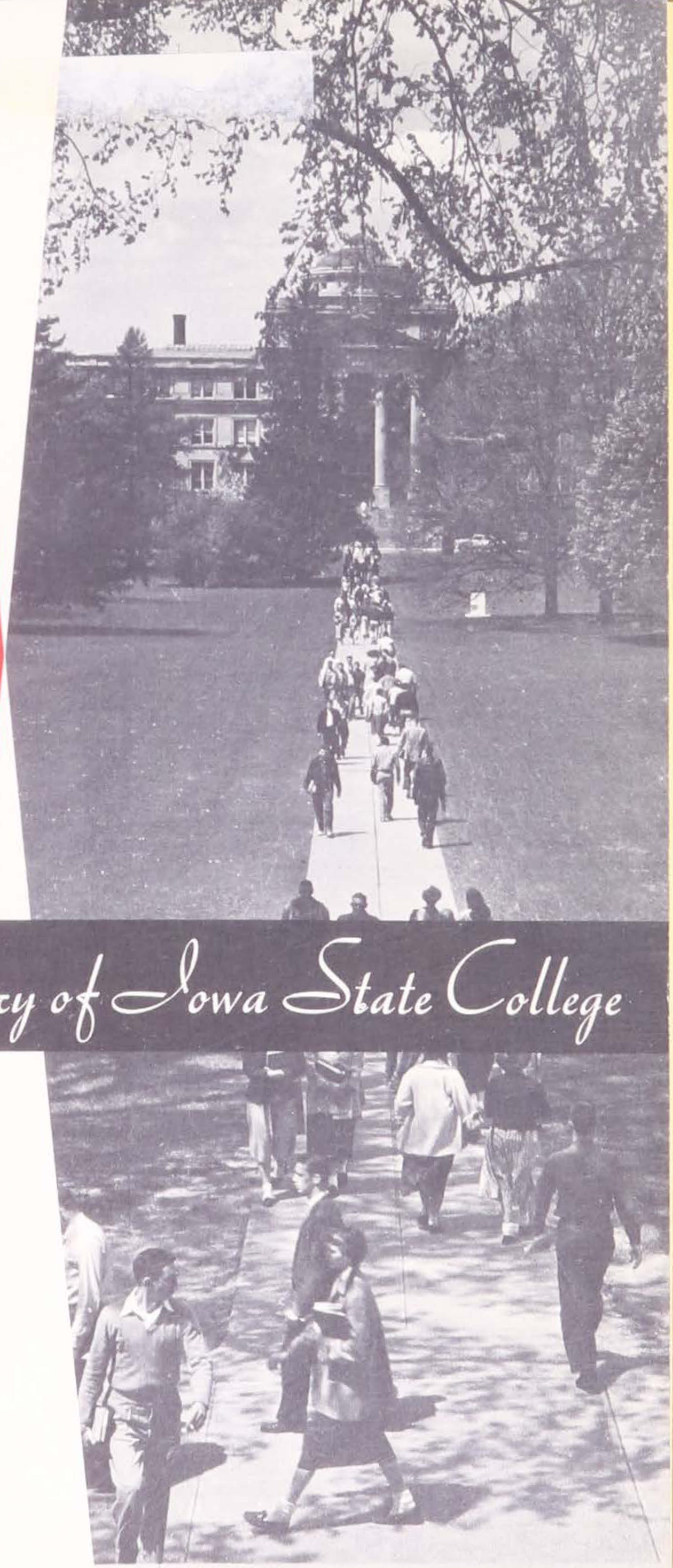
Iowa and the new education

IOWA AND THE NEW EDUCATION



. . . the Story of Iowa State College

858/1958

Colleges for the People . . .

When young America's people flooded westward a century ago, an Industrial Revolution also was stirring the land. Among the people of this pioneering age were ardent supporters of education. But they dreamed of a new sort of education, particularly at the higher levels, which was to be tailored to new times and a great new nation.

Where, heretofore, colleges and universities had confined themselves to classical studies and to training for such professions as teaching, the ministry, medicine and law, it was now proposed that they should meet more directly the practical needs of all citizens. This new education was to be made available at a minimum cost to the individual. There were to be "people's colleges."

Particularly did Americans want emphasis on research and instruction which might increase agricultural production and improve conditions of rural life. Joined with this was an in-

sistence on research and instruction in technology and engineering.

The man who got national action for this idea was Justin Morrill, representative in Congress (and later senator) from Vermont. His first attempt to gain federal aid for the new education was vetoed by President James Buchanan in 1859.

In 1862 he again introduced a bill for the same purpose. It proposed that portions of federally-owned land be sold and the proceeds used for "the perpetual endowment" of at least one college in each state where the leading object would be "without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, in such manner as the legislatures of the States may respectively prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions in life."

Enacted by Congress and signed by President Abraham Lincoln, the Morrill Act became the foundation of the nation's Land-Grant college system whose 69 members have set a superb pattern in democratic education. These colleges have made invaluable contributions to the development of the nation, and their work has been viewed with approving eyes by the entire world.

Iowa was the first state to accept the provisions of the Morrill Land-Grant Act. A continuing leader in Land-Grant college affairs, Iowa State College in her first 100 years unfolds a fascinating tale of which Iowans cannot fail to be proud.

As she steps into a new century, the College, like many of her Land-Grant sisters, has blossomed into a scientific and technological institution of first rank in teaching, in research and in service to large numbers of people.

Iowa's Great Idea

Iowans, in 1846, had carved their new state from a fertile prairie that had fabulous agricultural potential. One-quarter of all the Grade A land of the nation lay within its borders.

No sooner had the citizens of Iowa begun to till that land than they thought about a school of agriculture, and even went so far as to ask Congress in 1848 to donate the site and buildings of Fort Atkinson, whose garrison was being withdrawn, in the northeast part of the state.

Through the days of organizing a government, settling the land, building homes, and establishing towns, the idea of a college of scientific agriculture frequently was discussed. The Seventh General Assembly, called "the most important legislative body ever to meet in Iowa," made that dream come true.

In the new capital of Des Moines, three young farmer legislators met in a rooming house on the banks of the Des Moines River, Feb. 4, 1858, while a blizzard raged outside. They were pioneers whose homes were log cabins. Benjamin F. Gue was from Scott County, Robert A. Richardson from Fayette County, and Ed Wright from Cedar County. Next morning Richardson presented their first draft of an agricultural college bill to the Assembly.

In its final form it became "a bill for an act to provide for the establishment of a State Agricultural College and Farm with a Board of Trustees, which shall be connected with the entire agricultural interests of the state."

Though some regarded the bill as too far in advance of its time, Gue stoutly replied on the floor of the assembly that the supporters of the measure, all practical farmers, knew best what was needed and demanded by their great constituency. That need and demand were nothing less than an opportunity for agricultural education equal to the training for other professions.

He said that the "working classes," which included "not farmers alone . . . . but all the laboring classes, the mechanic, the day laborer, the inventor and the manufacturer," were all ready for the bill and urging its passage. The act was passed, and signed by Gov. Ralph P. Lowe on March 22, 1858, which became the founding date of the College.

Included in the bill was a specification for an Agricultural Bureau which was to have broad duties in collecting and publishing agricultural information, similar to an even broader early proposal which would have employed "geologists and agricultural chemists" to make "experiments and observations." Even though the bureau never operated as such, Iowa appears to have made the earliest effort to pass legislation that would in effect have required the establishment of an Agricultural Experiment Station and Agricultural Extension Service.

A site for the College was picked on the open prairie of Story County in the center of the state —practically a frontier location in those days. Even so, Story County voted a bond issue of $10,000 to aid the new venture, and residents of Story and adjacent Boone County contributed land and personal notes to bring the total aid to an estimated $21,355.

Farm buildings (right) constituted the earliest physical plant of the College. Thirty years later an 1890 photographer could include more than half a dozen edifices in his panorama from a short distance south of the present Lincoln Way (above). Among them, Old Main's towers loomed prominently, and an early faculty residence, still in use as Music Hall, could be seen toward the left foreground. The advantage of an airplane is needed to take in the entire present campus (below) of more than 50 major buildings and literally hundreds of smaller ones.

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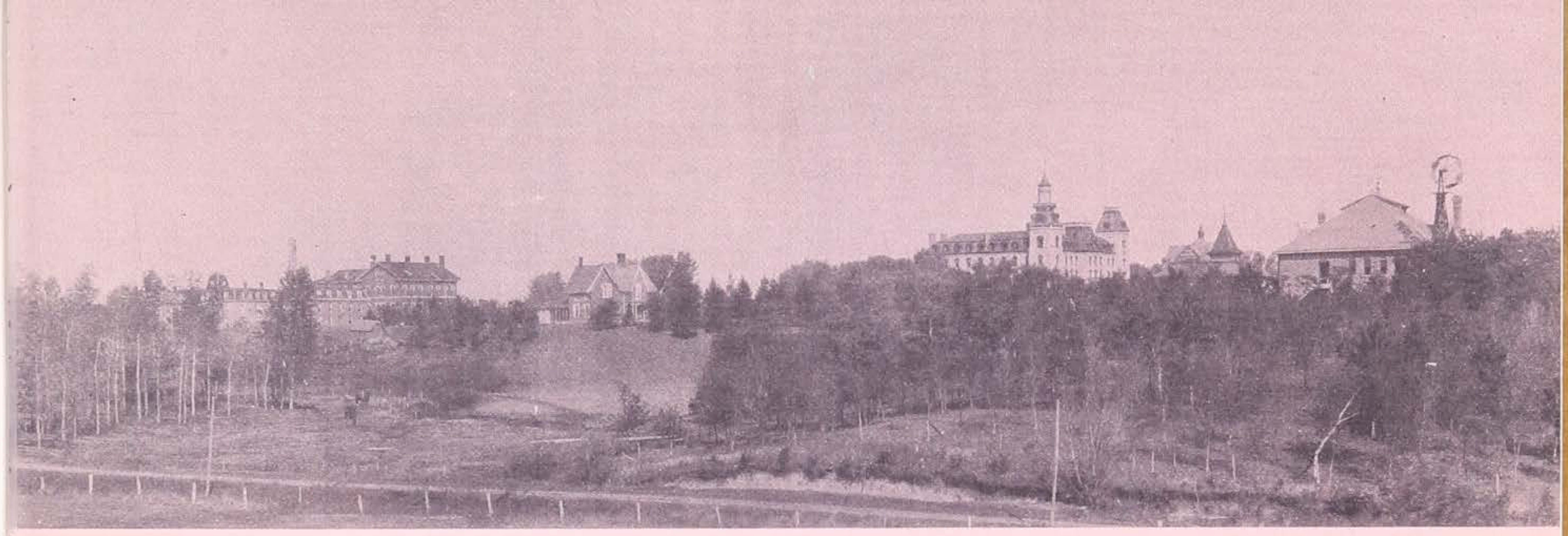

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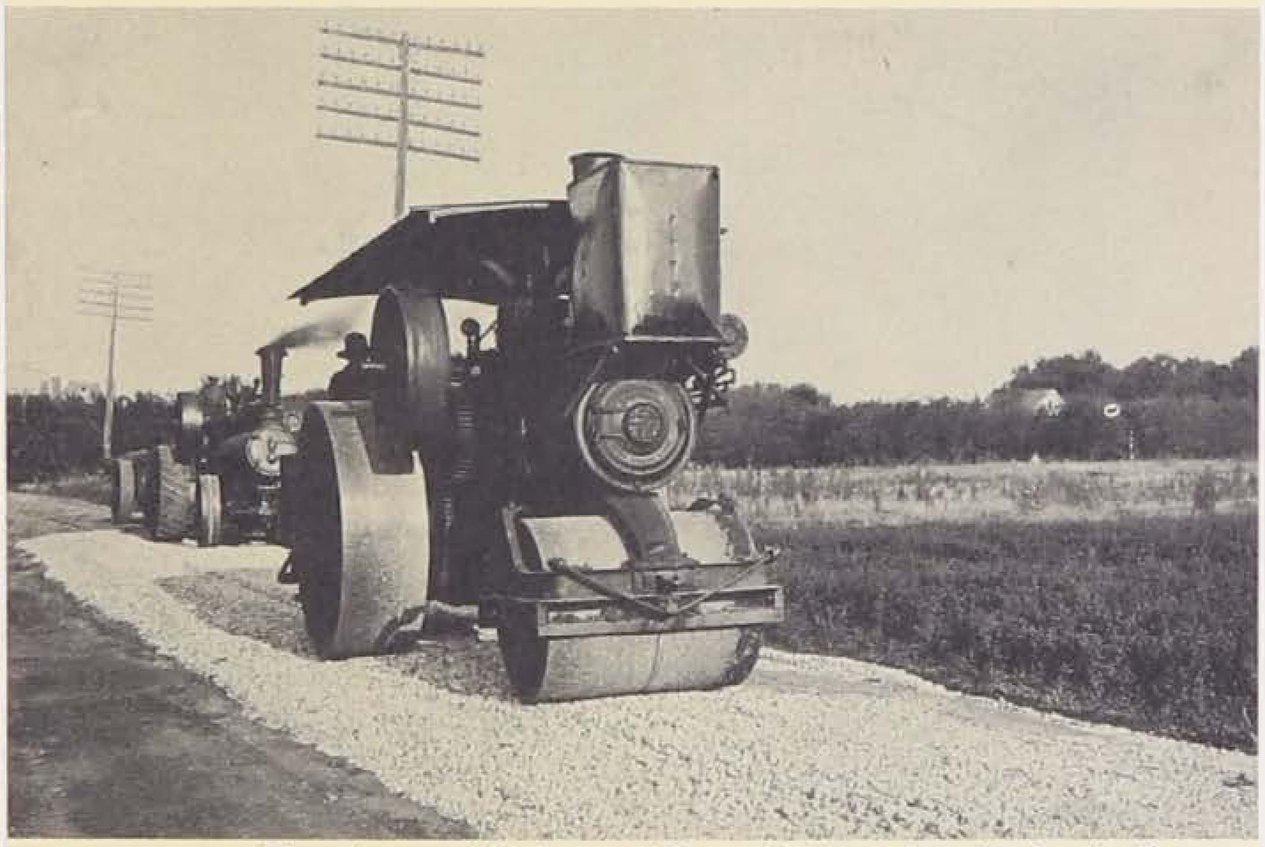
Botany class in 1905. College enrollment began to climb rapidly about 1890, made big strides thereafter.



