1967-68
Report of the President
Clemson University

75th ANNIVERSARY EDITION
The Annual Report is presented to the Trustees of Clemson University by President Robert C. Edwards for the year July 1, 1967 to June 30, 1968, and transmitted by Senator Edgar A. Brown, President, Board of Trustees, to The Honorable Robert E. McNair, Governor, State of South Carolina. Supplementary to this report are The Clemson University Catalogue, The Graduate School Bulletin, The Report of the Agricultural Extension Service and The Report of the Agricultural Experiment Station for the year.
"...a seminary of learning in which the graduate ... can commence, pursue and finish the course of studies terminating in thorough, theoretic and practical instruction...

I trust I do not exaggerate the importance of such an institution for developing the material resources of the State."

THOMAS GREEN CLEMSON
Dedicated Pledge

Clemson University, entering its fourth quarter-century of service to South Carolina and the nation, marches steadily forward on the course charted for it by Thomas Green Clemson.

Times were hard when the first classes met in Tillman Hall on July 7, 1893. Times were good in 1968 when Clemson University passed its seventy-fifth birthday.

The Clemson Agricultural College of South Carolina was small in 1893, with 446 students and a faculty of 15. Clemson University was large and growing in 1968, with 6,842 students and a faculty of more than 500 teaching in eight diverse colleges and schools.

Science and technology were basic and relatively simple in 1893. Science and technology are incredibly complex and swiftly changing as 1968 moves into 1969.

Yet, for all their differences, the Clemson of 1893 and the Clemson of 1968-69 are remarkably the same in purpose and attitude—and in confident hope for the future.

The purpose remains, and will remain, as fixed in the will by which Mr. Clemson bequeathed his property to the State of South Carolina: "to afford thorough instruction in agriculture and the natural sciences; to be a high seminary of learning in which the graduate of the common schools can commence, pursue, and finish the course of studies terminating in thorough theoretic and practical instruction" in the sciences and the arts.

The confident hope, the dedicated pledge, of all who comprise the Clemson University family is that this institution will meet the changing needs of the future as it has those of the last 75 years.

Robert C. Edwards
President
Generation of Excellence

Clemson students, for whom the University exists and on whose education all its resources are focussed, are today both like and unlike those of the first 75 years.

They are alike in having come to Clemson to seek knowledge which will equip them for better, more useful lives.

They are alike in knowing, most of them, what professions or businesses they seek to enter and in desiring specific training for their chosen fields.

They are alike in realizing—though occasionally some tend to forget—that hard work and diligent study are essential to attainment of their goals.

They are alike, for the most part, in having fundamental character which will carry them through the stresses and strains of University life and the years to come.

They are unlike in that they are better prepared than any previous generation of students to meet the academic requirements of University work.

They are unlike in having more knowledge to master and more choices to make.

They are unlike in facing fewer fixed assumptions and far greater uncertainties than students of other generations.

They are unlike in being more mobile and less tied to the campus during college years than were their elders.

University Trustees, Administration, and Faculty are keenly aware of both the similarities and the differences, and of the need for understanding in dealing with student needs and student life.

The emphasis must be, as it has been, on providing the maximum educational opportunity for every student. To this end, a stronger faculty has been assembled, better buildings and equipment have been provided, and broader, deeper curriculums are being offered.

All this is being done with an awareness of the ferment in student life and attitudes which exist everywhere, Clemson being no exception. Every possible effort is being exerted to keep open lines of communication with students and to meet, whenever possible, their legitimate and proper requests.

At the same time Clemson is determined that legally constituted authority shall discharge its full responsi-
The College of Agriculture and Biological Sciences continues to make significant advances in each of its three major fields of activity: teaching, research, and public service.

In its teaching program for students on the main campus, the College is engaged in a thoroughgoing revision of its total curriculum to meet the changing needs of an ever-changing agri-business economy. An ad hoc Curriculum Committee, appointed in 1966 to recommend any changes it deemed in the best interest of students and the institution, submitted a comprehensive report which was adopted early in 1968. Major changes will become fully effective by the summer session of 1969. They include reduction in the total number of curriculums, consolidating those most closely related in subject matter; addition of a new major in Microbiology; addition of several minors including one in International Agriculture; and revision of various options for specialization and in credit requirements for graduation. Basic courses in core requirements will be emphasized in all curriculums.

These changes reflecting new ideas and developments in all types of professional employment, will broaden opportunities for Clemson graduates. The provision for training in International Agriculture will open the way to exciting and challenging positions throughout the world.

Clemson University is cooperating with the State Committee for Technical Education and the State Department of Education to offer in various parts of the state two-year courses in agricultural technologies. The courses are designed for persons having high school diplomas who do not seek a college degree. Those completing the courses are qualified for employment in farming operations or as technicians in agricultural business and related fields.

