

CHAPTER FIFTEEN

A "TECHNOLOGICAL UNIVERSITY"

Cooperation & Consolidation



ALUMNI AND STUDENT UNREST

Pearson's resignation, with his expressed and implied protests against certain policies of the Board of Education, brought to a focus the long-pending issues of relative status and absolute functions. Alarmist reports, without responsible basis, represented a design, not to say—as some did—a conspiracy, to restrict and subject the technical member of the state's educational system. There were even rumors of a chancellorship which would place the State College in direct subordination to the University. Alumni individually and collectively voiced excited protest, and the leading local associations went on record in favor of the change from divisions to colleges. The *Student* throughout the year 1926-27, returning to a crusade of a decade before, made the change of institutional and divisional designation a major agitation. The institutional name it was conceded, would require legislative change; but the divisional relief could be given directly by the Board.

That body vigorously denied all allegations of favoritism and discrimination detrimental to the College, pointing to the increasing and relatively favorable support that the technical institution was receiving. However reluctantly made, their reversal on the forestry and journalism courses was a specific and material concession. "The College at Ames," asserted

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their chairman, George T. Baker, "is now and will continue to be the best equipped, the best manned and most liberally supported land-grant institution in the United States." But the main test of the Board's attitude and intentions was felt to be the selection of the new president. On the procedure to be followed in this crucial and delicate matter the members were divided. One group favored an immediate selection of an outsider; the others desired deliberation while the College continued under Knapp's safe and understanding direction. Fortunately the latter counsel prevailed.

HERMAN KNAPP AS CONCILIATOR

Herman Knapp's acting presidency, characteristically straightforward and unassuming, proved most effective in an especially difficult situation. Probably more than any other at the time he was able to reconcile differences and restore confidence within the College and with the sister institutions. His frank and direct presentation of policies and plans, his shrewd appraisals and inherent sense of justice readily won and held the good will and confidence of his fellow workers on the staff and of the student body. The same qualities and policies restored not merely diplomatic intercourse, but the most cordial relations with the University—which awarded him an LL.D. in 1928. His rare understanding of the College's financial needs and his persistence but moderation in presenting them secured a material increase in appropriations both in capital funds and current support.

In many ways Knapp's permanent appointment had an appeal of availability and stability. Members of the Board—perhaps a majority—prominent alumni, and various agricultural and industrial groups favored his selection. An element in the faculty were open supporters, and among all the staff and the students his appointment would have been well received. Had he exerted his full influence, he could doubtless have gained the position; but with characteristic moderation,

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a preference for the financial work, and the wisdom of long observation, he chose not to become an active candidate.

THE BOARD'S CHOICE

Despite the problems facing a new executive at this time, willing candidates for the responsibility were provided in abundance. A score of formal applications were made to the Board, and a dozen other names were suggested with more or less support. Within the College, various deans and department heads had their supporters, especially among agricultural and industrial groups. Alumni in varied fields were endorsed. Available land-grant administrators throughout the country seem to have been well canvassed. There was still a marked occupational cleavage: agricultural interests were desirous of a leader identified directly and conspicuously with their occupation, whereas alumni from other divisions were insistent that an educator whose training and experience fitted him to understand and appreciate the needs of the College as a whole was the type to be sought. The selection finally made, upon the strong recommendation of some of the foremost educational leaders of the country, was a man who, though intimately conversant with the state and the College, had been concerned only as an observer in their issues and controversies—President R. M. Hughes of Miami University.

HUGHES AND HIS PROGRAM

Raymond Mollyneaux Hughes was a native of Iowa, born at Atlantic in 1873. He spent his youth and acquired his education in Ohio, where he graduated from the historic Miami University at Oxford. After graduate work at the Ohio State University and the Massachusetts Institute of Technology he had served as professor of chemistry, dean, and for fifteen years president of his alma mater. Her continuing regard was shown by the conferring of an LL.D. as a parting tribute, and the Ohio senate paid him the rare honor of passing

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resolutions of appreciation of his service at Miami and sending felicitations to the Iowa State College. His interests were primarily those of the educator and administrator. In a period of changing standards and increasing demands, he had been notably successful in raising entrance and graduation requirements, initiating new methods, and increasing support. He had been especially active in the North Central Association, the Association of American Colleges, the National Association of State Universities, and the Council on Education, and had served as a district director of the S. A. T. C. during the World War. Dr. Hughes had been afforded direct contact with the organization and program at the Iowa State College as well as with its relations with other state institutions by his membership on the survey commission in 1915-16. The commission's specific recommendations for the State College which he had helped to formulate and in all of which he had formally concurred he would now have the opportunity and responsibility of applying, in line with the changes that a stressful decade had necessitated.