The Iowa Highway Commission, located at the College in 1904, sought ways to improve the state's roads.

Familiar in Iowa towns 50 years ago were trains of agricultural exhibits, manned by college specialists.

This was a handsome sum, since times were hard, agricultural prices low and markets far away. The individual contributions, especially, meant great sacrifice, and many confessed later that they made their pledges without knowing how they could be met.

Then came the far-sighted Land-Grant or Morrill Act of July 2, 1862, to provide federal aid to state colleges of "agriculture and mechanic arts," through sale of federal land. It so happened that Iowa had called a special session of its General Assembly in September of 1862 to consider vital concerns of the war. The assembly promptly took advantage of the proffered aid of the United States government, and Iowa became the first state in the Land-Grant family.

The state was given something more than 204,000 acres under terms of the Morrill Act. By careful handling of the sale and lease of that land, it eventually received about $850,000 in endowment, far in excess of early estimates, and more than many other states who handled their grants less prudently. However, hard times and the pressing demands of the Civil War took almost all of the energies of the new state for a decade following the passage of the agricultural college bill.

Not until March, 1869, did Adonijah S. Welch officially begin his work as the first president. A student body was on hand, and the farm house and barns were ready, but only half the Main Building, set in a broad expanse of rough, unbroken prairie, was completed.

Early, the trustees had decided where to put the emphasis in creating their new college.

"On the character and ability of its faculty," they said, "will the character and success of the Institution depend more than upon all other

circumstances taken together. Buildings, cabinets, libraries, and rich endowments will all be in vain if the living agents, the professors, be not men of ripe attainment, fine culture, and eminent teaching powers."

When the first students arrived, they came as boys and girls together, and this was a radical departure from the accepted pattern of the day when coeducation on the college level was almost nonexistent. Both the Board of Trustees and the president were determined that women had as much need for education and as much right to it as did men. Consequently, Iowa's new college became the first Land-Grant institution to be coeducational in fact from the very beginning. In a full century its only requirements for admission have been in the realm of scholarship. No one has been denied because of sex, race, creed or lack of wealth.

Iowans in this manner put down some solid foundation stones for their new college. To the very logical assumption that a good college must have a good faculty, they added a willingness to try new methods, to educate in new fields, to open its doors to all. They never have felt either inclined or compelled to alter these principles.

It was a workaday college from the beginning, with room for few frivolities. The rising bell rang at 5:30 a.m., and the first students not only attended classes, but worked in the fields, tended the grounds, prepared meals, and built new buildings as part of their education. The annual vacation came during the winter months when nearly everyone turned to school teaching as a means of providing cash for his next term in college.

But the new education was popular, so popular that some applicants could not be admitted because of lack of room. In its first year the College had the problem of providing space for students. An initial freshman class of 173 became by 1900 a student body of nearly 800, and today Iowa State enrolls approximately 10,000.

In a thousand ways the College has changed, expanded and broadened to meet the growing needs of a progressive state.

At first there were but two curricula, a "Course of Agriculture" and a "Course of Mechanics." Students now are enrolled in 56 different curricula on both undergraduate and graduate levels.

The first experiments in horticulture and botany have grown to a well-organized research program in which teams of scientists labor in almost every field of scientific endeavor.

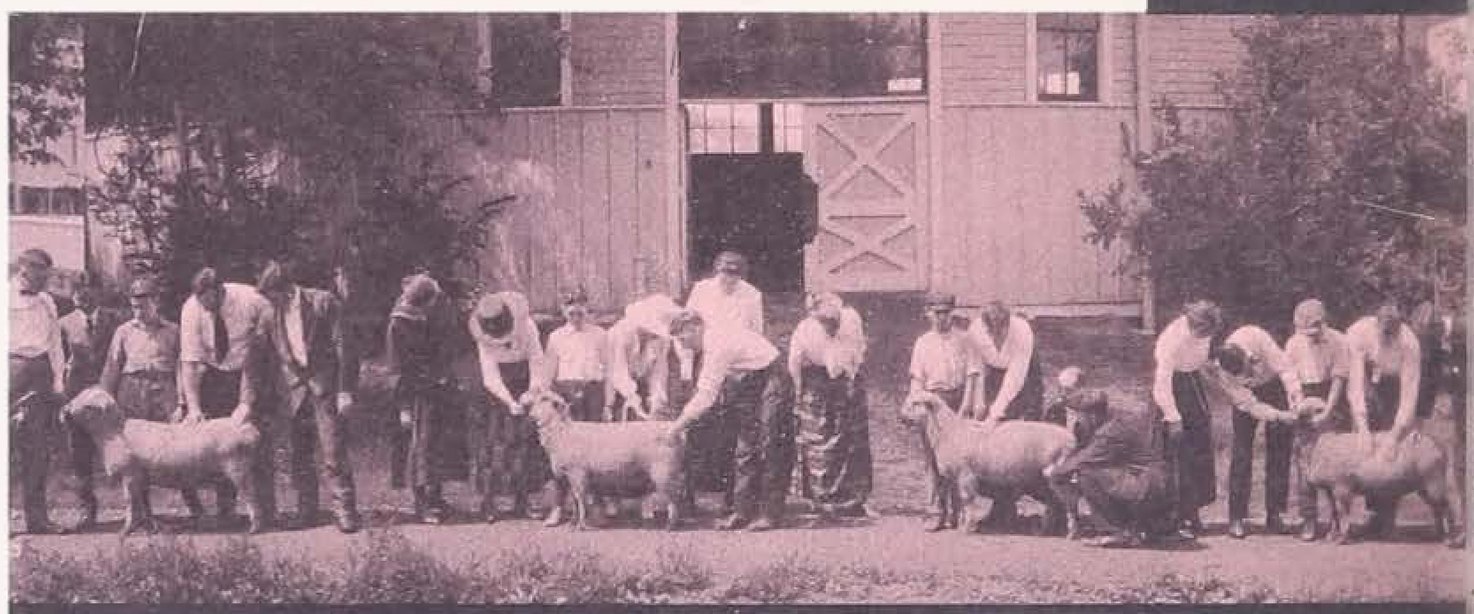
To carry knowledge to all the people the College has developed extension services which have made the campus as broad as the entire state.

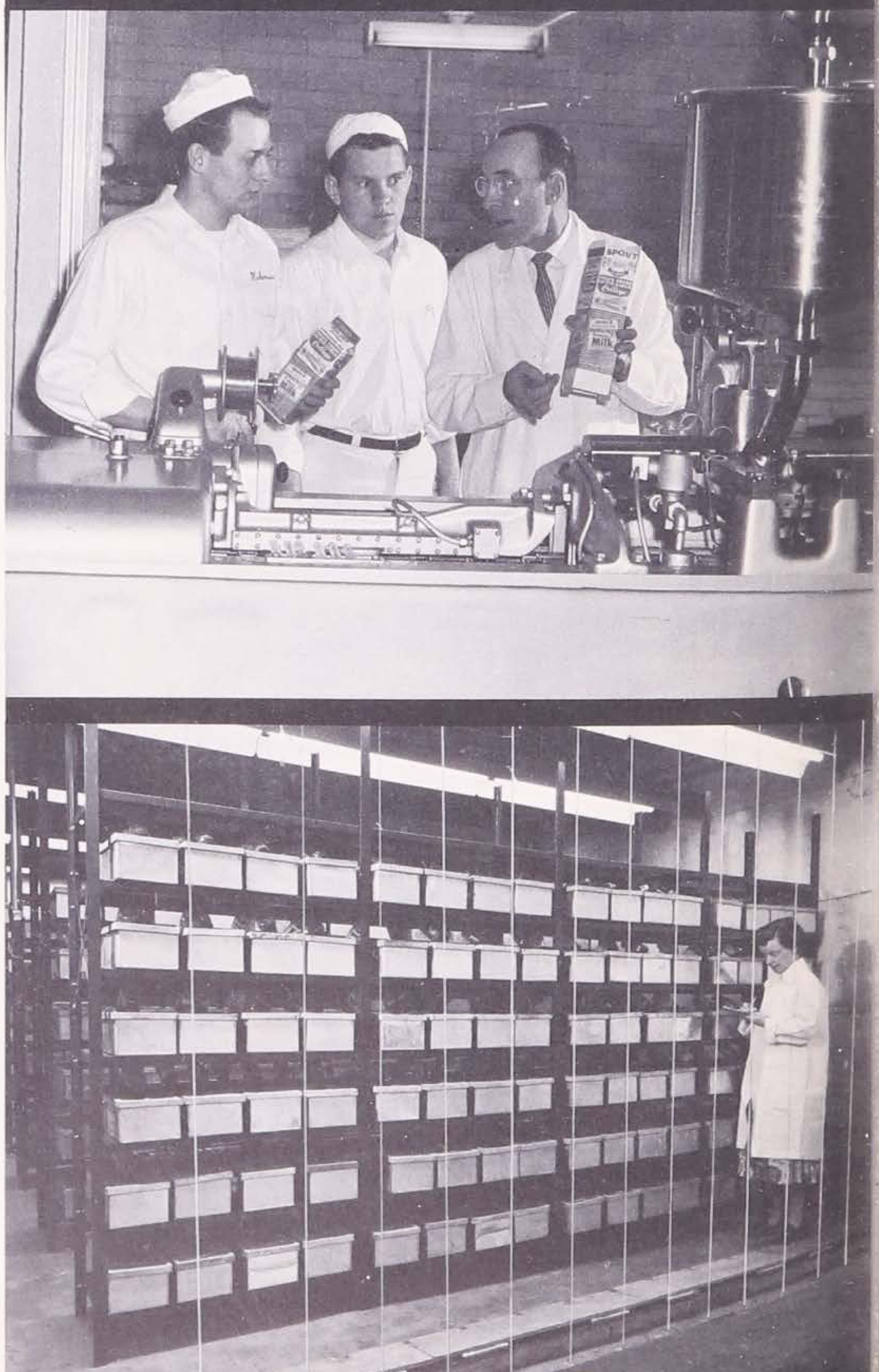
Following Adonijah S. Welch came a line of educational administrators, teachers and research workers whose names stand solidly in the history of scholarship and education during the past century.

Ten presidents—among them men of the caliber of William Beardshear and Raymond Pearson—have guided the College, often through times of trial and misunderstanding. They were supported by a corps of dedicated men such as Edgar Stanton, Herman Knapp, M. D. Helser and scores of others who will remain unsung, yet who devoted their entire lives to the college.

It is their heritage which is bequeathed to the College as she celebrates her 100th year, and on their traditions she sets out to build another 100 of greatness.

Among the programs of 1918 was one that brought public school teachers to the campus for summer instruction in the advancing science of agriculture.





Above: Agricultural climatologist measures wind and moisture distribution in cornfield as part of research project.

Right center: Dairy industry students work with equipment exactly the same, except in size, as found in up-to-date dairy plants.

Lower right: Studies in genetics are aided by laboratory in which colonies of mice can be subjected to controlled radiation.

Agriculture Was First

Iowa's early citizens could see that within her deep, rich soil was great agricultural wealth.

The men who proposed the bill for an "Agricultural College" in 1858 had in mind to develop that wealth to its fullest and also to provide a suitable education for farmers. It was a job that called for considerable reckoning, for there was no science of agriculture a century ago.

A large portion of the farmers themselves saw small reason why they should pursue "book learning" to any length.

President Welch and his single professional assistant in agriculture had no agricultural texts and little real agricultural knowledge to impart to their students, except that which could be learned through observation on the College farm. As soon as the farm was put in order tests were begun on cereals, feeds and fertilizers, to be followed by others in livestock feeding. Before long Iowa State faculty members were busy classifying Iowa plants, seeking new ones of value to the state, even going abroad as far as Russia in search of fruits and shrubs suitable to the Iowa climate.

Since no one had attempted to teach agriculture in a college before Iowa and other pioneering states took up the idea, there was naturally a certain amount of pushing and pulling as to which direction the teaching should take. Some thought the instruction should be entirely "practical" while others were in favor of including substantial amounts of the sciences and humanities.

Much of this controversy was settled in 1891 by the naming of William M. Beardshear as president and James "Tama Jim" Wilson as professor of agriculture.

Beardshear guided the College to some of the most significant development in its entire history, and Wilson organized new agricultural programs which gave it a running start to leadership in this field.

Meanwhile, the young college at Ames tried constantly to make its program more useful and more attractive to farm people, many of whom were still not sold on the value of college training. It emphasized training in the basic areas of animal husbandry, agronomy and horticulture.

In 1879 it had established an experimental creamery. It began a course in dairying in 1880 and in 1897 inaugurated the first college curriculum ever offered for a degree of bachelor of science in dairy industry.

It offered what may have been the first course in forestry in the United States in 1874, and in 1904 began the professional training of foresters, becoming one of the early schools among the 25 now recognized.

In response to a need for more competent writers in agriculture, expressed by John Clay, a livestock man, at an informal gathering of livestock men during the 1904 International Live Stock Exposition, the College in 1905 began instruction in agricultural journalism. It was another pioneering effort at a time when little journalism instruction of any kind was offered in colleges and universities.

When increased mechanization began to move toward the farm, the profession of agricultural engineering, in which Iowa State also pioneered, became a reality. The College first offered a course on "farm mechanics" in 1902, and graduated its first full-fledged agricultural engineer in 1910.

The College's early emphasis on research made it a natural leader in persuading the federal government to provide support for a system of state agricultural experiment stations. The College and the Iowa General Assembly were already laying foundations for the Iowa Agricultural Experiment Station when federal aid was granted through the Hatch Act. On March 2, 1888, the Iowa Station was established, and research henceforward was carried on systematically and at an accelerated pace.

The early experiments were important, but they cannot begin to match the tremendous advances of the last 20 years. Many of the first studies were in the art of agriculture rather than the science of agriculture. They concerned themselves with the rate of seeding, with the manner of pruning, with the types of feeding.

Then came the introduction of more knowledge from the advancing sciences of mathematics, physics, chemistry, botany, zoology, bacteriology, genetics and nucleonics, along with the application of the principles of engineering.