New vistas again were opened for outstanding high school students through the fifth Secondary Science Training Program in Biology in the summer of 1968. Thirty-one students who had completed the eleventh grade enrolled for seven weeks of study and research experience. Primary purpose of the program, supported by the National Science Foundation, is to stimulate superior students to seek careers in the life sciences. Many of them plan to pursue graduate studies leading to the Ph.D. degree in preparation for careers of teaching and research.

Presence on the Clemson campus of Dr. Donald R. Lamond, internationally famed researcher from Queensland, Australia, as a visiting professor sponsored by the National Science Foundation is giving added impetus to the Ph.D. program in Animal Physiology.

National honors to two faculty members added new distinction to the College of Agriculture and Biological Sciences. Dr. T. L. Senn received, both regionally and nationally, the L. M. Ware Distinguished Teaching Award of the American Society for Horticultural Science. Dr. James T. Lazar, Jr., received the American Dairy Science award as the outstanding student affiliate group adviser in the nation.

The South Carolina Agricultural Experiment Station, research branch of the College, continues to expand and strengthen its programs. Much of its work is in basic research which can be applied later in solving farm problems. Scientists of the Experiment Station also participate in 23 regional research programs in which specialists from several southern states work together on complex problems of regional importance.

Results of Clemson research are being made known through a wide variety of technical and lay publi-
cations and presentations to 29 professional scientific societies. This not only makes the research more useful but draws national and international attention to Clemson's accomplishments.

Many of the problems facing the people of South Carolina, their agriculture and agri-business, likewise are problems of the world. The Experiment Station is increasing its role in the worldwide effort to solve these problems.

The Cooperative Extension Service programs carry Clemson teaching and research to youth and adults in all of South Carolina's 46 counties. These programs do much to increase the incomes and standards of living of all South Carolinians. This year the Extension Service is working on countywide bases with 46 broadly representative committees involving 2,262 individuals.

Educational, inspirational, and recreational opportunities are provided to more than 60,000 4-H Club members, more than half of them from urban and rural non-farm homes.

The Livestock-Poultry Health Department has made excellent progress in the first year of the compulsory meat inspection program and other aspects of its work to safeguard both farms and consumers.

The Fertilizer Inspection and Analysis Department, charged by statute with enforcing the South Carolina fertilizer laws, provides services fully appreciated by both farmers and manufacturers.

SCHOOL OF ARCHITECTURE

Clemson's School of Architecture is dedicated to the improvement of the physical world in which we live. It seeks to respond to demands now coming from leaders at all governmental levels, well-educated businessmen, churchmen, and citizens for a physical environment worthy of our aspirations and our technological capability.

In Architecture itself and in related design fields including City Planning, Building Construction, and Visual Studies, the School seeks to train young people who will be equipped now and in the next century to deal comprehensively with environmental problems.

In an effort to confront students from the beginning with the real world, the School has become involved in design studies throughout the state. It can truly be said now that South Carolina is the laboratory of the School of Architecture.

To meet the changing needs of an urban society, the School has revised its curriculum, replacing its former five-year program with a two-degree program covering six years. The first part is a four-year grouping of studies in the humanities, relevant sciences and a core-architectural sequence leading to a Bachelor of Arts degree in Pre-Architecture. This is followed by two years of intensive graduate study and a thesis required for the first professional degree which is now the Master of Architecture.

A parallel two-year graduate program has been established in City Planning. Additional specialists in City and Regional Planning have been added to those already on the faculty.

A four-year curriculum in Building Construction is offered by the School to educate young men and women for service in the nation's largest industry. These students undertake studies in business and management, building techniques, economics, sociology, and the humanities.

Public service activities in 1967-68 included two Town Planning studies by fifth-year students under faculty supervision. The first was of the central business district of Charleston, a project sponsored by the Mayor and Council of Charleston and the Charleston-Trident Chamber of Commerce. A second group of students in Urban Design made comprehensive planning studies of the City of Bishopville. In both cases the results were presented to local leaders at civic banquets and the designs were placed on public exhibit.

Graduate students in Architecture made a special research study, sponsored by the South Carolina Commission for Farm Workers, exploring the design potential of self-help low-cost housing for farm workers. Simultaneously, the School entered into a two-year contract with the United States Forest Service for graduate research studies of timber pole construction for residential building.

The School employs with increasing success a teaching technique called Vertical Studios. This involves teams comprising second, third, and fourth-year students, working together in the solution of complex environmental problems. Studies in 1967-68 were for recreational and tourism facilities in six areas of South Carolina: Anderson-Hartwell Lake; Santee-Cooper; Charleston-Fort Sumter; Myrtle Beach; Harbor Town-Hilton Head; and Columbia-Congaree. These projects were sponsored by the South Carolina Department of Parks, Recreation and Tourism.

Enrollment in the School of Architecture is limited by the physical premises and faculty resources available. The building now accommodates, under crowded conditions, approximately twice its rated capacity. Additions are contemplated in the University's building program.