In his farewell letter to the Miami alumni Dr. Hughes gave a characteristic explanation for his change of institutions: "I am attracted to another field largely for two reasons. In the first place, I believe that a change of responsibility occasionally is stimulating, and I realize that the Iowa State College is one of the great institutions of the United States. I am also interested in endeavoring to carry out in a larger institution some of the ideas relative to organization of an institution for the benefit of the individual student which have been developed here at Miami." Chief of these ideas was the closer contact of the individual student with his instructors. The lack of such contact he believed to be the great weakness of large institutions. He felt that he had solved this problem at Oxford and hoped to deal with it no less effectively at Ames. This statement of his central objective, along with the recommendations

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of the 1916 survey report, provides the key to his administrative policies.

The new executive was fully and firmly committed to the school of educators who believe that problems of teaching, research, and student conduct and welfare, as well as those having to do with public relations and services could be definitely analyzed, deliberately planned for with the development of the proper and adequate techniques, and the resulting improvements measured with essential conclusiveness. A newspaper interview given after a half year's experience in the new position, in spite of whimsically phrased summary, was significantly revealing as to the attitude and purpose of the new administration. The new leader of Iowa's land-grant enterprises in the observation of this reporter combined something of the characteristics of Coolidge and Dawes—"a trace of the army commander and more than a hint of the island governor-general—a touch of the English head-master and a touch of the budget director—the precision of the scientist turned business executive—a glimpse of the Napoleonic solicitude for every rust spot on every cannon and for the appetites of every soldier—these ingredients, artistically commingled . . . unveil in an hour before the interviewer's eyes. They are the ingredients of a consummate college executive . . . As a general is concerned about the tactical wisdom of his colonels, so is Dr. Hughes concerned about the technical wisdom of his deans. As a general is concerned about the fighting qualities of his captains, so is Dr. Hughes concerned about the teaching qualities of his professors. As a general scrutinizes the rifles and hobnailed shoes and 'slum' of his soldiers, so Dr. Hughes scrutinizes the equipment of his students with watchful eye." The variety and inclusiveness of these concerns, indicative of later reforms and reorganizations, was indicated by the projects mentioned in this interview as already entered on the executive agenda: an appraisal of the teaching ability of every

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instructor; a survey of the value and progress of the 627 experimental projects then under way; a system of personal contact of staff and students; financial advice for fraternities; safeguarding faculty standard of living in the lowest brackets; more artistic decorations for students' rooms; a better utilization of the rats used for experimental purposes; reorganization of the clerical force; adjustment of the size of classes; and the construction of hard surfaced tennis courts. As a matter of personal preference and conviction, and probably with no intention of reflecting on the activities of his predecessors, he felt that with the numerous tasks on the campus he could not spend much time in going about the state attending meetings and making speeches. But he was fully conscious of the obligation of a state college to cooperate with the schools and colleges and keep sensitive and intelligent touch with the great constituency.

EXTERNAL RELATIONS ADJUSTED

The immediate task was to continue and extend the good will relations with all other institutions and with the state at large so well begun by Knapp. Hughes' selection was known to be highly agreeable to the other member institutions; the State College head was an intimate personal friend of his colleagues at Iowa City and Cedar Falls. His interpretation of the state institutions as constituting one great state university of which each of the three members were coordinate divisions was readily accepted as a general proposition, if not too logically and specifically pressed. Issues of possible competition and conflict, such as overlapping fields in graduate work and the perennial discussion of engineering duplication were made of less practical concern by the phenomenally large enrollments at all three institutions in the early years of the administration. Where such issues did arise they were adjusted by joint committees and conferences in accord with the recommendations of the two survey commissions. Interchange of

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lecturers, the relations of fellow members of professional societies, inter-departmental and divisional visitations, special arrangements for graduate and other research work by students and staff members of the other institutions, and an increasing interchange of instructors—practices not encouraged and in some cases not allowed under the former regime—all helped to cement this entente cordiale. Even athletic relations were resumed in 1933, but after a football victory by the University that fall by a score of 27 to 7 and one by the State College the following year, 31 to 6, the honors were even, and, with mutual respect the two teams went their former ways in their different conferences. The appeal to the state at large was mainly in an assurance to various representative organizations of a desire on the part of the College to understand and aid in dealing with their problems and the expression of an intent to make the College's planning state-wide.

ALUMNI INTEREST AND AID

From their side the alumni were increasingly loyal and responsive. As never before, individuals and groups became associated with college affairs. In 1928 the practice was started of designating alumni visitors to advise with the staffs of the leading departments and to bring to them the results of their experience. The first "alumni college" was held at commencement time in 1930, with addresses and conferences to appeal to varied interests.

Alumni consciousness and loyalty have been reflected in material aid. In addition to the support of the Memorial Union project, additional lands for experimental purposes have been secured by individual and corporate gifts, and the Alumni Board of Patent Trustees has been set up to administer the utilization of devices and processes developed in the college laboratories. Following the earlier bequests, notably those of George W. and Carrie Chapman Catt of the classes of 1882 and 1880, respectively, and of Gurdon W. Wattles, ex '79,

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there have been increasing gifts for scholarships, prizes, and special equipment. A unique provision has been that made for scholarships for working students of high scholastic attainment by Wilfred G. Lane, '09, and Walter G. Wells, '10.