From the beginning the emphasis was on more production per acre with less labor. Experiment stations of the Land-Grant colleges joined hands with the United States Department of Agriculture to work a revolution on the nation's farm lands. When hybrid corn shot yields up approximately 30 percent in the 1930's, Iowa State began work on inbred lines which are now used almost exclusively in Iowa hybrids. Oat breeders at Iowa State developed one new variety after another to keep ahead of new disease threats, to boost yields, and to produce stiffer straw. The state and the Midwest received an entirely new crop in the form of soybeans, and Iowa farmers now plant the varieties developed and proved at Iowa State.

Harvests from the land were further increased by the application of fertilizers and by better methods of tillage.

Work at the Iowa Agricultural Experiment Station helped send livestock to market earlier and more economically. Breeding and feeding became a science.

In her 100th year the College still works with Iowa farmers for increased productivity, but the emphasis has shifted to broader areas. It has encompassed farm management, and how to get the greatest return from labor and capital. It has entered the realm of consumer preference, and how to produce the kind of food most sought for the nation's dinner table. It has stressed quality, better processing and better handling to deliver that food at its appetizing best to the kitchen door. It has sought new, larger, more profitable markets for the products of Iowa's acres. It has shown increased interest in economics and sociology as means of insuring stable and attractive living conditions for rural families. In these areas are the big agricultural problems of today and possibly tomorrow.

All this involves continued research, and it also involves the training of scientists, technicians, and businessmen in scores of new areas. Iowa State College today enrolls more undergraduates in agriculture than any other institution in the world. The largest single group of graduates from the Division of Agriculture goes into business and industry associated with agriculture. There they engage in grain and seed processing, meat and poultry packing, feed manufacturing, dairy processing, banking, farm management, land appraisal, marketing and insurance, to name but a few. The second largest

group enters agricultural education in high schools, colleges, farm organizations, governmental agencies and the Extension Service. Agricultural conservation claims a third group, research another, agricultural communications still another. About 20 percent of the graduates take up farming. By actual count, there are more than 500 distinct occupations in the eight major fields of agricultural endeavor open to ISC graduates.

Research and the training of agricultural scientists are not the whole story of agriculture at Iowa State. Possibly one of the most amazing accomplishments is the manner in which the College has brought new knowledge in agriculture to the people who could use it best.

Agricultural colleges early had invited farmers to their campuses to see good farm practices and to hear what the professors had to say. Iowa State was the first agricultural college to go to the farmers. President Welch, less than 2 years after his inauguration, conceived the idea of sending some of the faculty to hold institutes in various parts of the state. The first was held Dec. 20, 1870, in Cedar Falls with the president himself among the group that conducted the sessions over a 5-day period.

In the winter of 1900-1901 the first short course was started on campus. It pertained to livestock, and was so successful that a broader one was scheduled the following year. P. G. Holden, a man with genius for drawing the attention of farm people, was in charge of corn. Study began at 8 a.m. and continued into the evening, with time out only for meals, but so eager were the farmers for more knowledge that they asked Holden for longer sessions. So the schedule was altered and the students began

Iowa farmers and homemakers have learned to depend upon the Extension Service for information in agriculture and home economics.

their work at 5 a.m. by the light of flickering lanterns!

Finally, it was Iowa farmers and Iowa educators who were to undertake pioneer work which led to the Cooperative Extension Service in Agriculture and Home Economics as an integral part of the Land-Grant colleges in America.

In 1903, near Terrell, Texas, Seaman Knapp supervised an early farmer-conducted farm demonstration which opened this idea to the entire South. This was the Seaman Knapp who had helped to establish some of the agricultural research and teaching at Iowa State, where he had served both as an outstanding professor of agriculture and as president, and where he had, in

1882, drafted an early bill for the federal support of agricultural experiment work.

In 1903, too, P. G. Holden was speaking to the annual meeting of the Sioux County Farmer's Institute at Hull. The farmers wanted a county demonstration farm, and Holden said he would ask the College to furnish the educational and technical help. The Board of Supervisors of the county agreed to take care of the cost of the labor, storage and other local expenses.

Thus in this first Iowa demonstration, there was a cooperative movement that was organized at the request and on the initiative of farmers, supported by county appropriations on land furnished by the county, and conducted in full cooperation with the Iowa State College which also included support from the United States Department of Agriculture.

The county cooperative demonstration farms proved popular. Their number grew to 10 by 1906, and kept increasing.

Meanwhile, Holden, the evangelist, started his "Seed Corn Gospel Trains." For a number of years these exhibits traveled over the railroads of the state, bringing the message of good corn growing practices. In his first annual report Holden told of 670 towns and 96 counties visited, 10,000 miles of travel, 1,085 talks given to more than 127,000 people and more than 30,000 bulletins distributed.

In January 1905, Holden started the first local short course at Red Oak. Lasting a period of one week, the short courses were popular from the beginning, and came to be one of the chief extension activities.

In 1906 the Iowa General Assembly established the Agricultural Extension Service. It was a movement that continued to grow as fast as funds would permit. Seven full-time county extension workers were employed in 1913. That year the General Assembly passed a law providing for state-wide county extension work, and in 1914 the National Cooperative Extension Act known as the Smith-Lever Act was passed by Congress. As a war emergency, all Iowa counties were brought into county extension work by 1918, and one or more full-time agents were employed in each county, making Iowa probably the first state to be fully organized in this project.

In less than 40 years extension grew from very humble beginnings to perhaps the most important development in adult education in the modern world.

Statistics can tell but little of the total story, yet they suggest the scope of the program. More than 50,000 boys and girls are enrolled in 4-H work under college direction. (It is said that the 4-H theme originated in Iowa.) About 1,000 printed and mimeographed publications are produced in a year, and more than 3½ million copies distributed. Each publication deals with some phase of knowledge within the fields covered by the College. County extension workers visit nearly 100,000 farms and homes. (Iowa has less than 200,000 farm homes in all.) Around 20,000 people come to the campus for short courses and conferences.

Under men like Charles F. Curtiss, dean from 1902 to 1932, and some magnificent teachers, research workers and administrators who worked with, and after him, the Division of Agriculture attained world-wide prominence in the final half of its first century.

Engineering to the Fore

The federal Land-Grant Act, which provided funds for Iowa's new college, required instruction in both "agriculture" and "mechanic arts." It said the College should be for the promotion of "the liberal and practical education of the industrial classes in the several pursuits and professions in life."

Scholars looking back on those times say that Congressman Morrill was right in using the term "mechanic arts" in describing the studies which now have developed into engineering. Industry was still in its infancy, and the engineers of Morrill's time were limited in their concepts. "Engineering" referred largely to military engineering or to the beginnings of the sort of work that civil engineers now perform. The scholars argue that by specifying "mechanic arts" Morrill was indicating a broader field where the institutions could train leaders, and where teaching could be on a high level.

Whether this was really the congressman's thinking or not, times have demanded the production of large numbers of engineers of the finest order, and Iowa State College and her sisters have responded to that demand.

Within 2 years after the opening of the College at Ames the "mechanical" course had been divided into the departments of mechanical engineering and civil engineering.

Developments in engineering were somewhat less unique than in agriculture because other institutions were also teaching engineering, and there was no suspicion of "book-learning" for engineers as there was (on the part of some) for farmers.

Iowans understood that agriculture was not the only pillar of the state's wealth. She was going to need industry. Furthermore, industry would come to recognize the need for trained men, and would be willing to pay for them.

As the requirements of industry arose, Iowa State responded by adding more courses and new areas of engineering—a clear example of how industrial education was shaped to fit both state and national needs.

These needs were demonstrated most forcefully in the twentieth century. Although engineering had its own building in 1884, its curricula developed slowly and emphasis was put on shop practices. Its first laboratories were machine shops and forge shops.

At the turn of the century a separate Division of Engineering was established. Its first dean in 1904 was Anson Marston, a vigorous young man who had come to Iowa State as a professor of civil engineering in 1892.

An excellent engineer and a good administrator, he prodded the General Assembly of Iowa in 1904 into establishment of the Iowa Engineering Experiment Station, and the College thus was able to share with the University of Illinois the distinction of being the first in the nation to organize its engineering research activities as an experiment station.

The General Assembly lost no time in availing itself of the engineering research talent available on the Iowa State campus. That same year it designated the College as the State Highway Commission, with the deans of engineering and agriculture entrusted jointly with the commission's administration. T. H. MacDonald, a 1904 graduate of the college, and later chief of the United States Bureau of Public Roads, was the first secretary and highway engineer of the commission.

Iowa's deep black soil was excellent for the

growing of corn, but provided the most fearsome sort of roads—heavy with dust in the summer and bottomless with quagmires in the spring. They were difficult for wagons to travel, and entirely unsuited for the automobiles and trucks which were soon to be traversing them.

The College remained the Highway Commission until 1913 when the commission was set up as a separate entity. Since then the Engineering Experiment Station has continued to do a great deal of highway research under contract from the commission.

As such it has played an important part, not only in developing the primary road system of Iowa, but also in helping to solve the problems of the most extensive secondary road system of any state in the nation.

Under Marston the early work of the Engineering Experiment Station was mainly in the fields of highways, sewage and soil mechanics, fields in which the College gained considerable recognition. These civil engineering projects have been continued, and the work expanded to include chemical, electrical and mechanical engineering.

In the more than 50 years of its existence, the station's objectives always have been to foster and develop the industries of Iowa through engineering research, to aid in the development of raw materials and natural resources of the state, to increase utilization of agricultural by-products, and to aid in the solution of engineering problems arising in the various branches of the government.

By 1913 the Iowa Manufacturers Association and the Iowa Federation of Labor were jointly petitioning the General Assembly of Iowa to establish Engineering Extension at Iowa State College. The purpose, they said, should be to provide for "trade and engineering" the kind of extension activities which already were being provided so well for rural people by the College's Extension Service in Agriculture and Home Economics.

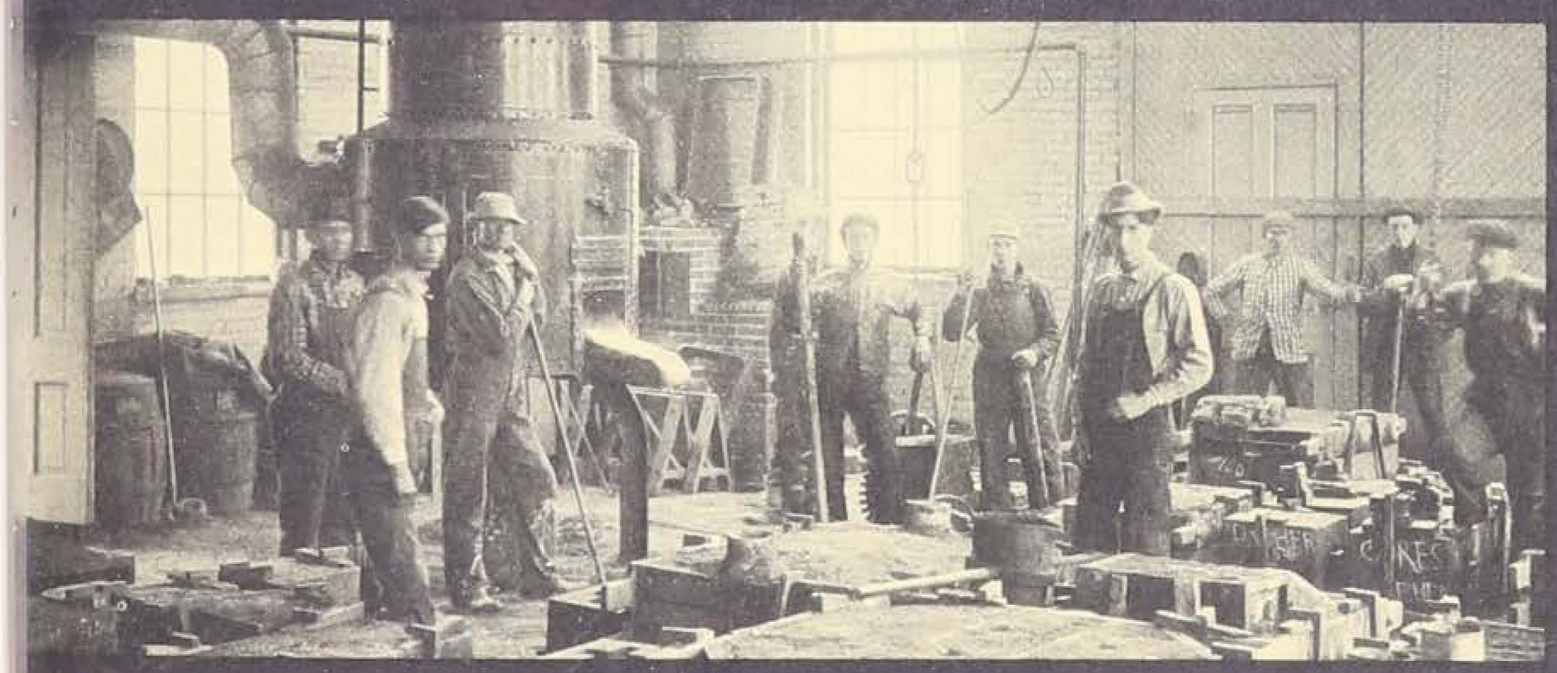
The new Engineering Extension started out at once to make available to all of the people of the state the benefit of the plant and staff of the College in the realm of engineering and related science and technology.

In response to repeated demands, the scope of Engineering Extension has broadened to cover a wide area. For example, about 5,000 individual firemen throughout the state receive direct class instruction through the facilities of the service. The firemanship training activities of the College have been credited with a strong assist in reducing Iowa's loss of life and property from fire.

Through short courses on campus, through schools and individual consultation throughout Iowa, and through printed material, radio and television, members of Engineering Extension have carried out their mission. Their activities have embraced professional engineers, technicians, skilled craftsmen and industrial workers. They have dealt with both labor and management. They have covered problems of industry, of municipalities, of counties and of the state. In an increasingly industrial society their work becomes ever more important.

The big job of the Division of Engineering, nevertheless, has been the training of large numbers of engineers to meet the demands of a nation which assumed the technological leadership of the world.