COLLEGE OF ARTS AND SCIENCES

The College of Arts and Sciences is steadily augmenting its traditional strengths in the physical sciences while building new strengths in other academic disciplines.

A $35,700 grant from the National Science Foundation plus a supplement from University funds has
provided $54,000 for purchase of chemistry research instruments for the Department of Chemistry and Geology, including a spectrophotometer and a spectro- polarimeter. These instruments will enable chemists to determine the detailed structure of some types of molecules with a high degree of accuracy, thus providing information which will permit the formulation of better relationships between the molecular structure and the physical and chemical properties of these substances.

Increased teaching activity in Geology has been brought about by the growing numbers of students majoring in that subject or enrolling in curriculums which permit or require introductory courses in Geology.

Research activities of faculty members also have expanded significantly. Geologists at Clemson, supported by a $39,000 grant from the National Science Foundation, have begun a detailed study of a 540-square-mile area in Oconee and Pickens counties. The study will concentrate on three major geologic provinces which the area overlaps: the Brevard Zone, the Blue Ridge Belt, and the Inner Piedmont Belt, each characterized by a particular assemblage of rocks.

Objectives of the study are to establish the structure and sequence of the various rock layers in the provinces and to determine how they relate to one another. The Brevard Zone consists of a belt of rocks one to two miles wide extending from the North Carolina-Virginia boundary through the area of study to the Coastal Plain of Alabama. It is of particular interest because it may be similar to other provinces which have been subjected to extreme pressure and temperature.

In the Department of Social Sciences a new program offered in 1968-69 is the major in Psychology. About thirty new freshmen have chosen this as their major, several current students have switched into it, and 600 students have registered for Psychology.
courses in the fall semester. All factors indicate continued expansion of student demand for both the major and the elective courses in this field.

In History several new courses and programs are being introduced this year. The broadening of the Master of Arts degree to embrace Modern Europe with special emphasis on British History was approved last year and will go into effect in 1970. Plans are now being made to offer undergraduate courses in English History in England in the summer of 1969 to a group of 20 to 30 Clemson students.

A course in the history of the Negro and other ethnic groups in America is being prepared for inclusion in the next fall semester. Professor William F. Steirer, Jr., attended a workshop on the American Negro at Duke University in August as part of his preparation for teaching such a course.

SCHOOL OF EDUCATION

Dedicated to the preparation of highly trained teachers and other school and recreational personnel, the School of Education, which became a separately administered unit of the University in 1965, continues its rapid growth. More than 1,000 students now are preparing for careers in education and recreation.

The first Elementary Education majors and the first Recreation and Park Administration majors to complete their courses in the School received degrees during the 1967-68 academic year. The first Master’s degrees in Guidance were awarded to candidates now prepared for counseling at the elementary and secondary levels or in higher education.

The School of Education recognizes its responsibilities to teachers already practicing their profession as well as to those preparing for it. Institutes were held during both regular and summer sessions for teachers of science, mathematics, and industrial education. Two conferences sponsored by the State Department of Education were conducted for teachers of education from various South Carolina colleges. Centers for advanced study by teachers have been established in cooperation with Coker College, Furman University, Erskine College, Presbyterian College, and Wofford College.

The Media Center, supported by the State Department of Education, provides such services as instructional research and preparation and distribution of materials for vocational teachers in South Carolina. The Center has won national recognition for its new method of producing transparencies. It has served as a model for establishing centers in Texas and Iowa.

Also part of the School of Education is the South Carolina Coordinating Unit for Vocational Education, which directs and coordinates vocational educational research being conducted in the state. It is funded by the United States Office of Education and the State of South Carolina. It provides assistance and research results to other institutions, teachers, supervisors, and administrators.

To maintain and enhance the quality of its work, the School of Education has developed new facilities and employed specialists in various areas.

The curriculum laboratory contains instructional materials and equipment which classroom teachers use in their work. The reading laboratory, staffed by two reading specialists and graduate assistants, provides resources for teaching, diagnosis of reading difficulties, and remedial reading. Its services are available to teachers and to University students.

Practical experience in teaching and counseling is available through cooperation of public schools in the area.

The Department of Recreation and Park Administration and its Planning Laboratory provide leadership and research for many recreational services and agencies in South Carolina.

COLLEGE OF ENGINEERING

Engineering began when man first felt the desire to use man-made devices to extend his intellectual and physical capabilities. The engineering profession, once relatively simple, has now amplified the senses and capabilities of man beyond the wildest dreams of only a few years ago; and an end to this progress is nowhere in sight.

The College of Engineering recognizes and welcomes its obligations to those who must cope with the technology on which modern society depends. Dynamic and sweeping changes in undergraduate curriculum, graduate education, and research demonstrate the College’s positive approach to meeting its responsibilities in our complex society.

The Department of Electrical Engineering is representative of progress being made throughout the College of Engineering and of the potential for further development in all fields.

