Lois Richards of Port Jefferson Station is 16 and white. She was looking for a job as a store clerk for the summer months when she was accepted for Project Catalyst, a program for disadvantaged high school students, in the department of chemistry at the university.

Sponsored by the American Chemical Society, Project Catalyst allowed her a \$500 stipend and the chance to do ten weeks' advanced research with Dr. Frank W. Fowler and three graduate students examining the behavior of unusual molecules.

She has now returned to her senior year at Kennedy High School in Port Jefferson Station with a sophisticated understanding of organic chemistry and a conviction that she will begin a college career next fall.

While both programs launched in June are admittedly small first steps toward the formidable goal of equal opportunity, they nevertheless reflect a conscious effort by the University to meet this challenge and the special

role science departments can play in this crucial area of social change.

The physics traineeship is the first under the technical-training plan of Stony Brook's Equal Employment Opportunity Program. The plan is already slated for expansion into other science departments. Project Catalyst is in its second year and an example of how private foundations and universities can work together for human betterment.

Though he had an amateur's familiarity with electricity, Bailey had never taken a physics course. Now, besides formal study, he participates daily in the sophisticated operations of the Van de Graaff Atomic-Particle Accelerator, which is for nuclear research.

Gene Schultz, the nuclear lab's chief engineer, says it's too soon in the 12-to-24 month training program for detailed conclusions about where it will lead. "But," he adds, "we do have an ideal situation here: we deal with such a wide variety of things that, with time, we'll be able to lean heavily on what his interests turn out to be."

Dr. F. T. Bonner, chairman of the chemistry department, noted that Project Catalyst was aimed at inspiring promising but disadvantaged high-school students to pursue higher education and careers in chemistry. □

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