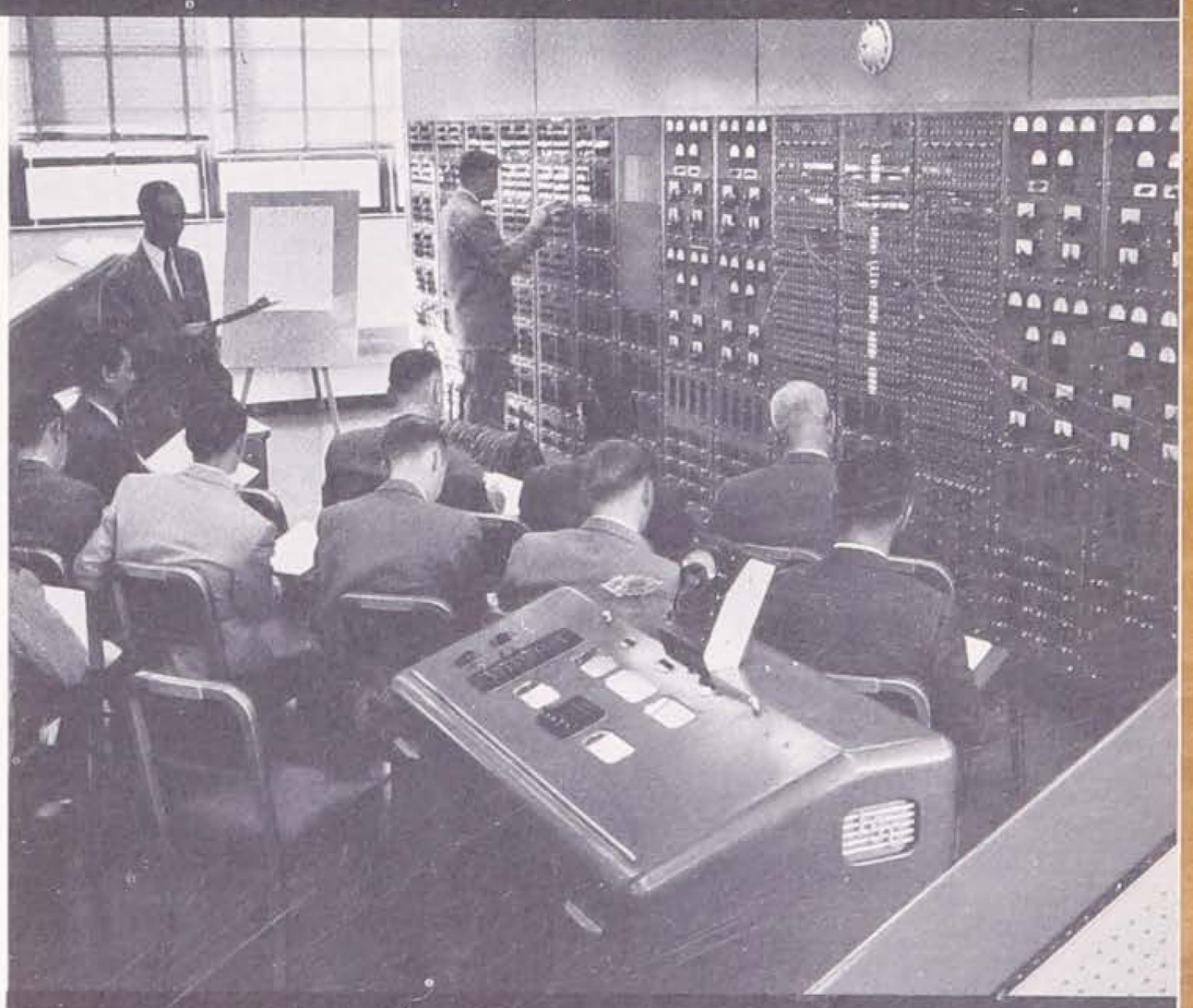
Mining engineering, added to the list of



Left: An early engineering laboratory was likely to stress practice as did this one in foundry work.

Upper left: Principles of plant layout and design are studied in exercise worked by undergraduate students.

Upper right: Aerial maps, properly interpreted, provide important data for solving many engineering problems.



Engineering services rendered by the College to the state include fire fighting and fire protection instruction by Engineering Extension, and a network analyzer which provides solutions to problems of electric power distribution for utilities groups.

The college motto, "Science with practice," is still exemplified in such matters as a summer camp in northern Minnesota where civil engineering students work problems in surveying. Forestry and geology students attend similar camps concerned with their particular interests.

curricula in 1892, was dropped in 1956 after the coal mining interests of Iowa became less important. Elsewhere, there was steady growth. Agricultural engineering had its first beginnings in 1902, ceramic engineering in 1906. Chemical engineering started as "industrial chemistry" in 1909. Electrical engineering, begun first under physics in 1891, changed to a department of its own in 1909. General engineering was authorized in 1926, and became industrial engineering in 1956. Architectural engineering began in 1914, and in 1945 became architecture and architectural engineering. Aeronautical engineering was authorized in 1942.

Graduates, grudgingly hired by industry at low pay in the early years of the College, proved valuable enough that demand in the last 20 years usually has far outstripped supply. The ratio of one engineer for every 290 factory workers in industry in 1890 changed to one for every 140 in 1920, then to one for every 50 in 1956. In 1958 that trend was continuing.

As a consequence, engineering graduates were being besieged by industry as few college graduates ever had been. It developed that the engineering mind and the engineering personality could be molded into top business executive material. More than one-third of the nation's engineers now are in administrative and managerial positions. The others are filling an increasing need in design, development, research, sales, operation and production in industry. Or they have become teachers, research workers or consultants.

Response to this situation at Iowa State College has been a soaring enrollment. The number of undergraduates in the Division of Engineering is now nearly double that of the Division of Agriculture, which is the next largest division of the College. The Division of Engineering is among the 10 largest engineering schools in the nation.

Sons of farmers and mechanics—yes, and of bankers and lawyers and doctors—are finding a thoroughly practical and rewarding education in the engineering field.

A New Science for Women

As President Welch was inaugurated on March 17, 1869, an unexpectedly large crowd of 1,200 gathered on the bleak and windswept prairie. Those who were there saw not just an unpromising set of farm buildings and a single unfinished college hall. They occupied themselves, instead, with two far-reaching ideas which were being born there—a great and fundamental theory of industrial education and the equality of educational opportunities for the sexes.

The same Benjamin F. Gue who had helped to draw the bill establishing the College was now president of the Board of Trustees, and spoke at length of this new education and what it meant for women. The president was equally enthusiastic about "the free admission of young women, on equal terms with young men, to all the privileges and honors which this institution can bestow."

But the first coeds, who were offered a choice between a course in "Agriculture" and one in "Mechanics," may have felt that equal educational opportunities under the new system left something to be desired.

There was plenty of practical work at hand, nevertheless. The coeds of 1869 found it immediately in the kitchen, dining hall and laundry, where they were set to work in order to fulfill the requirement that every student do some manual labor. The college matron provided instruction, but more skilled training and broader teaching were needed.

One proud day in 1871 the president could point to a sheet of paper on his desk, which outlined the new "Ladies Course," and say to a junior girl who happened to be in his office, "Now, my dear, any girl who passes that may be assured that she knows something." In the new program was instruction in domestic chemistry.

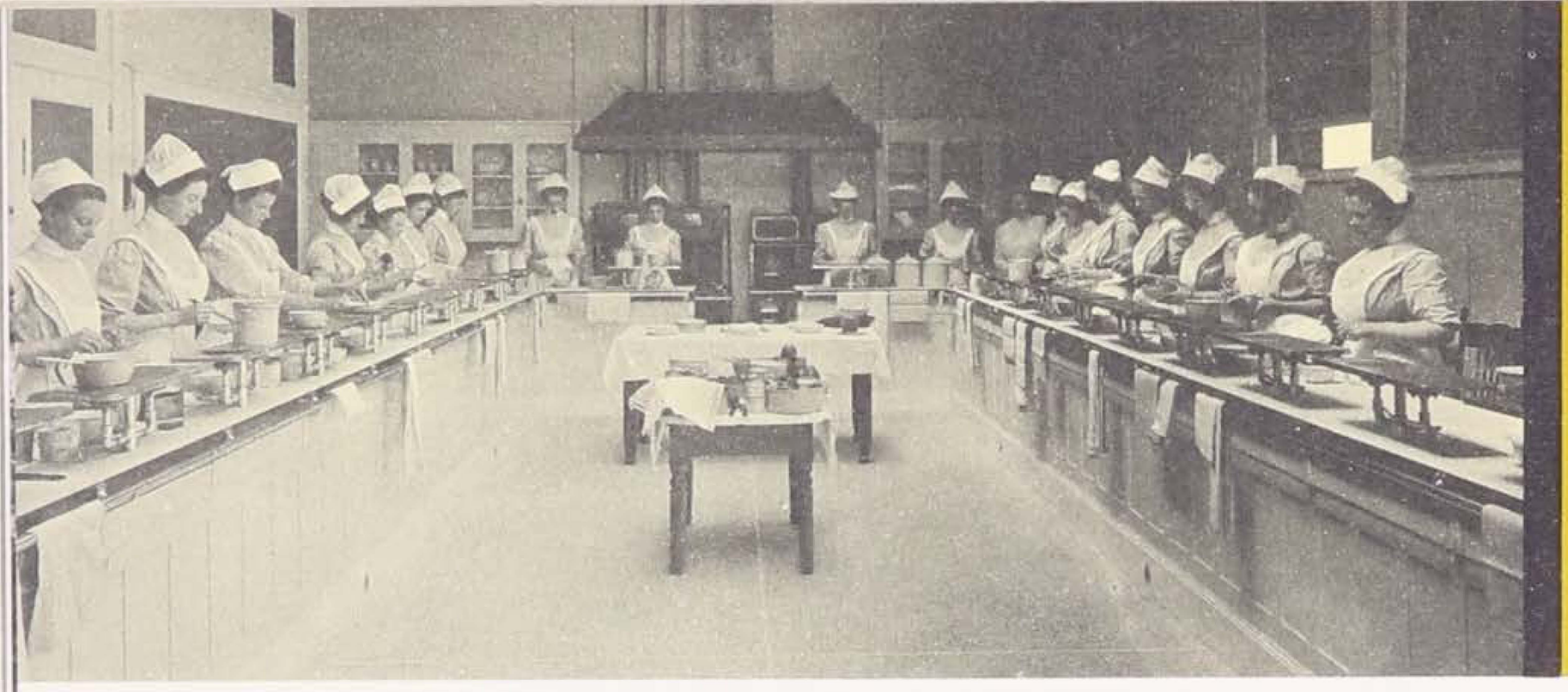
It remained for the president's wife to strengthen the foundation which the new college had been the first to build, and to develop further the new science of home economics—a science which was to become a hallmark of Land-Grant institutions. By 1872, Mrs. Mary B. Welch had begun giving lectures on cooking.

In 1875 she persuaded the Board of Trustees to establish a department of "cookery and household arts." Along with it was established an "experimental kitchen" believed to be the first of its kind opened in any college.

The president's wife was an excellent housekeeper, but, as in agriculture, there were no texts in domestic economy, and little organized knowledge. To prepare herself better for teaching in this field she enrolled in the School of Maids in London, where it is said she was mistaken by fellow students for a servant in training. She also consulted in New York, and visited various private schools of cooking in the East.

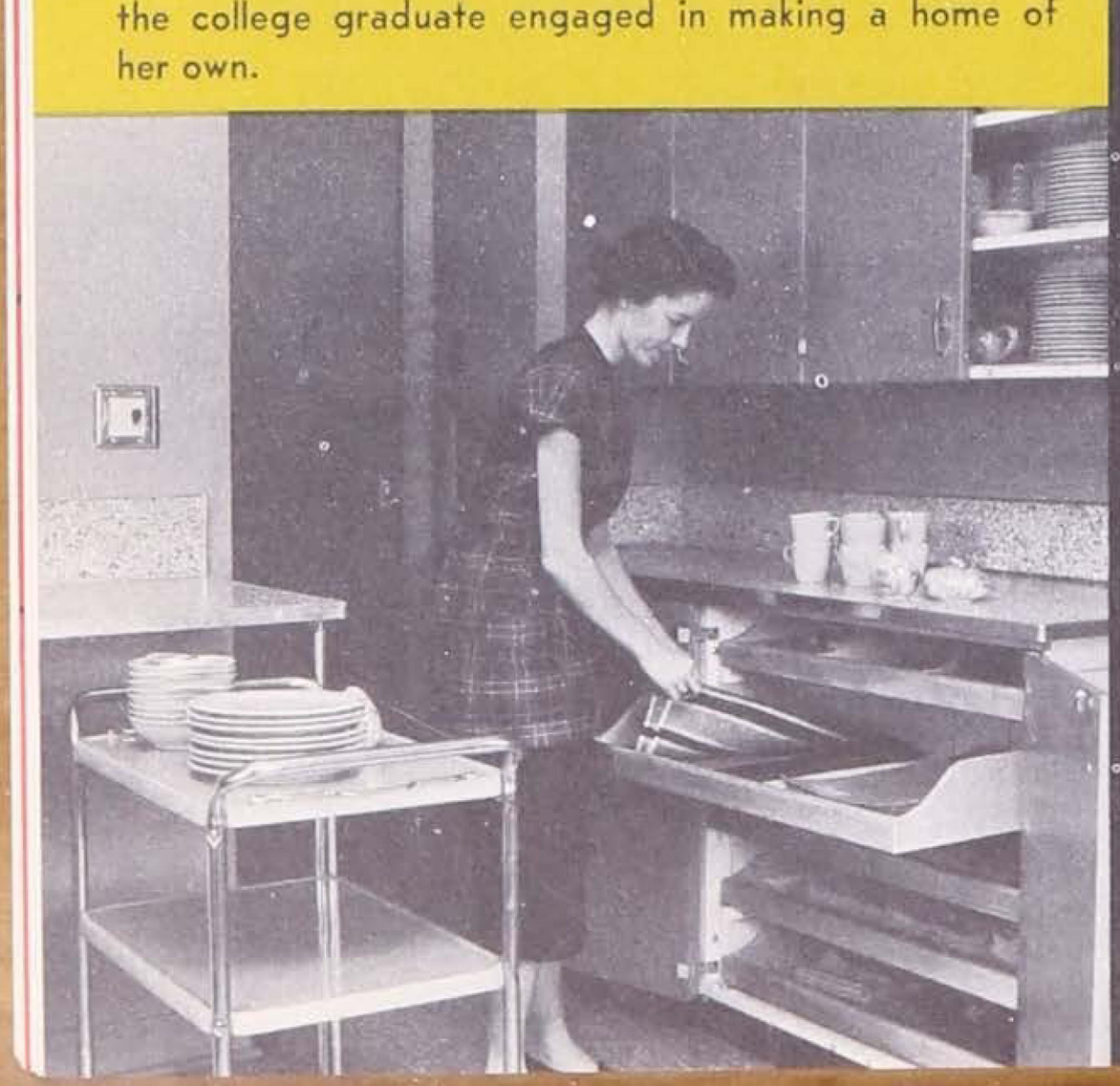
Building a curriculum wasn't the only task faced by Mrs. Welch. She had to convince other people of the value of academic instruction in the household arts and to explain these arts in relation to others.