Regional associations have kept alive and promoted the spirit of Iowa State College. From strategic location the Chicago group has been particularly active. In 1931 this organization established an annual award in recognition of pre-eminent service in advancing human welfare. The first award was to O. H. Cessna, '72, and the successive selections have been, to 1942, Carrie Chapman Catt, '80, Herman Knapp, '83, J. C. Arthur, '72, C. F. Curtiss, '87, Maria Roberts, '90, Joseph F. Porter, '84, Thomas H. MacDonald, '04, George W. Carver, '94, Frank W. Booth, '77, Herbert Osborn, '79, W. B. Niles, '85, James W. Hook, '05, William H. Smith, '06, A. B. Shaw, '76, George H. Glover, '85, R. J. Kinzer, '01, T. R. Agg, '05, Alfred Atkinson, '04, R. E. Buchanan, '04, Virgil Snyder, '89, Niels E. Hansen, '87, Martin Mortensen, '09, R. C. Pollock, '13. The Washington Association, with a large permanent nucleus and continuous recruits, has long been an enthusiastic unifier of outstanding representatives of the different interests of the college.

COLLEGE UNITY

Internally the new administration marked a great advance in unification and consolidation—measured by the growth of a college as distinct from a divisional consciousness. While the intermittent agitation for university name was not acted upon, the true spirit as well as substance of such an institution was being attained. So far as name was concerned, the emphasis in the decade after 1920 was upon the use of the official name rather than popular designations. In athletics the last stronghold of the "Ames" tradition, the award was changed in the spring of 1929 from "A" to "I" against the indignant protest of alumni wearers of the "A," and songs and yells were

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changed accordingly, although there was sufficient lingering sentiment to oppose the appropriation by the Ames city high school—the "little Cyclones"—of the "Fight, Ames Fight" football song.

At the same time that the change was made in the awarded letter, the College's day of birth was at last given official recognition. October 21, 1868, March 17, 1869, and even July 4, 1859, had been celebrated at various times, but in accord with accepted usage, the date of the enactment of the founding law was finally accepted—March 22, 1858. On that date in 1929 the first Iowa State Day was celebrated by alumni groups in all parts of the country. With the prosperity of these culminating boom months, the reports that came to these gatherings of the College's material prospects were most impressive, but still more inspiring were the tidings of the new spirit of unity and loyalty which, hitherto latent, was now being realized under the new administration. In all aspects of college life and work the emphasis was increasingly upon the development and achievements of Iowa State as a whole.

Entertainment and information have been combined effectively in the all-college carnival and exhibition, Veishea. The founding of this annual exhibit in the spring of 1922 was a deliberate attempt to combine divisional spring outings and jubilees in one grand institutional activity. The engineering St. Patrick's Day, the agricultural Barbecue, and the home economics May Day all found a place in the program depicting "Iowa State at Work and Play." The varied round of sports, open-house exhibits and demonstrations, evening entertainments, and the spectacular parade were to become increasingly attractive. The name, suggested by Professor Frank D. Paine, '09—combining the first letters of the names of the various divisions—is symbolic of the unity of spirit and effort.

By far the most effective single agency in uniting college interests and in giving expression to the distinctive features of

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college life and thought has been the Memorial Union. Following the resignation of President Pearson and the death of the alumni leader M. J. Riggs in 1926, the completion of the great enterprise was endangered. The energetic efforts of Treasurer Knapp, Dean Marston, F. W. Beckman, and John P. Wallace, aided by a group of the younger alumni, brought the campaign through the crisis, and in 1928 the memorial structure was opened for use. Colonel Harold E. Pride, '17, who had served as secretary of the Union committee and who succeeded Ward Jones as alumni secretary in 1923, became the director. The Union became at once the center of campus social life, the headquarters for conferences and conventions—local, state, and national—and the gathering place for return-in alumni. From the first the board of management aimed to make all of the varied uses of this memorial—social, recreational, and intellectual—a reflection and expression of the true interests and values in modern college life.

CULTURAL INFLUENCES

Literature and art were common college interests, though in some cases sponsored by certain departments. The general lecture and musical artists series were continued with attention to changing interest and emphasis. Special series were provided. The Graduate College secured funds for special research lectures, general and technical, by leading authorities in this country and abroad. A notable series on philosophy and religion, founded in 1933 in honor of Dr. Cessna, brought to the campus outstanding thinkers in theology and philosophy. In 1934 at the suggestion of President Hughes the lecture committee and the Department of English began a yearly series of lectures and conferences by authors of established reputation. Representative of this "Literature and Life" series have been Zona Gale, Stephen Vincent Benet, and Robert Frost. An undergraduate magazine of creative writing—*Sketch*—was started in 1934.