With the enormous growth in technology, more technical material must be taught, it must be taught more efficiently and, most importantly, it must be taught without sacrifice of quality. A highly flexible curriculum has been developed to meet these requirements. It exposes the student to many fields of engineering and seeks to avoid premature technical obsolescence due to over-specialization.

A high degree of student motivation is achieved through use of closed circuit television, films, slides, programmed learning, complex simulation equipment, and remote terminals to the University Computer Center. The results are exciting. Enthusiastic student response is shown through more involvement in honors sections and better career opportunities upon graduation.
Electrical Engineering students have won awards in national competition with other universities, and undergraduate students are participating eagerly in advanced research activities.

The Electrical Engineering faculty has been greatly strengthened. Seven new faculty members with impressive backgrounds have been employed in the last two years. The faculty's breadth is indicated by geographical distribution from nineteen states and its education and experience from twenty universities.

Widespread recognition has come to the faculty from outside the campus. A series of conferences in power systems analysis attracted more than 60 participants from a dozen states. The department was invited to host two technical conferences of important engineering societies last year. Most significantly perhaps, outside funds for support of faculty research have increased steadily.

Increased faculty activity has required a 300 percent increase in laboratory space during the past two years. These laboratories are equipped with the finest available instruments, typical of what the graduate engineer will use in industry. Outmoded routine procedures are eliminated. For example, equipment is now available which will plot characteristic curves of semiconductor devices automatically in less than one minute—an assignment which required more than a half-hour of the student's valuable laboratory time when done manually.

The impact of computers on both technology and society is reflected in the ability of faculty researchers and students to solve problems which only a few years ago would have been impossible to incorporate in an educational program and difficult to carry out even at the research level. The department has several highly sophisticated computer analysis programs now used routinely. Though a heavy user of the University Computer Center, the department has its own computation laboratory, providing the student with exposure to man-machine problems. Studies also can be undertaken in how one computer may communicate with another. The subject of precise communication, whether it be from man to man, man to machine, or machine to machine, constitutes a vital part of the electrical engineer's studies.

A laboratory for the study of semiconductor electronics, specifically integrated circuits, is available for teaching and research. Many new electronic components studied here are so small they require use of a microscope and operate so rapidly that describing them requires use of such terms as "0.00000001 of a second." Strange as it sounds, electrical engineers have reached the point where the velocity of electrical current is slow enough to be troublesome.

In the department, problems ranging from the design and analysis of multi-state power systems to the investigation of energy devices for insertion in living systems are discussed.

The department's progress in undergraduate education would not have been possible without supporting activities in research and graduate education. Students no longer see only the classroom, the professor, and the blackboard; instead they find themselves in an environment of creative thinking.

The department now supports approximately 30 graduate students studying for the Master's and Doctor's degrees and offers 39 graduate courses.

Research expenditures have risen from practically zero to $260,000 committed and spent over the past two years. The research program has advanced studies in space navigation, electronic instrument design, computer simulation of large water distribution systems, and geophysics. Researchers are seeking to determine the effects of electromagnetic radiation on living systems and how to detect abnormal performance in the brain waves of human beings. A project is nearing completion in which a computer interprets radioactive scans used for diagnosis in the medical profession.

SCHOOL OF INDUSTRIAL MANAGEMENT AND TEXTILE SCIENCE

Policies and practices of the School of Industrial Management and Textile Science are directed toward rigorous, comprehensive education of students, both undergraduate and graduate. A parallel achievement of the School is its remarkably close liaison with and its many special services for industries of this region, especially the textile industry.

 Obviously the best basic service the School can render to industry is to provide a steady flow of graduates well equipped to cope with the complexities and technologies of modern industry. Resources of the School also are of direct and immediate value to industry through research programs and such projects as the Professional Development Program and other seminars and short courses for executive and supervisory personnel.

A notable example of the School's special services was Clemson University's first annual Forum on Textile Marketing held in 1968. This forum brought to the campus topflight figures from industry to examine realistically some of the toughest problems facing textile manufacturers and marketers. Both the substance and the sharpness in presentation of these discussions brought national attention to the forum at Clemson.

Typical of the nationwide recognition was this paragraph from a full-scale report of the proceedings in TEXTILE WORLD:

"For the week of May 6 through 10, Sirrine Hall (home of the School) belonged to professionals, men who have made their mark in the textile industry. Their concern was marketing—how to find markets, and how to hold them. With a candor uncommon to the industry, challenges were issued and criticisms were leveled in areas too long left untouched. And
the 30 professionals, or ‘fellows,’ in attendance were exposed to thought-provoking discussions that brought up questions demanding answers.”

In its basic educational functions the School made notable progress during the past year.