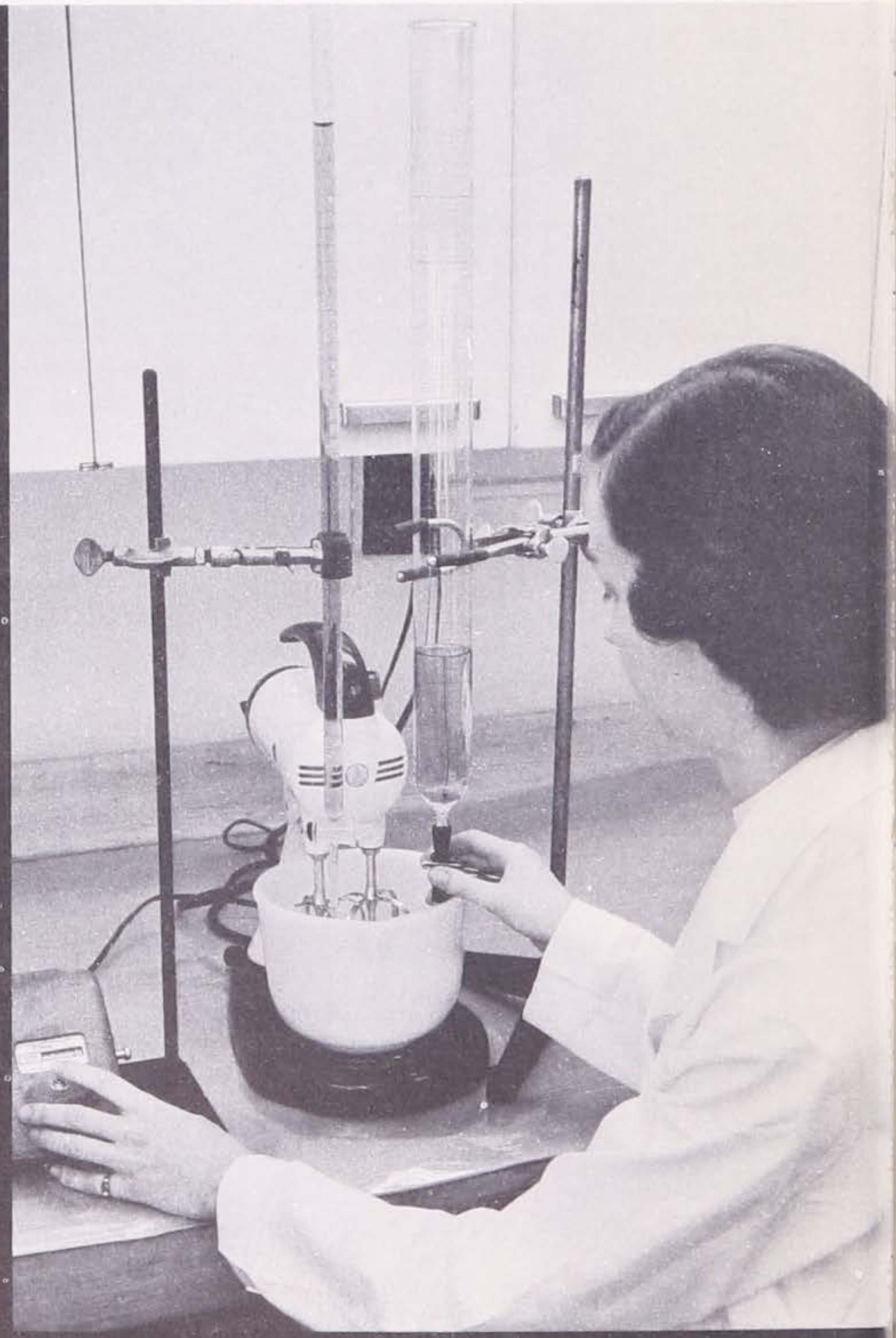
On this she made a good start, too. She overcame many objections by the practical nature of her work at the College and by lectures to some of the most progressive homemakers of the state. Like her husband, she was an early advocate of taking the College to the people, and she established a precedent for the Extension Service when she conducted a class for 60 people in Des Moines.



1911 cooking class
at work in laboratory.

Principles of home management and child development, taught in the Division of Home Economics, can be used in a professional career, or can be applied by the college graduate engaged in making a home of her own.





Home economists carry out studies in the foods field as part of the total Home Economics research program of the College.

Work in domestic economy came to be required as part of the "Ladies Course." Similar ventures into home economics were under way about this time at the Land-Grant colleges of Illinois and Kansas. Illinois abandoned its efforts for a period, and by 1890 separate home economics departments existed only in Iowa, Kansas, Oregon and South Dakota.

The first courses in Iowa were largely in the realm of cooking. Then came other household arts, such as sewing and laundering. A course relating to home management was offered in 1885, along with a course in art and one in home nursing.

By 1901 a course in home economics education was introduced, and the College was well launched into what has proved to be its biggest home economics field—the training of teachers in that area.

The teaching of home economics began to expand, not only into specialized schools, but into the public schools of the state, where it became a standard part of the curriculum—and the majority of the teachers received their training at the College in Ames.

When the General Assembly provided funds in 1906 for the first agricultural extension work in Iowa, the very practical idea was included that this new program would apply to the entire family.

Working through women's clubs and through short courses on campus, the first effort in home economics extension dwelt heavily on food demonstrations, though it did include other fundamentals of homemaking. By 1916 extension workers in home economics were being added to the staff of Agricultural Extension in the counties. As World War I developed, these "home demonstration agents" had their ranks augmented as part of the wartime effort in food conservation. So successful were they, that many were retained in the counties after the war, and their numbers have gradually grown until today about 90 Iowa counties have "county extension home economists." Extension Service, now cooperatively worked out between the United States Department of Agriculture and the states, includes both agriculture and home economics as a matter of course.

The first home economics building was occupied in 1911, and home economics became a separate division of the College in 1913. Catherine J. MacKay, a member of the staff since 1910, was named dean. In 1916 a "practice cottage" was opened, and students moved in to gain actual experience in household management.

Home economics, which had excited considerable interest throughout the country almost from its beginning, was growing fast both in number of students and in the studies which it offered.

It, too, along with agriculture, engineering and the sciences, needed to change and develop in order to provide leadership for the people of Iowa.

Home economics research, begun slowly at first, since 1944 has been incorporated on an organized basis as part of the Agricultural and Home Economics Experiment Station. Investigations cover a wide range of subjects, including human nutrition, food, the family, household equipment, home management, clothing, and home economics education.

Mrs. Welch's modest department of "cookery and household arts" now has become a training ground for a recognized profession. Its

graduates still go in large numbers to staff the home economics departments of schools, but the horizons in other areas have been pushed far back. Many dietitians in hospitals and dining halls now come from Iowa State, where their studies have taught them the essentials of healthful, appetizing, well-balanced meals and the fundamentals of sound nutrition.

In the nation's restaurants and dining places, home economists are supervising food service that is appealing and economical.

Since women make most of the nation's purchases, home economists do well in merchandising and retailing positions of many kinds.

Nursery schools ask for home economists whose studies have included an emphasis on child development.

In test kitchens where new ideas in nutrition and new food products are developed, home economists conduct the investigations.

Utilities companies and distributors of household appliances find home economists excellent for the home service aspects of their businesses.

Interior designers and textile designers may come from a background of home economics.

Newspapers, magazines, radio and television stations look for women trained in home economics to deal with material designed especially for the homemaker.

Yet the fact is that nearly all of Iowa State's home economics graduates eventually become homemakers themselves. That is why the Division of Home Economics retains a primary interest in the family. It is why the study of home economics remains broad enough to include a strong background for community life and civic responsibilities.

Iowa, which was the first state to begin the development of home economics in its Land-Grant college, in 1958 supports the largest program of home economics in the nation.

The college television station reaches much of Iowa with programs produced by students and by faculty in home economics as well as in all other areas in which Iowa State is interested.

Science is Imperative

Congressman Morrill wrote into the bill creating Land-Grant colleges provisions broad enough for almost any institution of higher learning, and Iowa State College has, in truth, become a technological university. From the day that it opened it has held science to be paramount. The first courses included botany, chemistry, economics, geology, mathematics, zoology, history, music, psychology, physics, speech, military science, English, German and French.

President Welch was a fine administrator, worthy of rank among the great college presidents of the nation. He had a broad view of education, and tended to emphasize the basic sciences and the humanities. He actually taught at various times such subjects as rhetoric, German, Shakespeare, psychology, geology, political economy, sociology, genetics and the history of civilization.

Fortunately for the young college on the prairie, it was able to secure in the early decades a number of extraordinarily capable and devoted faculty members who performed well in spite of meager salaries and primitive facilities.

Among the men who started the Iowa State tradition of excellence in science were:

Charles E. Bessey, who began classification of the diseases of plants, and who trained at Iowa State (and later at Nebraska) more men in botany than possibly any other man who ever lived. He established at the College "the first botanical laboratory in the United States for undergraduate instruction."

Louis H. Pammel, whose interest was in weeds, grasses and plant pathology; a tireless worker, who also introduced at the College one of the first courses in bacteriology to be offered in America, thus laying the foundations for the present department.

Herbert Osborn, a thorough research enthusiast, who became the best man in the Mississippi Valley on the subject of injurious insects.

Joseph L. Budd, one of the great pioneer horticulturists of the nation.

These men and some of their colleagues possessed stature that later was achieved by others, too, in chemistry, in physics, in geology, in genetics—in nearly all the areas of basic science.

Yet, for the greater part of her first century, Iowa State looked on these sciences chiefly as supporting agriculture, home economics, engineering and veterinary medicine. The College insisted on strength in the former areas largely because it felt that such strength enhanced the latter fields, as indeed it did. A sound understanding of mathematics, physics and chemistry was necessary for the development of a good engineer. Botany, plant pathology, entomology and zoology were closely allied with many fields of agriculture.

English, history and the appreciation of music added the "liberal" facet of education to the "practical" aspect which the College stressed. Knowledge of foreign languages was valuable for exploring the scientific literature of other nations.

The accumulation of scientific knowledge closely corresponded to the increased wealth, better health, lightened labor and multiplying comforts and luxuries which have been the lot of the American people for generations. This was in line with the purpose of the Land-Grant colleges.

Within recent years the scientists have been cast in a new role. Where once they were largely teachers and research workers in schools, colleges

and universities, they now have found themselves eagerly sought by industry, and by organizations handling the huge research programs of the federal government and private foundations. Personnel recruitment teams now come to the College seeking to employ those whom it graduates as chemists, physicists, mathematicians, geologists and other representatives of the sciences.

Training of personnel for industry actually has been a prime objective of the College always, and it was in this connection that the teaching of industrial administration was begun in the Department of Economics. A separate department of Industrial Administration was created in 1955 to answer the increasing need which industry has felt for greater numbers of men qualified to advance to positions of leadership and management.

Possibly because of the widening opportunities, undergraduates in the present years of booming enrollments are showing extraordinary interest in the Division of Science at the College.

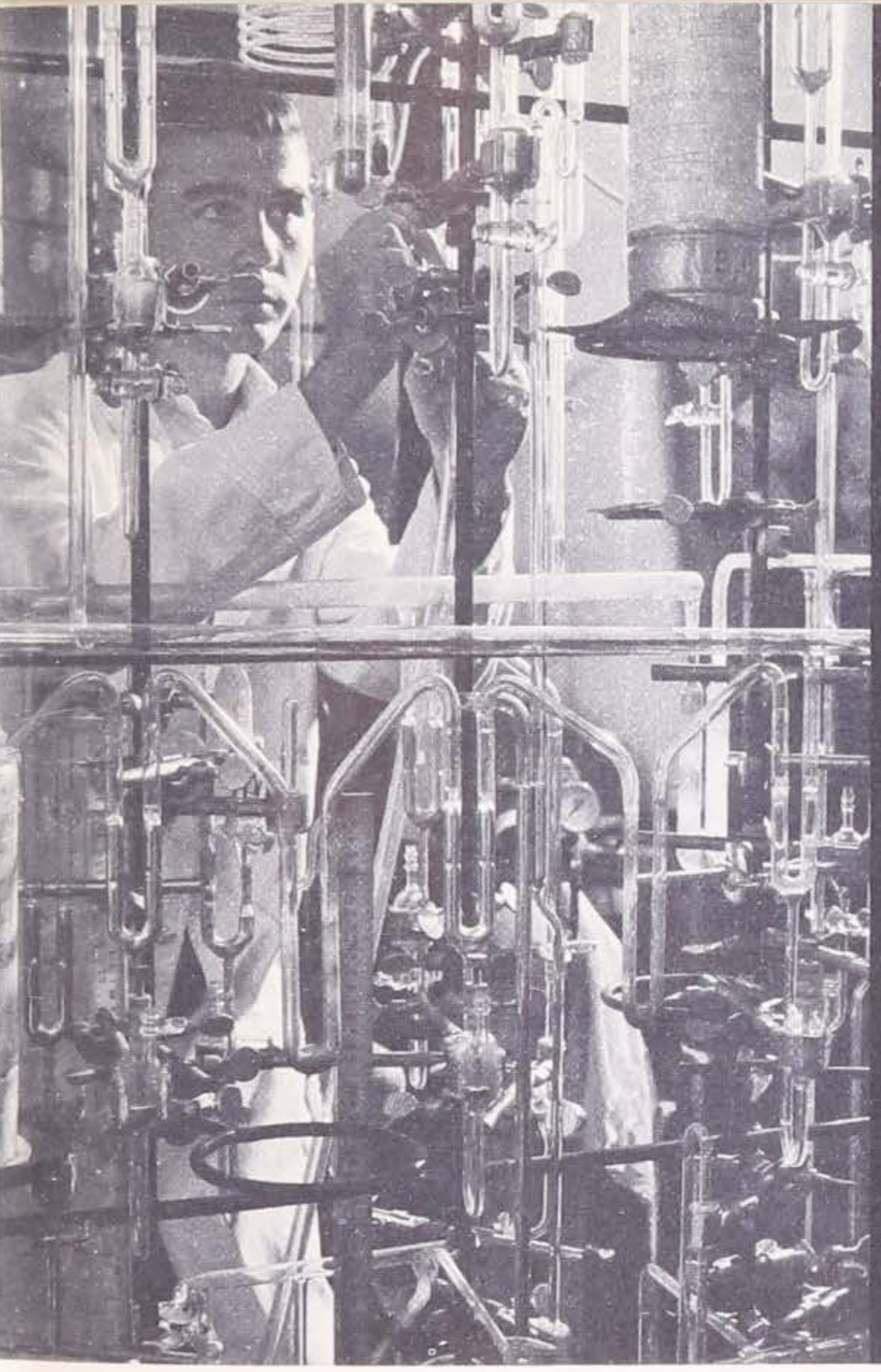
The solid reputation which Iowa State scientists began building 100 years ago was dramatically emphasized by developments of World War II. In the super-secret Manhattan Project which was to result in the first large-scale release of atomic energy, personnel from the College formed a key group.