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A college art committee enriched buildings with well-selected paintings and arranged series of lectures by creative artists. The much-discussed murals representing the College's activities and Iowa farm scenes, executed under the direction of Grant Wood, were given conspicuous place in the library halls, and Christian Petersen's sculptured figures adorn many of the new buildings. The College gave further encouragement to Iowa artists by the annual exhibitions of the works of the Iowa Artists Club and the Iowa Art Salon in Great Hall of the Memorial Union, and by an Iowa artist dinner given by the Union to the exhibitors. In 1934 a grant was secured from the Carnegie Corporation for materials and equipment for a course of lectures on the appreciation of art. The course was organized by a committee headed by Dean Marston of the Engineering Division.

FRATERNITIES AND WARDS

With the growth of the student body the problems of proper housing and of social supervision became of major importance. While appreciating the values of fraternity life and the place of the system in modern university organization, President Hughes was concerned that they should be realized without detracting from the unity of the students as a whole and without the abuses of irresponsible freedom of conduct and financial improvidence in building. He early formulated his position on the question, suggesting as a means of mutual understanding the appointment of a faculty adviser for each house and the holding of periodical fraternity conferences with the administration. The sororities were felt to be adequately regulated under the general rules for women and the direct supervision of the house mothers. The women's dormitory system was extended to provide for increasing enrollment, and the plan of President Pearson for institutional housing for junior college men was inaugurated in 1927 with the opening of the first unit (later to be named Hughes Hall).

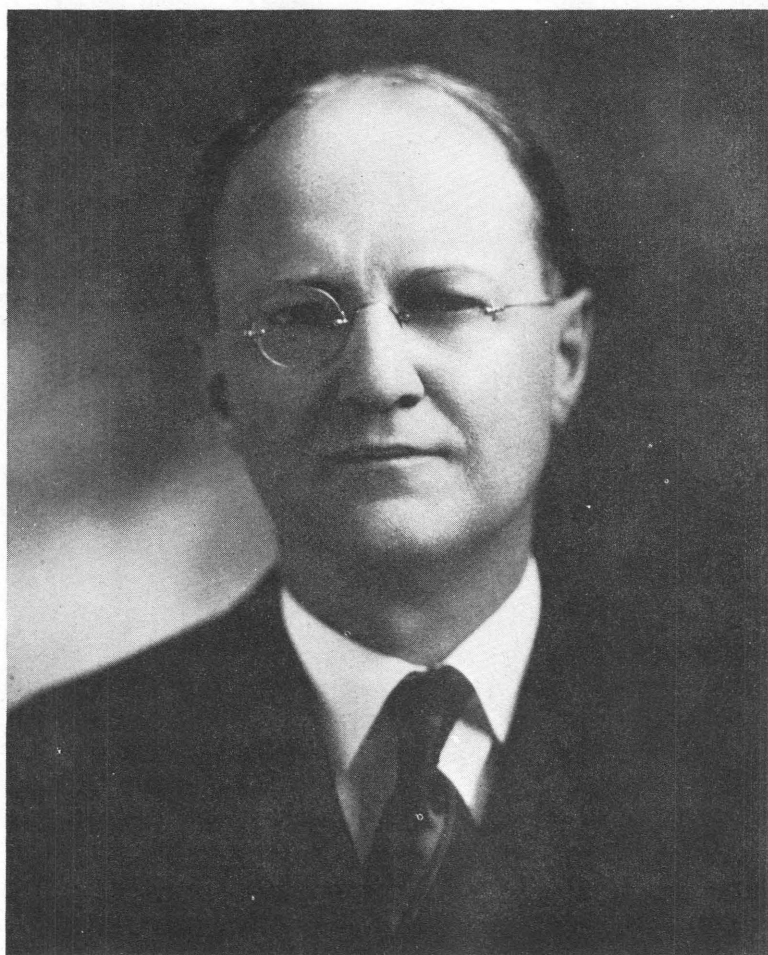
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The creation of the position of director of social life did much to maintain dignity, wholesomeness, and moderation in the whole social program. A plan worked out by this office at the suggestion of the President provided for the organized activity of the non-fraternity men. In 1931 there were created twenty-two "wards" into which these men were organized for social activities. The program was thus designed to be as inclusive as possible.

ATHLETICS FOR EVERYONE

There was a similar objective in the provision for physical recreation, with the logical assumption that the benefits of sports, physical, social and moral, should be extended to all. A system of intramural games under special directors was provided by the departments of physical education for men and women. Varieties and standards of the games were adjusted to all interests, talents, and capacities. Along with the recreational program, provision was made for more thorough and complete health service. Sophomore examinations served as a follow-up to the freshmen, and a senior check-up made the final comparison. Systematic hygiene lectures were required of all freshmen, and the extended clinical facilities were an ever-present safeguard. A further development was in psychopathic service in cooperation with the psychology department and the medical school of the University. Under the able direction of Dr. James F. Edwards, a leader in public health work, a permanent specialized staff was built up, and the primary emphasis was placed upon preventive and correctional work rather than remedial—in marked contrast to the aims and efforts of the early college "sanitary."