The graduate programs continue to reflect significant development as indicated by the number of students holding undergraduate degrees from prestige schools, and the scholars added to the faculty. Two milestones: the first Ph.D. in Engineering Management was conferred as was the first Ph.D. to a student majoring in Textile Chemistry. Of eight new staff members, four were previously associated with business or industry. This again illustrates the two-way street which exists between the University and the total community.

The curriculums in Textiles, Textile Science, and Textile Chemistry are being tailored with special care for students who have a strong desire to enter manufacturing and scientific areas of the textile industry. In less than two years of concentration, the School has become known internationally for its programs in colorimetry and color measurement.

A new undergraduate curriculum in Industrial Management includes strengthening of the mathematics requirements, the addition of a senior course in Statistical Analysis, and the addition of a second course in Computer Programming. With respect to the mathematics requirements, the course is now one of the few curriculums in the Southeast which meets the recommendations of the Mathematical Association of America.

A new secondary concentration of courses is being offered in Hospital and Health Services Administration, a field of growing importance throughout the country.

The year 1967-68 was the first for Economics as a separate academic department within the School of Industrial Management and Textile Science. Clemson has long had a tradition of strong Economics instruction, but its focus has been sharpened under the new administrative set-up.

More than 250 students are now majoring in Economics at Clemson. Including the service courses for students with majors in other fields, approximately 1,300 registrations now occur each semester in Economics classes.

Among the department’s important research projects are studies in the economic aspects of the nationwide efforts to cope with water pollution from industry.

Through the Clemson Liaison Committee of the South Carolina Textile Manufacturers Association, the School maintains close contacts with the industry and cooperates in encouraging high school graduates to seek training for careers in Textiles.

The J. E. Sirrine Textile Foundation and many individual industrial concerns provide strong support for the School and effective contact between the academic and the business worlds.
SCHOOL OF NURSING

Clemson University's newest major academic unit, the School of Nursing, came into being with the beginning of the 1968-69 session. It immediately assumed direction of the Associate in Nursing program, formerly conducted in the College of Arts and Sciences, and began planning a full-fledged baccalaureate program leading to the Bachelor of Science degree in Nursing, to be augmented eventually by graduate programs leading to the Master's degree.

Establishment of the School of Nursing, authorized by Clemson's Board of Trustees in 1967, followed a nationwide search for strong leadership in this field which resulted in appointment of Dr. Geraldine Labecki, formerly Associate Dean of Nursing at Vanderbilt University, as Dean of Clemson's School.

Dean Labecki is now engaged in recruitment of faculty for the enlarged nursing program. Faculty members must have a Master of Science in Nursing degree with a major in a clinical area and must be competent practitioners as well as teachers of nursing.

Students in both the associate and the baccalaureate programs will have practice with patients in nearby communities. The Associate in Nursing two-year program, established in 1965, utilizes the Anderson Memorial Hospital for clinical nursing experiences. The new baccalaureate program will use units of the Greenville Hospital System and local public health agencies.

Students in the two-year program have been living at the Anderson Hospital and travelling by bus to Clemson for their academic work. After this year all nursing students will live on the Clemson campus and be transported to the various agencies for clinical training in the care of patients. Clinical faculty from the University will teach nursing care in the hospitals.

The two-year Associate degree program is designed to provide nurses for the care of patients in hospitals. The four-year Bachelor's degree program will prepare professional nurses for work with patients in hospitals, industry, public health agencies, and other areas, as well as to provide the foundation for graduate study in nursing. Emphasis in both programs will be on preparation of excellent practitioners. Graduates of both will be eligible to take the licensing examinations for nurses in South Carolina and upon successful completion of this they will be Registered Nurses.

The need for nurses is critical in South Carolina and other southern states. The southern region's present supply is 198 nurses per 100,000 population, in contrast with 319 per 100,000 for the nation as a whole. A goal of 450 Registered Nurses per 100,000 population by 1975 has been set by the United States Public Health Service's Division of Nursing.

When the baccalaureate program is well established a graduate program in nursing is contemplated for nurses who are interested in teaching, administration, supervision, and clinical nursing specialties—all critical areas for the state's health institutions and agencies.
GRADUATE SCHOOL

The strength of Clemson University's young but solidly based graduate program is demonstrated by the fact that graduate enrollment held firm at the beginning of the new semester in August 1968 despite the predicted national decline. Graduate enrollment advanced slightly over that of 1967 in the face of removal of draft deferment for graduate students and lowered national appropriations for support of graduate students.

Even more encouraging than the enrollment stability was the increase in quality of academic credentials submitted by applicants to the Graduate School for the current academic year. Many graduate schools admittedly lowered their entrance requirements and actively recruited foreign students. Clemson did neither—and has the best qualified group of students in its history.

With a steadily increasing number of applicants with grade-point ratios better than 3.2 (out of a possible 4.0) the Clemson faculty is sure to graduate a superior group of people with Master's and Doctor's degrees.