Dr. F. H. Spedding had done considerable research in his campus laboratory on the separation of certain chemical elements called "rare earths." Because the knowledge which he had gained would also be important in the production of uranium and thorium so essential to the success of the project, he was asked to lead a team toward the development of new methods for their separation. That team, which included a number of Iowa State faculty members, solved the problem set for it, bringing pure uranium down to a fraction of its prewar cost. The College, in an old shed, actually produced uranium for the war effort, and for a time was the world's largest manufacturer of the metal. Recognition of these accomplishments and other missions in connection with the Manhattan Project came from the federal government.

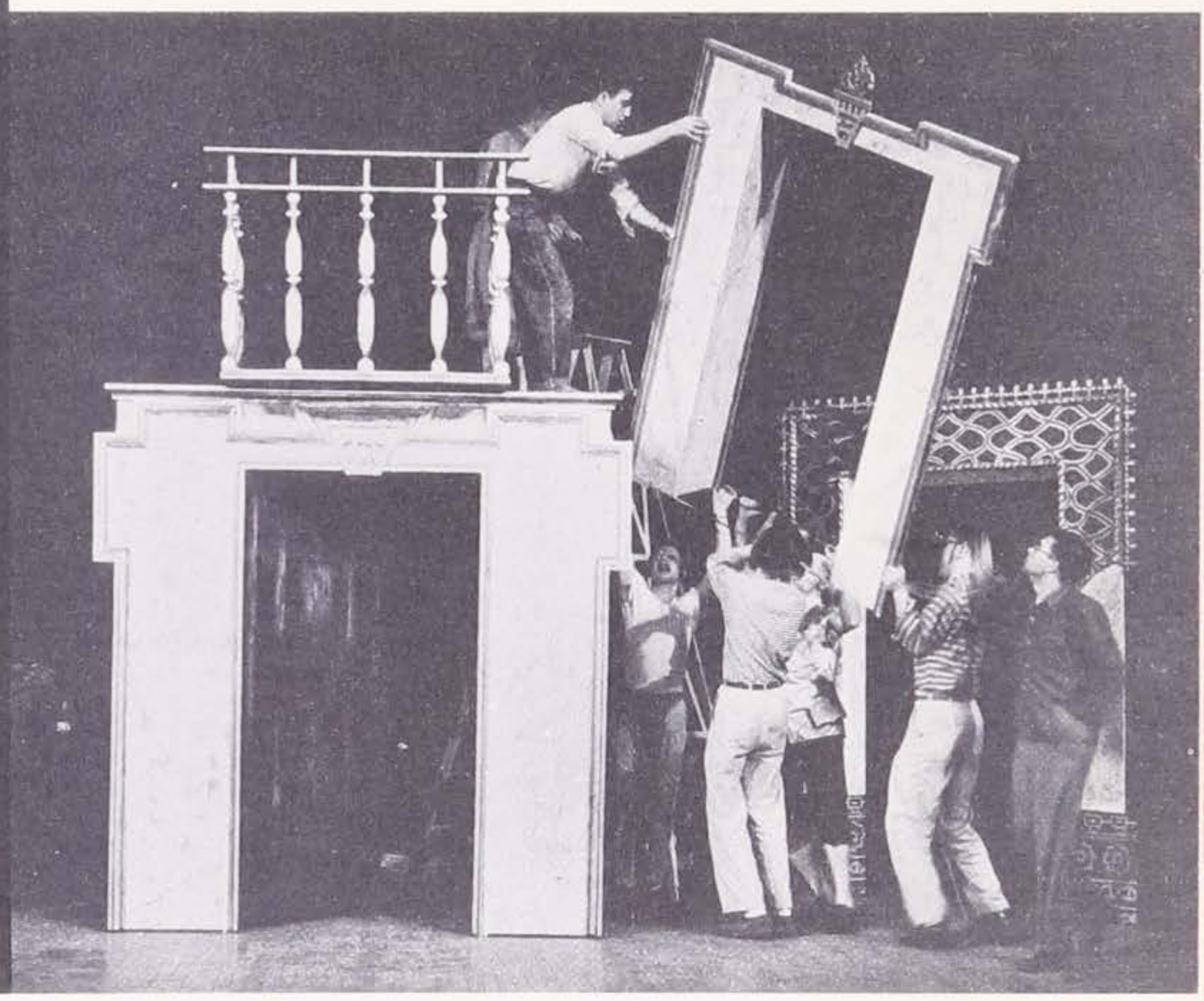
At the conclusion of the war the United States Atomic Energy Commission located a major research installation on the campus. The Ames Laboratory of the Commission is operated as part of the Institute for Atomic Research within the College.

An increasing dependence upon mathematics for the solutions of problems in science has led Iowa State to the development of new mathematical and statistical methods. More than 25 years ago it pioneered in applied mathematics by introducing punched-card techniques into computing methods used in its activities. In 1933 a Statistical Laboratory was established as an independent research institute to promote and foster the appropriate and efficient use of statistical methods in the research of the College, to conduct research in statistical theory and methodology, and to provide fundamental scientific facts and principles which underlie the development and successful solution of agricultural and industrial problems in Iowa.

An entirely different kind of science is that directly concerned with the defense of the nation. The Land-Grant Act became effective in the midst of a Civil War during which the federal government found itself at great disadvantage because of lack of competent officers to command the armies which were attempting to

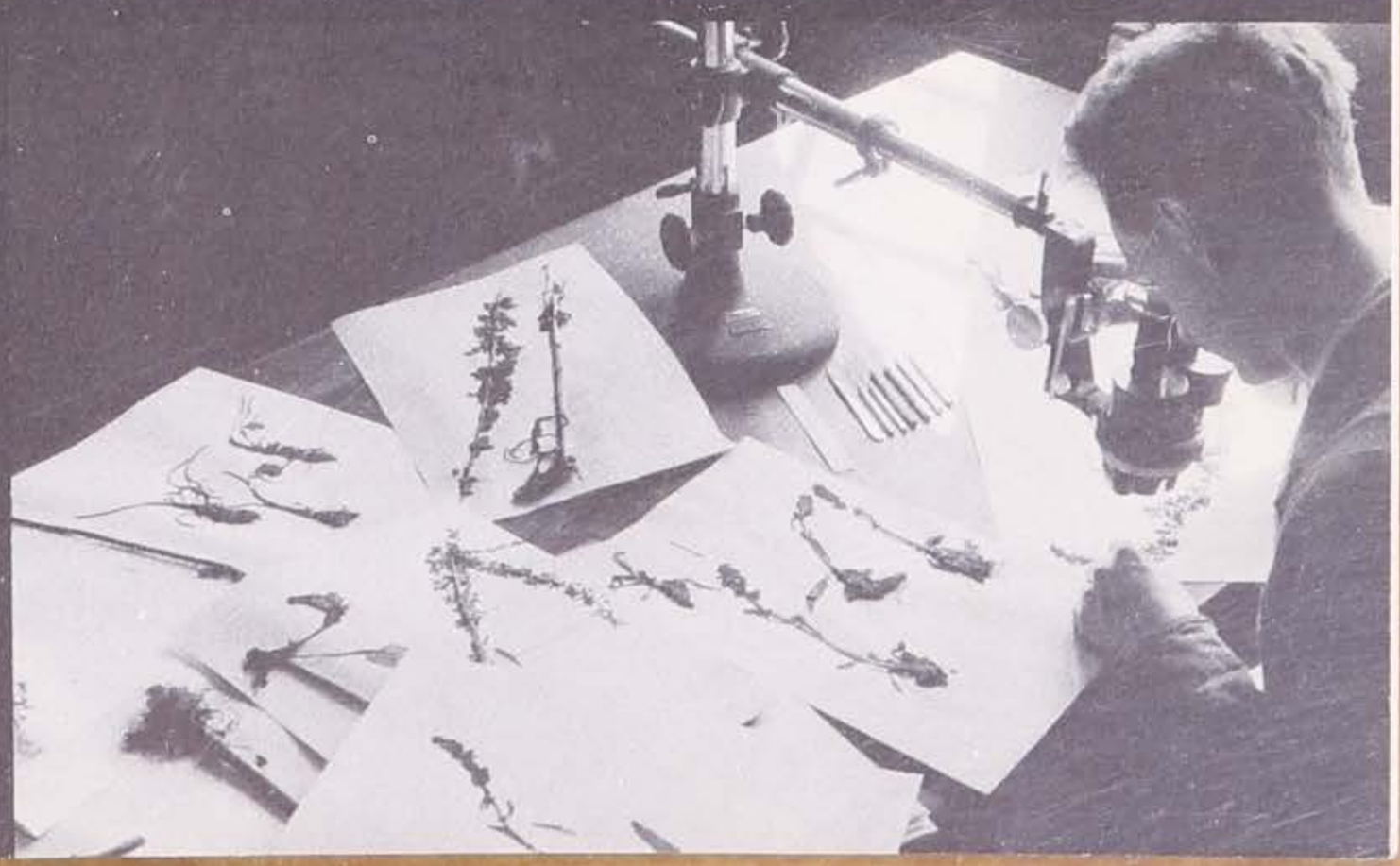


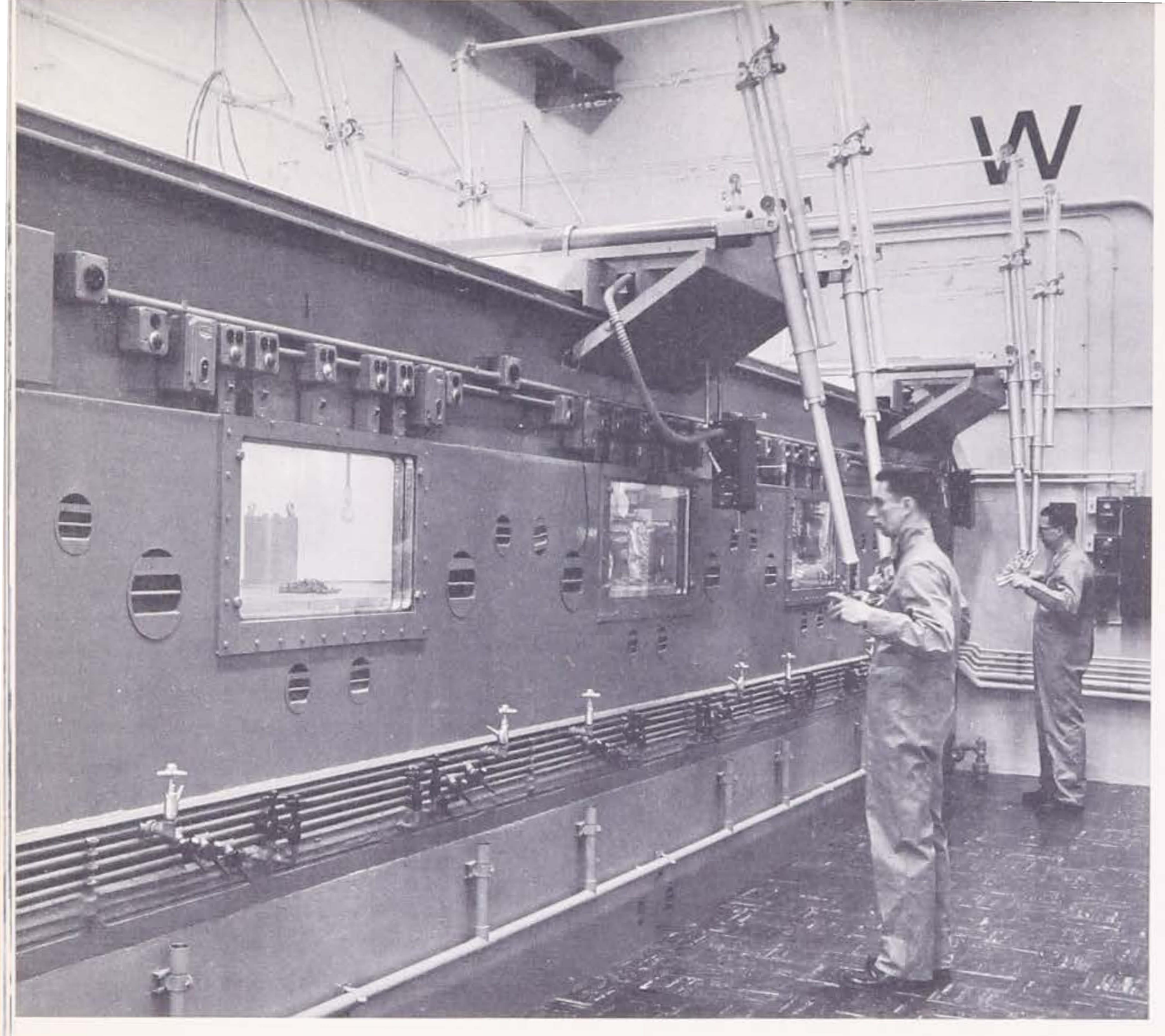
The Division of Science has broad interests in the natural sciences, social sciences and humanities. Students of the Division may go deep into the intricacies of chemistry or choose to turn their attention to the production of first-rate drama.