This systematic program of intramural sports did not involve the neglect of intercollegiate athletics. The democratizing of physical training left adequate opportunity for an aristocracy of strength and strategy. Athletics, in their realm, reflected the conditions of the unified matured college. In



RAYMOND A. PEARSON



HERMAN KNAPP



RAYMOND M. HUGHES

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1927 from convenience of location and similarity of academic standing and interests, the Iowa State College joined with five regional state institutions (Missouri, Nebraska, Kansas, and Oklahoma Universities, and Kansas State College) in the formation of the new Missouri Valley Intercollegiate Athletic Association—the "Big Six." In this strong competition, with the inevitably varying fortunes, the years have shown a generally commendable record. For instance in 1935 both basketball and baseball championships were won. Cyclone wrestlers and swimmers have averaged well and trackmen have broken their share of records. The main reverse was in football in the years from 1929 to 1931, but the losing jinx was effectively overcome and since that time teams to provide competitive thrills have steadily appeared. If the College did not secure for its teams the publicity of institutions that accorded to the sport a nearer approach to a total emphasis, it was spared the distress of deflation in the depression years.

EMPHASIS UPON SCHOLARSHIP

With all the provision for social expression and physical well being, there was an increased emphasis upon scholarship and a recognition of the scholar; election to honor societies was coming to be valued among the greatest attainments of a college career, and encouragement of the "superior" student was one of the evidences of the new college consciousness.

A notable development in the recognition and encouragement of high scholarship in the student body came with the establishment of Honors Day and the Honors Banquet. A local chapter of the Association of American University Professors was established in 1922 with unusually devoted leadership and serious purpose. An activity developed from the beginning was that of recognizing a small group of students of high scholarship by a dinner. In 1926 the institution became a regular all-college observance with a morning convocation and an evening dinner. A special outside speaker of estab-

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lished reputation in some field of scholarship, has been secured for each of the Honors Day observances. Phi Kappa Phi and divisional and departmental honor societies functioned with increasing influence. A city chapter of Phi Beta Kappa and an active organization of the American Association of University Women contributed further to the emphasis upon scholarship. Edgar W. Timm, '36, was chosen in December, 1935, as Iowa State's first Rhodes scholar. Dr. Jay W. Woodrow, who came to the Department of Physics in 1921 and was promoted to the headship in 1930, was the first former Rhodes man to join the staff.

COUNSELOR AND PERSONNEL SYSTEMS

President Hughes did not delay the projection of his cardinal aim of personal contact and guidance for the individual student. The old freshmen counselor system introduced in 1914, which had assumed a contact not always effectively made and with no facilities and authority for continued supervision, was superseded in 1928 by the system of junior college counselors established for each division as a regular part of the Junior College organization. There were thirteen counselors when the system started, and the number had increased to thirty a decade later. The inclusiveness of the contacts was indicated by the classification of the main interests involved in the counselling as vocational, personal, and educational. The previous year a college personnel system had been established to provide vocational guidance, personal and professional adaptation, and placement service. A general personnel director was placed at the head, and personnel officers were named for each division. The counselor-personnel systems absorbed the functions of the deans of men and women, and these positions were abolished. At the same time the old governing committee was reorganized with the president at the head assisted by the director of personnel and the deans of the divisions. As a special aid to entering students, the first

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"freshman day" was held in the fall of 1926, and this was soon expanded into a three-day registration-orientation period.

STAFF RENEWAL

The President was no less concerned with personal problems involving the employees of the College. Staff efficiency was constantly emphasized in selection and in provision for retirement. In the latter respect there was the problem of the lack of any fund for administrators and professors emeriti, in spite of long efforts to secure such provisions from private foundations and legislative grants. Under these limitations no retirement system could be wholly satisfactory. As an effort to meet the immediate situation, the Board upon the President's recommendation provided that after the age of sixty-five, heads of departments would relinquish administrative duties, and staff members should be elected on a yearly basis until seventy, when they would go automatically on half-time. The presidents' and deans' regular appointment would cease at sixty-five, and yearly appointment would follow with half-time status at seventy. Various efforts at provision for retirement annuities were unavailing, as were proposals for sabbatical leaves. As a go-between for personal faculty relations a council advisory to the President was created.

As a result of the retirement system, resignations, and deaths, all of the deans and the heads of most of the major departments were replaced within less than a decade. Dean Richardson retired from Home Economics in 1926 to direct adult education for the national association, and Genevieve Fisher, a former instructor in teacher training at the College and later with the federal board for vocational education and a member of the staff of the Morrison College of Carnegie Institute, succeeded to the deanship. The tragic death of Dean Samuel W. Beyer, '89, of Industrial Science in an automobile accident in June, 1931, removed a stalwart veteran who linked forward-looking policies with past traditions. In addition to