Proof positive of widespread esteem for the University's graduate program is the support being awarded to graduate students for fellowships and traineeships. These come from such sources as the United States Department of Health, Education and Welfare under the National Defense Education Act, the Public Health Service, the National Aeronautics and Space Administration, the National Science Foundation, the Department of the Interior, and such private donors as the Sirrine Foundation, the Belle W. Baruch Foundation, and many industries.

Enlargement of graduate programs and the resulting increased emphasis on research is bringing a new breed of faculty member to the campus. The young, alert researcher is rapidly erasing the "Mr. Chips" image of not many years ago.

Clemson, however, is NOT headed down the "research institute" route. The primary purpose of the institution is the instruction of young people. Clemson is determined to maintain excellence in instruction, but to supplement and augment this with excellence in research.

During a year which witnessed cutbacks in research appropriations of almost every federal agency, the Clemson faculty has had remarkable success in obtaining grants for projects. Most significant is the fact that 68 percent of research grant proposals submitted by the Clemson faculty were funded, against a national average of something under 50 percent.

Not only has the faculty been successful in securing grants for specific research proposals, but a number of training grants to support graduate students have been obtained in critical areas of national need.

A third, and most important, type of grant has been made to the University in increasing amounts for the purchase of equipment for teaching and research. With the ever growing sophistication of scientific instrumentation, the need for new equipment becomes constantly greater. The research instrument of today is the instructional tool of a tomorrow which comes ever closer. Thus grants for the purchase of equipment serve to extend the equipment budget of the institution and to provide better facilities for both teaching and research.

The total dollar value of research, training and equipment grants to the University for the fiscal year ending June 30, 1968 is $1,596,966.

LIBRARY

The Robert Muldrow Cooper Library, in use now for two years, has proved to be functional as well as beautiful. It is a constant center of attraction to campus visitors who admire its structural beauty and internal decor. More importantly, it is visited and studied by officers of other institutions, architects, and librarians who are themselves planning libraries. For years to come the details of this library will be reflected in new libraries on other campuses.

Thus, in a field where for years Clemson was lag­g ard, it is now a leader.

The collection of books which the Library houses and makes accessible to scholars totalled 395,000 volumes at the end of the year. In addition some 20,000 volumes had been selected and ordered for Clemson University at Sumter.

Close cooperation between academic departments and the library staff assures that books and periodicals acquired are those which are most needed by students and faculty. The fact that the Ph.D. degree is now offered in 23 disciplines and that the addition of new courses at any level is reflected almost immediately in a need for more books and journals, makes it essential that the Library increase its volume of acquisitions. It is also essential that the schedule for expanding the Library, as contemplated when the structure was designed, be adhered to as closely as possible.

Clemson, as a selective depository for United States government publications, has a collection of 147,000 such volumes, especially valuable in science and in the social sciences. An inventory of this collection was completed this year, with a detailed manual which is not only a valuable guide to using the publications but has been useful to librarians at other institutions.

The growing importance of Clemson's manuscript collection was reflected in its use by twenty persons from seven states. Much progress has been accomplished in cataloging and indexing manuscripts which in the old building could only be stored. This work will set the pattern for acquisition of new material in years to come.
The Library is extremely fortunate in having a professional staff whose members are experienced, personally qualified, and technically competent. Without such a staff the Library could not serve its function at the center of the University's intellectual life.

COMPUTER CENTER

Strong academic and research programs require the support of a strong computer facility.

Clemson's Computer Center, serving the entire University, is following an orderly plan of expansion to keep pace with the growing need. During the summer of 1968 the second major addition was made to its IBM System/360, Model 40 computer. This addition, partially supported by a grant from the National Science Foundation, provides the largest memory that can be used with the Model 40, and input/output equipment to provide the most efficient utilization of that memory. It is expected that no major addition will be required until 1970. At that time, if research increases as expected, a larger, faster model will be needed.

The effectiveness of a computer center is directly related to the availability of the computer to the user. To this end the Center reduced the time required to return work to the user to about one-third the time required one year ago. To further improve availability, some remote computing will be initiated, so that users can submit jobs to the computer from consoles located on other parts of the campus.

COMMUNICATIONS CENTER

The Communications Center is steadily expanding its services to all aspects of the University.

The Center produces two weekly television programs for the Agricultural Communications Department. They are broadcast on educational and commercial stations throughout the state. Documentaries and news features about Clemson are being produced for broadcast by commercial stations. One of these presented the story behind Clemson's massive building program.

Television as an instructional tool is being used in an increasing number of departments through facilities of the Communications Center. The Center also produces many programs for broadcast by radio and a large volume of photography, both still and motion picture, for almost all divisions of the University.
Steady Growth in Enrollment

Steady, solidly-based growth in enrollment of progressively better qualified students has become the rule at Clemson.

At the opening of the 1968 fall semester another enrollment record was established with a total of 6,839 students, of whom 6,525 were on the main campus and the remainder in centers at Sumter and Greenville.