Bird observation field trip of zoology students, 1925.

Examining a specimen in the college herbarium, which includes a quarter million plants among its collections.





Handling highly radioactive materials used in research at the Ames Laboratory of the United States Atomic Energy Commission. The laboratory is a part of the Institute for Atomic Research.

preserve the Union.

For that reason, the Land-Grant law directed the new colleges to teach "military tactics." Large numbers of men trained in the Reserve Officers Training Corps at Iowa State served their country in World War I, World War II and in Korea. Initially, military training was directed only toward service with Army ground forces. In addition to duties in time of war the early cadets had such missions as patrolling the grounds at the Iowa State Fair. For a time the coeds were so intrigued with the uniforms and military drills of the men students that they formed a women's unit which marched with precision and splendor and displayed its perfection (along with the men) as far away as the Columbian Exposition in Chicago in 1893.

Following World War II, programs in Air Science and in Naval Science were established on campus by the Air Force and the Navy, and the College is now the only one in Iowa to offer training in all three branches of the armed forces.

Company G (for girls) drills with men, using spears and swords, as part of military units on campus during 1890's. Company G and L (for ladies) disbanded in 1897.

Veterinary Medicine Acquires Broad Responsibilities

Iowa's role as a foremost livestock state soon led her young Land-Grant college into new areas of veterinary medicine.

Nearly all of the early veterinary colleges in Europe and America were either established or sponsored by persons interested in fine horses. The "School of Veterinary Science" on the campus at Ames came from a much more practical consideration. Farmers wanted some method of controlling disease in their farm flocks and herds in order that animal industry in the state could be successful.

The act by which the General Assembly established the College in 1858 prescribed that "veterinary studies" should be taught, along with others.

Accordingly, the first class to graduate in 1872 had received some veterinary instruction. Then, from the class of 1873, there was appointed to the College staff a promising young man as professor of agriculture and superintendent of the College farm. Millikan Stalker promptly developed a special interest in veterinary science. In 1876 he was named professor of agriculture and veterinary science. In 1877, after study at the New York College of Veterinary Surgeons and the Toronto Veterinary College, he received the degree of veterinary surgeon. By 1878 he had conceived the idea of starting a veterinary school.

On May 23, 1879, the Board of Trustees ordered that the course in the "Veterinary School" be extended one year, that proper studies be arranged, and that a suitable diploma be conferred upon students who completed such a course.

Iowa was the first state to establish a veterinary school in one of its publicly supported institutions. And, with the decline of private veterinary colleges, the Division of Veterinary Medicine at Iowa State College remains the oldest college of veterinary medicine in the nation.

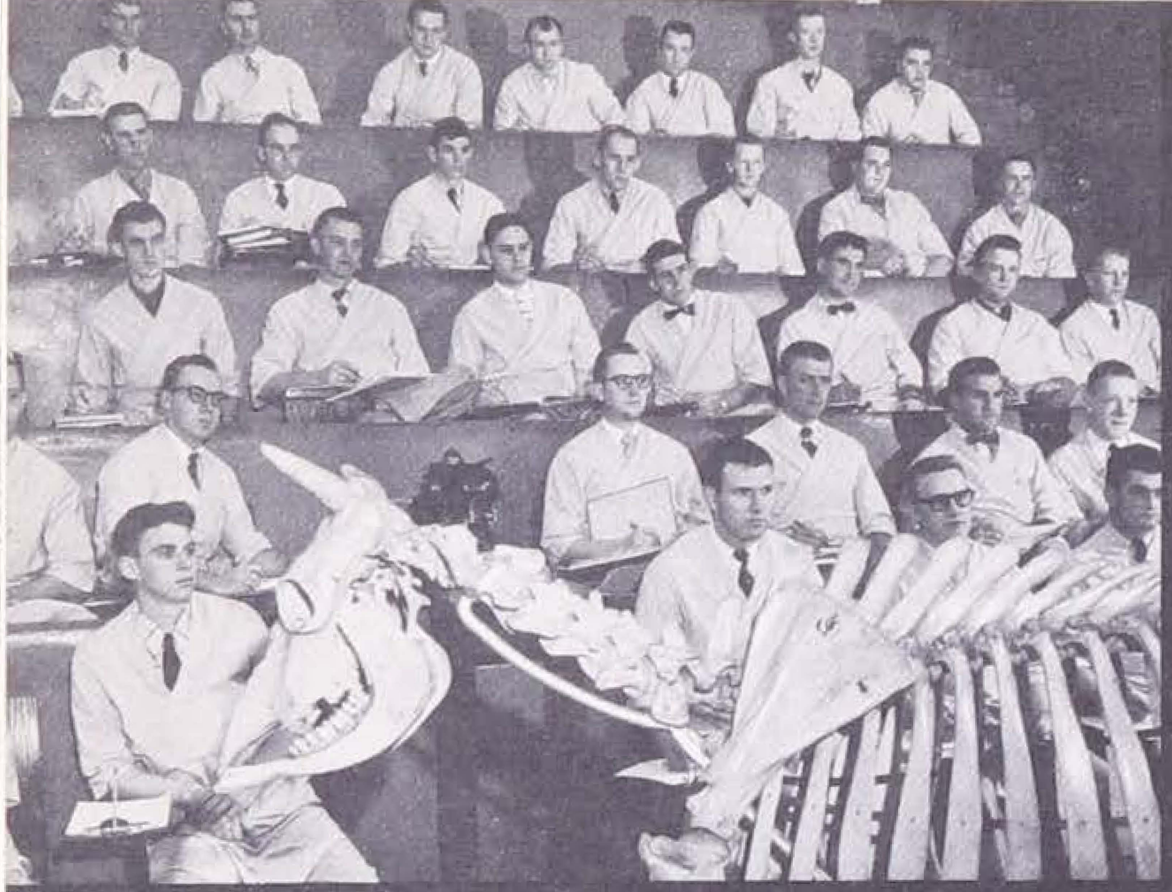
Its first quarters were shared with the Department of Botany in the president's "old house," the president having built himself new quarters. A small bedroom was the laboratory, and the front parlor could be used for classes when it was not needed by botany students.

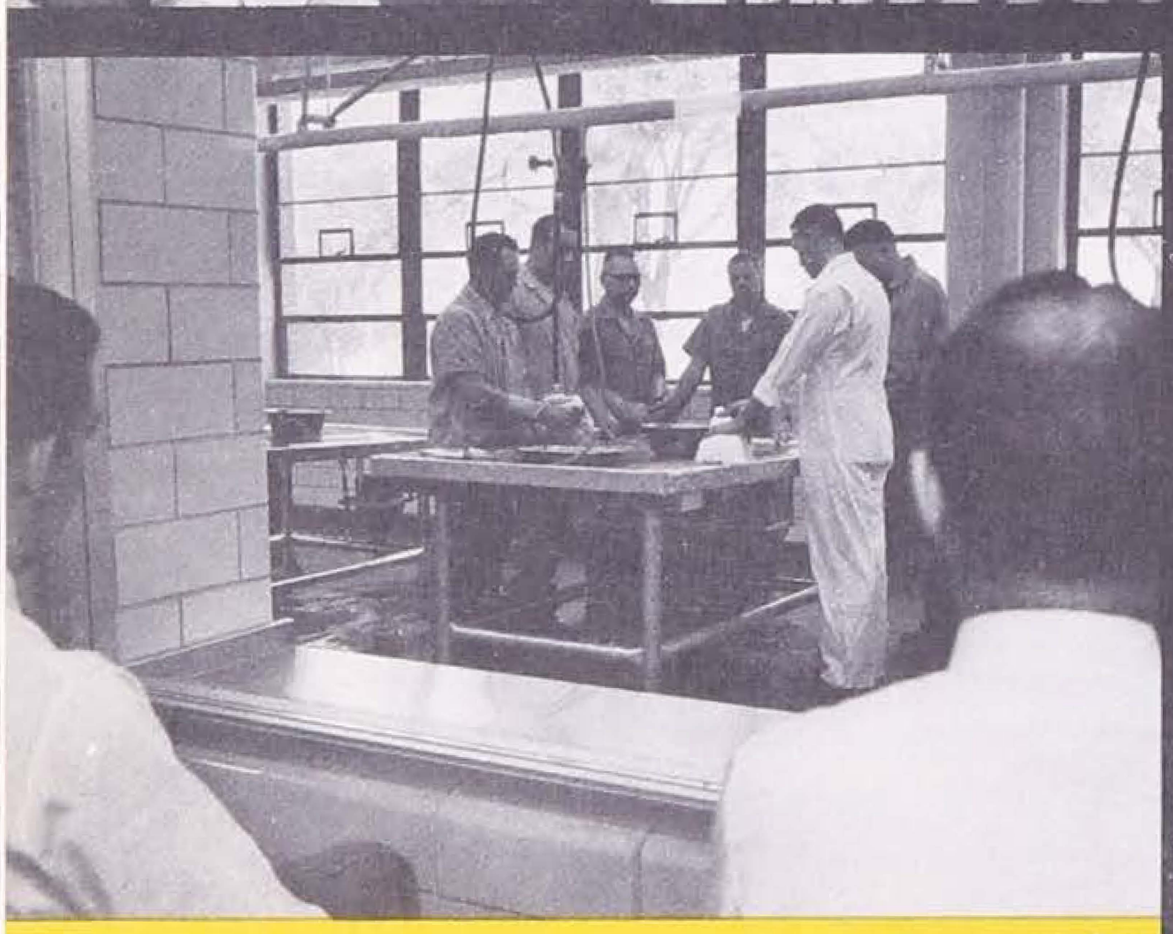
Even so, a few thought that veterinary studies should be confined to the general courses in agriculture, and that the College had no business trying to become a "scientific and literary" institution.

The pioneers of the new profession went staunchly ahead, nevertheless, even appropriating the rather rickety "president's barn" as a clinic. They constantly increased their standards, too. In 1887 they lengthened the course from 2 to 3 years. Dr. Stalker, who was not only a good professional man and administrator, but also possessed of persistence, pressed for more space for his work, and for more teachers. He was followed by other administrators who had a clear idea of what veterinary medicine could achieve, and how to go about reaching this goal.

By 1903 the College introduced the first 4-year course in veterinary medicine to be adopted by any veterinary college in the nation.

Under Dean C. H. Stange a first-rate physical plant began to take shape. By 1912 a new