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his teaching and administration he was a father of Iowa State athletics and of the health service. Dr. Hughes became acting head of the division for a year, after which Dr. Charles E. Friley was brought from a similar division at the Agricultural and Mechanical College of Texas. In 1932 both Dean Curtiss of Agriculture and Dean Marston of Engineering retired to teaching and research activities with the title of dean emeritus. Professor Thomas R. Agg, '05, an authority in highway engineering, was selected to head his division, and after a year of presidential direction of the agricultural division and station, Professor Henry H. Kildee, '08, head of the department of animal husbandry and an international authority on stock judging, was made dean; Dean Robert E. Buchanan, '04, had the directorship of the station added to his work of dean of the Graduate College; and George Godfrey, '09, a master farmer, agricultural writer, and former member of the staff and of the Board of Education, was made assistant to the president in agriculture. The same year Dean Maria Roberts retired from her effective service as the head of the Junior College to administer the student loan funds, and Professor Maurice D. Helser, college personnel officer, was named as her successor. In 1933 the business and financial work was divided. Dr. Herman Knapp became treasurer and vice-president, and Hugh C. Gregg, a graduate of the University of Chicago, was secured as business manager. Upon Dr. Knapp's death in 1935 Dean Friley was made vice-president and C. B. Murray college treasurer. Following Dean Stange's sudden death in the spring of 1936, Dr. Charles Murray, professor of veterinary hygiene, was made dean.

One of the most effective and definite steps in unification of interest and in standardization of instruction and research was the opening of the new library in 1920. Since 1913 when the unsafe quarters in Morrill were abandoned, the main collections and the administrative offices had been housed in Central with a congestion that involved inadequate utilization, limited accessions, and a tendency to divisional or departmental

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decentralization. The foundation of the modern library administration came with the election of Charles Harvey Brown as librarian in 1922. He brought to the position broad scholarship, an unusually wide professional and administrative experience, and a sympathetic understanding of the library needs both of undergraduate and graduate students and of special research workers in a technological institution. Under his direction the accessions multiplied, the classification and administration were fully modernized, and an efficient staff of specialists secured. Dr. Brown's professional leadership was to be given national recognition in his election in 1941 as president of the American Library Association.

Among the notable, in some cases historic, department heads who were retired to teaching or research status were W. H. Stevenson, '05, of soils (continuing as vice-director of the station), Martin Mortenson, '09, of dairying; W. H. Meeker, of mechanical engineering, who was characterized by students past and present as "the best teacher on the campus"; L. H. Pammel, of botany; L. B. Spinney, '92, of physics; A. B. Noble, of English; and John E. Brindley, of economic science. The retirement of Dr. Orange H. Cessna, '72, as College Chaplain in 1929 marked the end of an era.

Division and department heads selected and renewed with so much care were exhorted constantly to be no less thorough and judicious in the appointment of staff members from professors to assistants. And with the securing of a competent staff, there was to be no relaxing of vigilance in maintaining teaching efficiency.

EFFORTS TO IMPROVE TEACHING

To start the college year, President Hughes introduced a plan that he had inherited from President Guy Potter Benton at Miami of a convocation day for the entire staff. A general gathering was addressed by the President on the plans and objectives for the year. The printed address included lists of specific achievements, in plant and organization, of the past

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year and those sought for the present one. This meeting was followed by divisional staff meetings and departmental consultations.

To give definite motivation and practical direction to the progressive improvement of college instruction, a Council on Teaching was formed with the specified objectives of submitting to the president "a practicable means for improving the general quality of teaching" to arouse in the faculty an interest in their teaching that would insure constant effort on their part to increase their efficiency; and to aid departments and individual instructors in solving particular teaching problems. To these ends rating scales were devised and given a limited application, and bulletins were issued which discussed objectives, skills, and procedures. Educational experts were brought to the campus for lectures and conferences; and courses on college teaching, intended especially for the younger staff members but open to those of more mature years, were organized. The Council was headed and the general program for improved teaching directed by the head of the Department of Vocational Education, Professor William H. Lancelot. In part as a result of these special efforts and probably even more as a progressive continuation of the traditional emphasis upon teaching, there were definite evidences that the teaching program was keeping abreast of new methods, devices, and subject emphasis. Up-to-date textbooks and study manuals were written, both in special and general fields, and laboratory and demonstrational techniques and procedures were developed with realistic effectiveness. In line with educational trends, orientation and honor courses were established and elaborate testing programs undertaken.

GRADUATE COLLEGE COMES OF AGE

These efforts for increased effectiveness in teaching were not confined to the undergraduate level; they were extended to the Graduate College, which was now coming to full development and assured standing. While keeping consistently

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to the fields recognized by the federal Office of Education and other impartial authorities as clearly belonging to the land-grant college, within these limits there has been a continual addition of subjects for the master's degree and a promotion of others to the doctor's level. Resident graduate work in the Engineering Division was inaugurated on the modern basis. Civil Engineering conferred its first Ph.D. in 1926. Veterinary Medicine, with a research staff, launched its graduate program in the twenties. The Smith-Hughes vocational educational movement created a demand for specialized advanced educational training that led to an increasing number of masters of science in vocational education from 1920. The growth of consumer consciousness, specialization, and institutional and public welfare agencies gave the opportunity for the permanent development of the Home Economics research program that had been essayed prematurely in the eighties.