Enrollment comparisons of recent years follow:

<table>
<thead>
<tr>
<th>Year</th>
<th>Undergraduate</th>
<th>Graduate</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1963-64</td>
<td>4,116</td>
<td>260</td>
<td>4,376</td>
</tr>
<tr>
<td>1964-65</td>
<td>4,273</td>
<td>315</td>
<td>4,588</td>
</tr>
<tr>
<td>1965-66</td>
<td>4,622</td>
<td>400</td>
<td>5,022</td>
</tr>
<tr>
<td>1966-67</td>
<td>5,289</td>
<td>523</td>
<td>5,812</td>
</tr>
<tr>
<td>1967-68</td>
<td>5,838</td>
<td>636</td>
<td>6,474</td>
</tr>
<tr>
<td>1968-69</td>
<td>6,165</td>
<td>674</td>
<td>6,839</td>
</tr>
</tbody>
</table>

These figures for 1968-69 include 166 students at the Sumter Center and 148 at the Greenville Center. Comparable figures for 1967-68 were 178 at Sumter and 239 at Greenville.

Enrollment of women was 1,011 in the fall of 1968, compared with 803 in the fall of 1967.

Summer school enrollment growth is shown in the following table:

<table>
<thead>
<tr>
<th>Year</th>
<th>Enrollment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1963</td>
<td>2,354</td>
</tr>
<tr>
<td>1964</td>
<td>2,735</td>
</tr>
<tr>
<td>1965</td>
<td>3,216</td>
</tr>
<tr>
<td>1966</td>
<td>3,539</td>
</tr>
<tr>
<td>1967</td>
<td>4,262</td>
</tr>
<tr>
<td>1968</td>
<td>5,057</td>
</tr>
</tbody>
</table>
DISTRIBUTION OF CLEMSON STUDENTS AND ALUMNI
(STUDENT ENROLLMENT: FIRST SEMESTER 1968-69, ALL CAMPUSES)

ORANGE NOS.—STUDENTS
BLACK NOS.—ALUMNI

Students (All Campuses) | Alumni
---|---
4,906 | 53.8%
532 | 19.8%
409 | 14.5%
995 | 14.5%
6,842 | 100.0%

4,906 71.7% South Carolina 9,665 53.8%
532 7.8% North Carolina and Georgia 3,382 18.8%
409 6.0% Other Southern States 2,606 14.5%
995 14.5% All Others 2,326 12.9%
6,842 100.0% Total 17,979 100.0%
Clemson University stands at a critical point in its long-range building program.

Six important and vitally needed structures on the campus either have been completed in recent months or will be completed in the near future at a total cost of almost $13,000,000. These buildings are:

- J. C. Littlejohn Coliseum seating more than 10,000 for basketball and more than 12,000 for convocations.
- Schilletter Hall, the East Campus cafeteria.
- Lever Hall, the second high-rise dormitory housing 432 students.
- Redfern Health Center and infirmary.
- D. W. Daniel Hall providing classrooms and offices for the College of Arts and Sciences.
- Rhodes Engineering Research Center for College of Engineering graduate research.

Other urgently needed building projects, however, await means of financing. The University has reached the point where it is no longer possible to finance the costs of constructing necessary facilities for expanding enrollment, and for essential improvements and diversification in teaching and research programs, through issuance of State Institution Bonds and Revenue Bonds to be repaid from student fees. If Clemson is to meet the demands made upon it and not deny admission to qualified South Carolina students desiring to attend Clemson, it will be necessary for additional funds to be provided by the General Assembly.

Clemson's carefully and conservatively stated needs for permanent improvements between now and 1975 total $51,546,500. This list includes projects totaling $30,595,000 for educational and general structures and $5,800,000 for student housing which are needed immediately.

Foremost among the immediate needs is that for a University Union to be the center of community life serving students, faculty, administration, alumni, and guests.

Other immediate needs include a Biological Sciences Building, an addition to Lee Hall for the School of Architecture, renovation of Sikes Hall (the old library), Tillman Hall and several other structures, and expansion of utility systems.

Requests for funding all these projects have been submitted to the State Budget and Control Board for consideration by the General Assembly in January.
# University Finances

## Educational and General

### Where the Money Came From

<table>
<thead>
<tr>
<th>Source</th>
<th>Amount</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>State Appropriations</td>
<td>$7,638,019</td>
<td>45.0%</td>
</tr>
<tr>
<td>Federal Funds (Morrill-Nelson)</td>
<td>128,316</td>
<td>.8%</td>
</tr>
<tr>
<td>Student Fees</td>
<td>2,004,315</td>
<td>11.5%</td>
</tr>
<tr>
<td>Research Grants and Contracts, Institutes and Training Grants</td>
<td>1,329,469</td>
<td>7.8%</td>
</tr>
<tr>
<td>Sales, Services and Miscellaneous Income</td>
<td>587,059</td>
<td>3.5%</td>
</tr>
<tr>
<td>Auxiliary Enterprises and Related Services</td>
<td>5,277,734</td>
<td>31.1%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$16,964,912</strong></td>
<td><strong>100.0%</strong></td>
</tr>
</tbody>
</table>

### How the Money Was Used

<table>
<thead>
<tr>
<th>Category</th>
<th>Amount</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instruction and Departmental Research</td>
<td>$7,415,348</td>
<td>45.2%</td>
</tr>
<tr>
<td>Physical Plant Maintenance</td>
<td>1,570,203</td>
<td>9.6%</td>
</tr>
<tr>
<td>Sponsored Research and Institutes</td>
<td>1,066,994</td>
<td>6.5%</td>
</tr>
<tr>
<td>Administration and General Expense</td>
<td>1,286,998</td>
<td>7.9%</td>
</tr>
<tr>
<td>Auxiliary Enterprises and Related Activities</td>
<td>5,053,592</td>
<td>30.8%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$16,393,135</strong></td>
<td><strong>100.0%</strong></td>
</tr>
</tbody>
</table>

**Funds for Encumbrances and Deferred Income:** 571,777

**Grand Total:** $16,964,912

## Public Service Activities

### Where the Money Came From

<table>
<thead>
<tr>
<th>Source</th>
<th>Amount</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Federal Appropriations Balance</td>
<td>$508,115</td>
<td>5.9%</td>
</tr>
<tr>
<td>State Appropriations</td>
<td>4,190,590</td>
<td>48.5%</td>
</tr>
<tr>
<td>Federal Appropriations</td>
<td>3,173,756</td>
<td>36.7%</td>
</tr>
<tr>
<td>Sale of Farm Products</td>
<td>467,856</td>
<td>5.4%</td>
</tr>
<tr>
<td>Other Sales and Services</td>
<td>299,435</td>
<td>3.5%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$8,639,752</strong></td>
<td><strong>100.0%</strong></td>
</tr>
</tbody>
</table>

### How the Money Was Used

<table>
<thead>
<tr>
<th>Category</th>
<th>Amount</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricultural Research</td>
<td>$3,694,574</td>
<td>43.4%</td>
</tr>
<tr>
<td>Agricultural Extension Service</td>
<td>3,995,373</td>
<td>47.0%</td>
</tr>
<tr>
<td>Livestock-Poultry Health Service</td>
<td>585,441</td>
<td>6.9%</td>
</tr>
<tr>
<td>Fertilizer Inspection and Analysis</td>
<td>121,470</td>
<td>1.4%</td>
</tr>
<tr>
<td>Crop Pests and Disease Eradication</td>
<td>114,096</td>
<td>1.3%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$8,510,954</strong></td>
<td><strong>100.0%</strong></td>
</tr>
</tbody>
</table>

**Funds for Encumbrances and Deferred Income:** 128,798

**Grand Total:** $8,639,752

## Student Aid

### Where the Money Came From

<table>
<thead>
<tr>
<th>Source</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loan Funds</td>
<td>$39,676</td>
</tr>
<tr>
<td>Scholarships, Training Grants, Fellowships and Institutes</td>
<td>603,856</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$643,532</strong></td>
</tr>
</tbody>
</table>

### How the Money Was Used

<table>
<thead>
<tr>
<th>Category</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Educational Loans</td>
<td>$41,003</td>
</tr>
<tr>
<td>Grants for Scholarships, Fellowships and Special Purpose Stipends</td>
<td>557,095</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$628,098</strong></td>
</tr>
</tbody>
</table>

* Does not include student financing through United Student Aid Funds, Inc., commercial educational lending agencies, athletic grants-in-aid or graduate assistantships. Funds received and expended for graduate assistantships are reflected in "Educational and General".
Commitment to Greatness

This report reflects some of Clemson University’s manifold accomplishments.

It projects some of Clemson’s future trends and forecasts some of the needs which must be met to attain Clemson’s goals.

Clemson looks with confidence to its many constituencies for resources that must be provided if the institution is to be maintained and enlarged as a university of the first rank.

Since Clemson is a state institution, a major portion of funds must continue to come from state appropriations. Fortunately, there is stirring in South Carolina, both in the state government and among citizens generally, an awareness of the necessity for more and better higher education.

The General Assembly, always attentive to the needs of Clemson and other educational institutions, surely will give the most careful consideration this year to finding needed revenues for the strengthening and advancement of university and college programs.

Grants from the federal government have been somewhat curtailed by reduced appropriation bills, but the increasing merit of Clemson’s programs is attracting new federal grants in more and more fields.

Students and their parents have met without complaint the necessity of paying higher fees for better education.

Clemson alumni through their Loyalty Fund annual giving are helping provide an additional margin of excellence.

Industrial corporations and philanthropic foundations are increasing their support.

Together, all will be building the Greater Clemson of the future.