In the same ambitious decade, work for the doctorate was systematized and expanded both horizontally to new departments and vertically within given fields. Chemistry, with its varied lines of application and under the effective leadership of Professor W. F. Coover, now joined the pioneer departments and soon led in the number of doctorates annually conferred. Bacteriology, general and applied, found steady demand for its graduates. Genetics was inaugurated on the graduate level in 1922. The graduate committee's recommendation, from time to time, of additions of fields for the highest study were symptomatic of the trend of research interest and in some cases paralleled directly the corresponding emphasis in the experiment stations and the research institutes. Thus in 1924 agricultural economics was approved, to be followed a few years later by consumption economics; in 1925, applied physics; in 1929, electrical engineering, veterinary pathology, and foods and nutrition; and in 1933, applied mathematics.

The demand for advanced work offered at the State College showed a remarkable growth. In the year 1919-20 the Graduate College enrolled 123; in 1939-40, excluding the summer

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school, the total had reached 669. To the year 1919 but 268 masters of science and 4 doctors of philosophy had been conferred; by July, 1940, the corresponding figures were 2,659 and 571. In 1928, as revealed by the land-grant college survey, Iowa State College had by far the largest graduate enrollment of any of the separate land-grant colleges. In a selection of twenty-six institutions made by the Office of Education to illustrate the increasing number of masters' degrees conferred from 1880 to 1930, the Iowa State College and the Massachusetts Institute of Technology were the only separate land-grant colleges listed. Among all the institutions of the nation awarding the doctor of philosophy degree in 1932, Iowa State ranked thirteenth in number conferred.

This increase in numbers was by no means at the expense of standards, which were advanced progressively in accordance with the approved practices. Under the prevailing leadership and the consequent alert key-men in the faculty, there was never a doubt that where abuses appeared there would be clamor and correction. Since 1923, the Dean has presented to the graduate faculty each year a review of the past year's work and a consideration of current and future problems. These annual statements, which stressed not so much achievements as the weakness to be met, provide one of the best guides to the development of the College. An epitome of these reports would include a statistical record of continuous growth, along with interpretative evidences of scholarly achievements that reflect the overcoming or progressing adjustment of the "difficulties in the way of the organization of an efficient Graduate Division"—in personnel, equipment, and "research atmosphere"—noted by the organizing committee in 1913.

UNIFIED RESEARCH PROGRAM

The strengthening and unifying of research was a consciously recognized and emphasized phase of the institutional

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planning of President Hughes' administration. The entire research activity, experimental and instructional, was unified within a Council on Research which served as a clearing-center for the different lines of effort. In the following years the College's research program was developed along both divisional and general institutional lines of investigation. The basic organizations—the College's research pillars, so to speak—were the Agricultural Experiment Station, the Engineering Experiment Station, the Industrial Science Research Institute, and the Veterinary Research Institute. The institutes were organized under the direction of the deans of the divisions involved. Other investigations of a cooperative nature have cut across divisions and departments in bringing all pertinent subjects and methods to bear on a common large problem. Such cases have been the formulation of the objectives of rural life, the study of land utilization, the development of the unique Corn Research Institute and the Federal Swine Breeding Laboratory, and various regional research projects having to do with pasture, erosion, and farm planning. The special federal Agricultural By-Products Laboratory became a campus institution. At the same time the Stations' undertakings were growing and changing in accord with progress in research and social and commercial interests. Home Economics investigations were regularized and standardized. A social science section and a rural education subsection appeared in the Agricultural Experiment Station. The applications of chemical technology and chemical engineering, particularly in the industrial utilization of agricultural products, came to a leading place in the Engineering Station and in the Industrial Science Research Institute. Modern problems of highway safety and rural electrification were also given major attention. All of these varied research activities in numerous fields and with different sources of support provided problems for research fellows and scholars.

This unified program was further integrated in 1932 by

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the appointment of the Dean of the Graduate College as Director of the Agricultural Experiment Station, with the continuing experienced and effective service of Dr. W. H. Stevenson as vice-director. In 1932 Dean Agg succeeded to the directorship of the Engineering Experiment Station. In the graduate office Dr. J. J. L. Hinrichsen of the department of mathematics gave effective assistance for some years. In 1937 Dr. E. W. Lindstrom of genetics, who had rendered long service on the graduate committee, was appointed vice-dean.

Equipment and facilities for research and advanced study were developed progressively. The college library secured essential reference works; sets of scientific reports and journals, home and foreign, have been built up as opportunity and funds have permitted. The inter-institutional loan system and provisions for photostating and microfilming have been systematized. Laboratory equipment and facilities have been kept abreast of changing technique and emphasis, and additional diversified experimental lands acquired by purchase or by alumni gifts. A statistical laboratory under the directorship of Professor G. W. Snedecor of mathematics has provided a research service for the whole College and at the same time afforded opportunity for investigations in statistical methods. Another essential service has been rendered to the graduate program by the Modern Language Department, whose head, Professor Louis DeVries, in addition to providing translation service, has made special adaptations of subject matter and methods, including the preparation of a series of scientific readings and dictionaries, for the acquisition of competence in the use of foreign languages by technical research students.

The Osborn Club and the college chapter of Sigma Xi and the continued participation of the staff in the Iowa Academy of Science and in regional and national scientific associations gave further stimulus to productive research efforts. As a channel of publication the *Iowa State College Journal of Science*,

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a Quarterly of Research, was founded in 1926. From 1928 annual lists of publications of the members of the staff were issued by the Library, and indicated an increasing and extending productive achievement. The Collegiate Press, a corporation formed in 1924 to print the student publications, provided a medium of publication for a limited number of research monographs. This service was broadened and increased by the adoption of the college imprint in 1938. To Professor Blair Converse of the Department of Technical Journalism was largely due the vision of an established college press.

To maintain the graduate work at a full coordinate position in a period of normally steady growth and to support the interrelated research undertakings has necessitated a major financial program with funds from different sources. The supplemental federal research grants of the Purnell and Bankhead-Jones acts have provided funds for the newer lines of investigation. In 1929-30 the Graduate College was given an independent budget. For a period of five years beginning in 1931, the Rockefeller Foundation provided a fund for the aid of research in the biological sciences, and this grant became the basis of a permanent fund for grants-in-aid to be administered through the Council on Research. As a supplement to state and federal research funds various interested private agencies have provided fellowships or special grants for carrying on investigations in particular fields. Most of these subventions have been directly available to graduate students.

RECOGNITION OF RESEARCH ACHIEVEMENT

The concentration of Iowa State's graduate work within its particular major fields, without seeking to extend into inappropriate realms or to develop degree-programs prematurely, has brought recognition of leadership among technological research institutions. In 1921 in a Bureau of Education bulletin of information for foreign students on opportunities in

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American graduate schools, Zook and Capen listed twenty-eight institutions of which twenty-seven were universities in name and one, Iowa State, a college. The writers assured prospective students that the institutions named were "universities in the strictest sense of the term . . ." By the various standardizing bodies, including the Association of American Universities, the Graduate College has been accorded front rank in its class. After a brief inspection in 1929, Dr. David A. Robertson of the American Council on Education reported that in his opinion "real graduate work and research" were being conducted in the fields of bacteriology, botany, chemistry, chemical engineering, civil engineering, genetics, soils, and zoology. His questionings of the work of some of the newer technical subjects, though pertinent and pointed in some cases, in others showed a lack of an adequate standard of comparison and at times an obvious lack of understanding of what was being undertaken in the projects.

In the arresting report in 1934 of the American Council's committee on graduate study, of which President Hughes was chairman, involving a general rating of graduate schools at the doctorate level by representative leaders in each of the fields chosen, Iowa State's work, so far as included in the subjects appraised—animal husbandry, dairy industry, general engineering, farm crops, horticulture, veterinary anatomy, veterinary hygiene, and veterinary pathology were not assessed—was given appreciative recognition by the appraising scholars. By the vote of the majority, bacteriology, entomology, and soil science were rated as "distinguished"; and animal nutrition, botany, chemical engineering, chemistry, civil engineering, genetics, human nutrition, plant pathology (one vote short of distinguished rating), plant physiology, and zoology as "adequate." At the convocation of distinguished scholars on March 31, 1941, in observance of the twenty-fifth anniversary of the establishment of the graduate faculty, recognition was given to the contribution of the graduate and

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general research program through the years. But in harmony with the prevailing attitude and emphasis, in research and collegiate circles generally, main attention was directed to the outlook for research in the unstable present and the tragically uncertain future.

LAND-GRANT COLLEGE SURVEY

Despite the definite achievements and decisive professional recognition of both instruction and research, the steadily mounting enrollments, and ever-increasing utilization of the College's research and extension services, in these days of agricultural stress between post-war deflation and industrial collapse, Iowa State, like the other land-grant colleges, had its whole program subjected to thorough and inclusive scrutiny and questioning by governing authorities and the constituency at large. Increasing expenditures at a time of decreasing rural income were creating a demand for an examination of the land-grant program from the standpoint of costs. Changing educational ideas and values and shifts in vocational emphasis brought differences of opinion, public and professional. Still other questions were occasioned by the administrative issues of state and federal jurisdiction. The result was the minute fact-finding and critical land-grant college survey carried on by a staff of experts under the direction of the Office of Education during 1928-29. As members of the research staff, Dean Buchanan and Librarian Brown were largely responsible for the respective investigations of graduate work and of library organization and operation.

THE TWENTY-YEAR PROGRAM

In harmony with this general spirit of inquiry, but for its own special purpose, the Iowa State College made a searching self-survey. To bring together all of the varied special organized efforts to improve the college program, to give a picture of it as a whole, and to estimate future developments

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and needs, a Twenty-Year Program Survey was made in 1932. This was suggested to President Hughes by the Russian Five-Year Plan, and he urged the significance of such an inventory and forecast upon each department and administrative service. The survey attracted wide interest, especially among land-grant colleges, state universities, and federal administrative agencies. It provided a fitting summary of the innovations of President Hughes's administration, as well as an interesting estimate of the trends of the future.