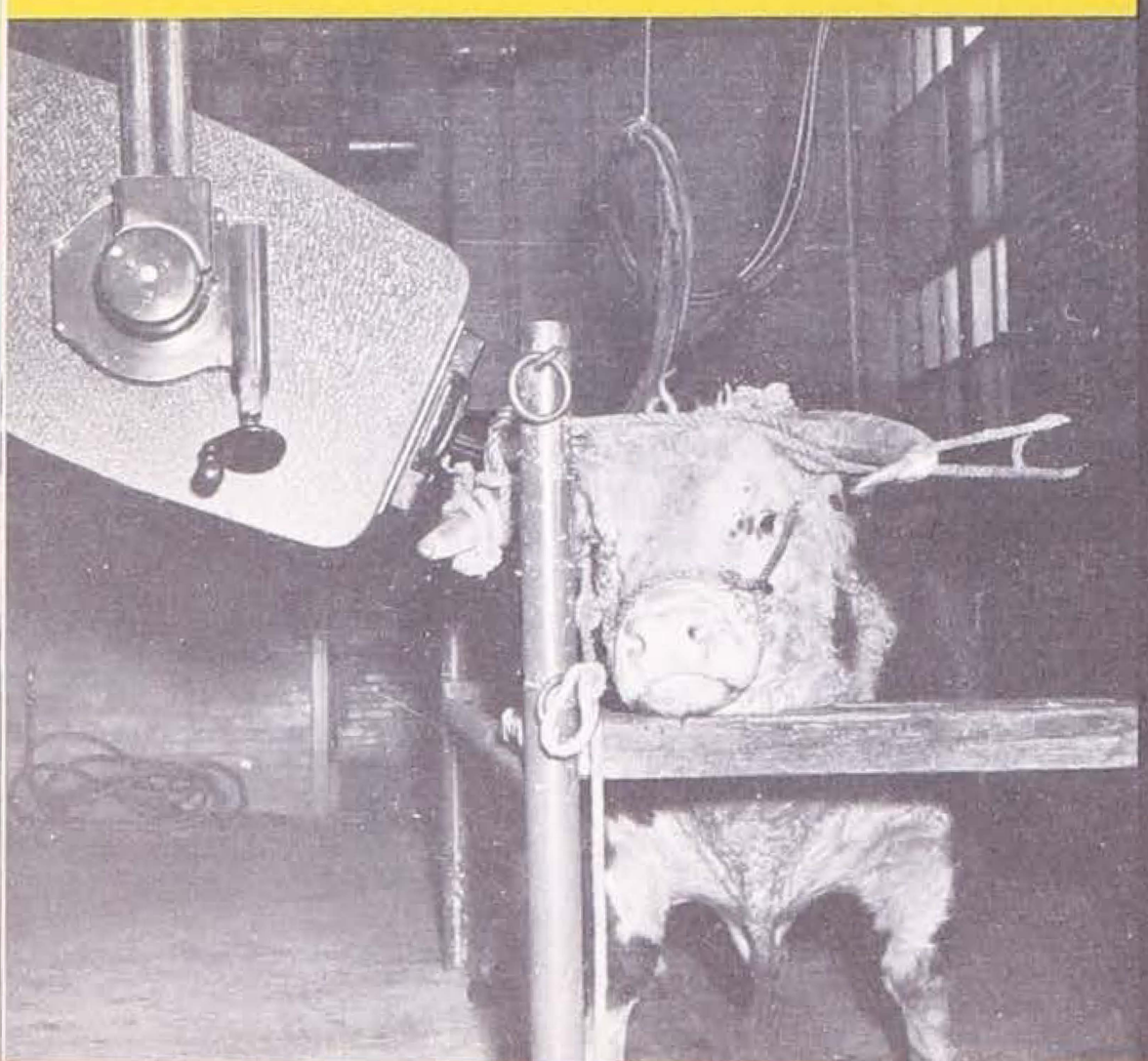


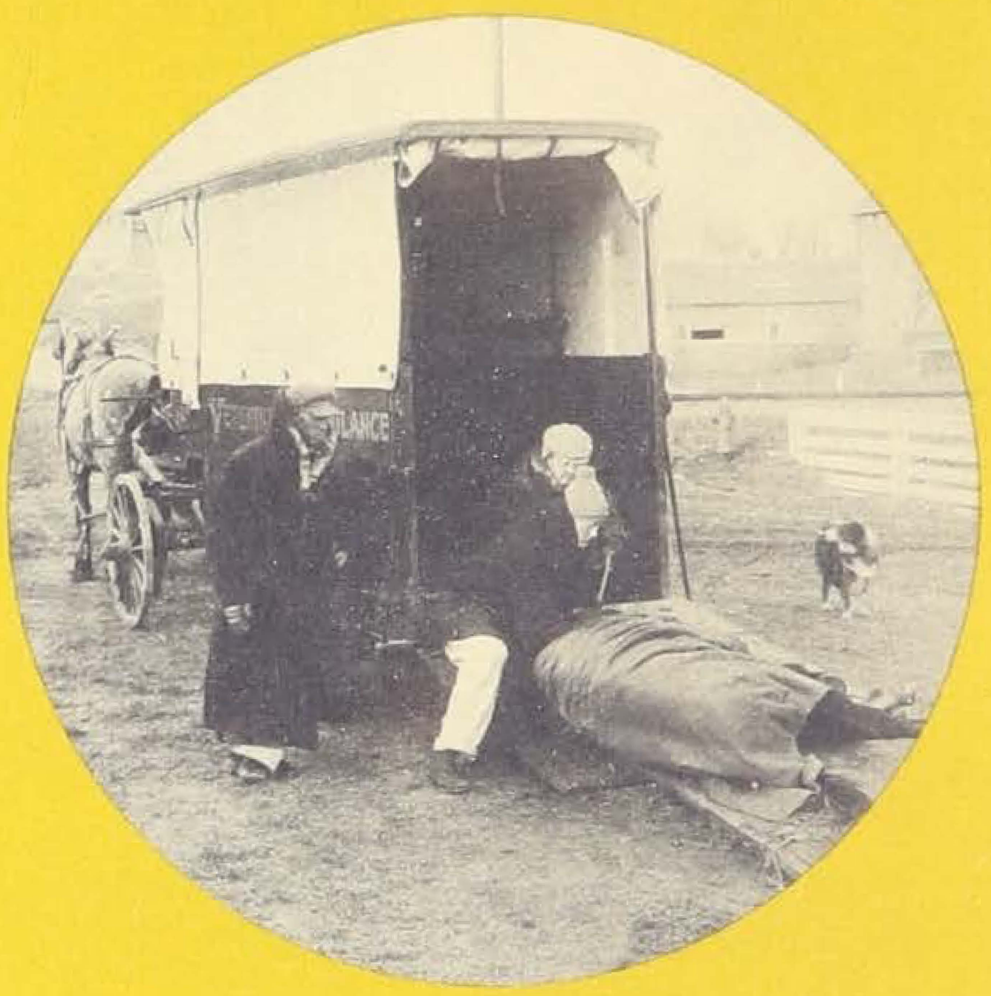


Top: Class in Veterinary Medicine studies anatomy.

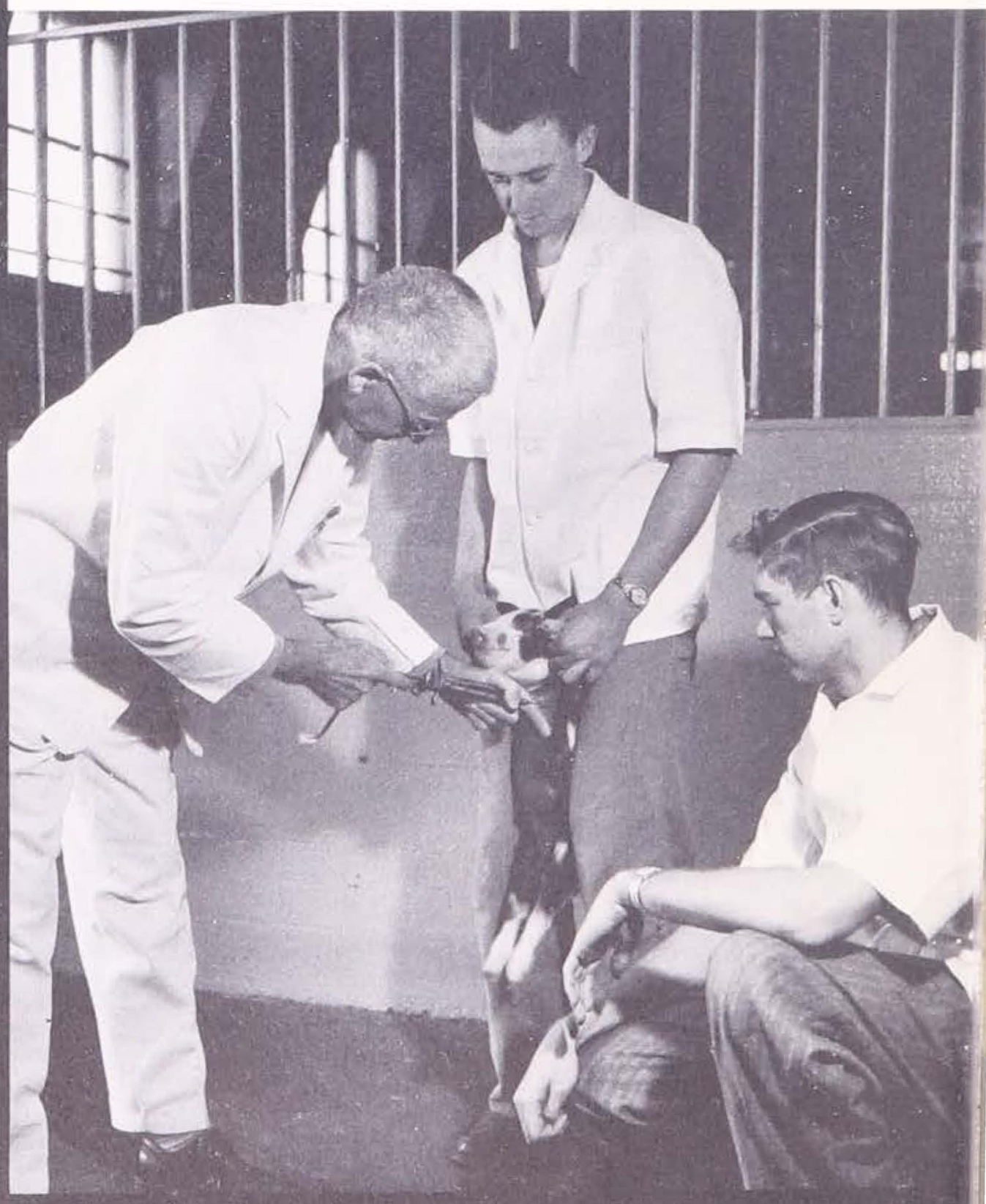
Center: Veterinarians observe post-mortem procedure under way at Veterinary Medical Diagnostic Laboratory.

Bottom: Prize bull receives X-ray treatment.





A horse-drawn ambulance was dispatched to bring large animals to the facilities of the College for treatment in 1913.



Working under direct supervision of doctors of veterinary medicine, students spend much time in clinic.

Veterinary Quadrangle was completed. In 1920 a farm was acquired for research work and the manufacture of serum, thus laying the foundation for today's Veterinary Medical Research Institute.

Next came Dean Charles Murray, whose interest and ability in veterinary medical research greatly strengthened the College in this area.

In 1931 a requirement of one year of pre-professional college training was placed in the curriculum.

By 1948, 2 years of pre-professional training at the college level had been added to the 4 years required for the D.V.M. degree, making a total of 6 years of college.

Although the College had first invited veterinarians to submit specimens for examination as early as 1892, it was not until 1946 that the Veterinary Medical Diagnostic Laboratory was fully organized.

Iowa farmers, who received more than 80 cents of every dollar of their cash income from livestock or livestock products, today have veterinary services second to none. Iowa State's Division of Veterinary Medicine provides complete teaching, research, clinical and diagnostic facilities, as well as extension services.

The original idea of keeping farm livestock free of disease in order to increase farm income still remains, but the doctor of veterinary medicine now has become much more closely associated with the field of public health. This and the increase in small animal practice form the most recent developments for him and his profession.

When, in 1956, the United States Department of Agriculture decided to move its animal disease research laboratory from Beltsville, Md., to a new location, it chose Ames after considering scores of other locations. High on the list of reasons for that choice was the fact that the new laboratory would be close to an outstanding veterinary medical establishment. The record which the College had written in 75 years of leadership in the profession was recognized by the laboratory's location. As Iowa State celebrates her centennial, laboratory buildings totaling more than 16 million dollars are being constructed not far from the campus by the federal government. They will soon be occupied by a large staff of professional research workers.

Irradiation equipment used in the study of biological materials at Veterinary Medical Research Institute.

The First Hundred—and the Next

Birthdays are good days for summing up accomplishments, for making comparisons between old and new, and for dreaming of the future. Iowa State has seen 100 birthdays.

Its plan remains the same. In the beginning there was instruction in the sciences relating particularly to agriculture and industry, plus a farm where research could extend knowledge and where demonstrations could be held. Identical components are found in the Iowa State program now—teaching, research and extension services.

The differences are in the way in which it has grown and adapted itself to the changing needs of the state and of the nation.

A farmhouse, a few outbuildings and a single college hall have become a physical plant valued at approximately 50 million dollars. The original college farm of 648 acres has become a campus of 460 acres, plus more than 6,000 acres of research and demonstration at Ames and throughout the state. A handful of professors, a matron and a farm superintendent have become a faculty of approximately 1,000 with hundreds of clerical, technical and maintenance helpers.

None of these is quite enough because the lack of room for students, which plagued the College in its opening year, has recently taken on some Paul Bunyan aspects that promise to make it one of the pressing problems of the new century.

Although the 5:30 a.m. rising bell no longer rings, the students—a vastly different lot than in 1869—still feel their courses require somewhat more than casual attention. About one in five is married. More than one in 10 is a graduate student, attesting the fact that in science and technology the rewards to the holder of an advanced degree are substantial.

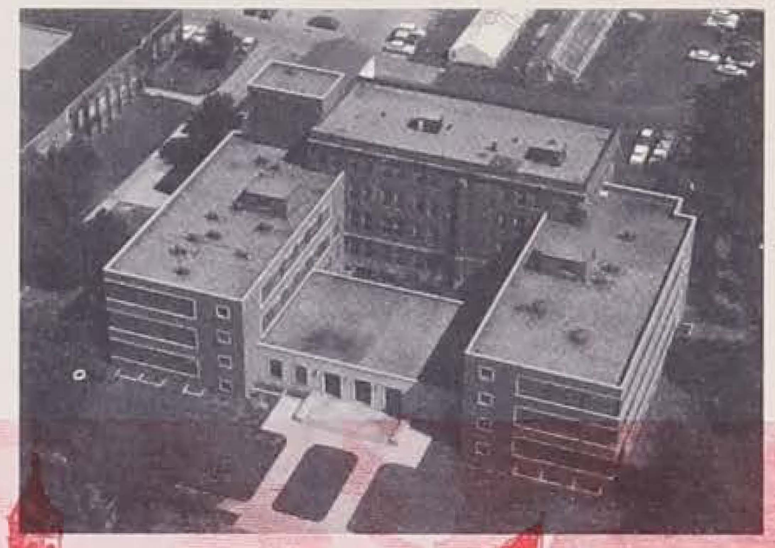
Although the College had its first graduate student in 1872, a Graduate College was not fully established until 1919 when Dr. R. E. Buchanan became its first dean. The work of the Graduate College can be seen through all five of the present main divisions of Iowa State—Agriculture, Home Economics, Engineering, Science and Veterinary Medicine. Iowa State ranks high among technical institutions in the awarding of advanced degrees. In a single year it may now award approximately 125 doctorate degrees, and something more than 200 master of science degrees. The number probably will continue to increase in the coming years.

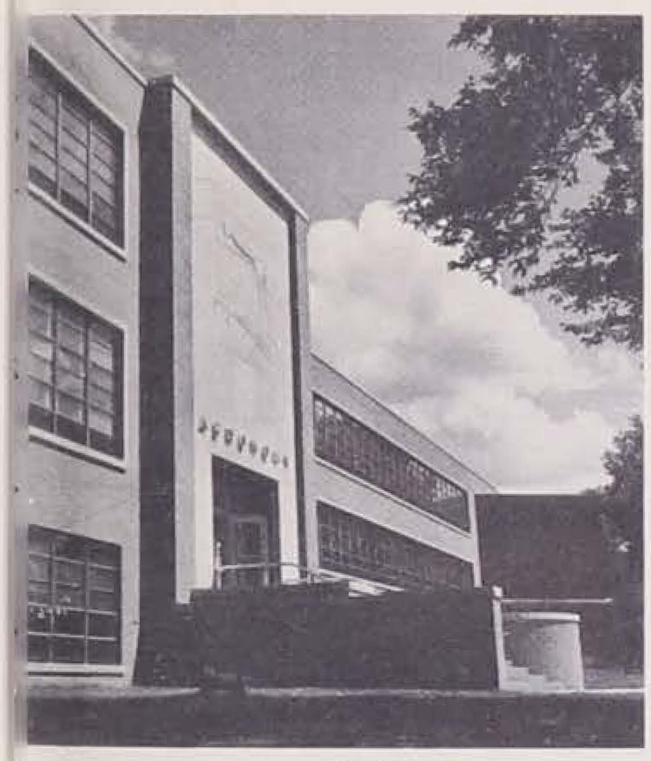
A world that has demonstrated an increasing appetite for scientific and technological talent has been wooing graduates with ardor. Indeed, a second major problem of the new century is the maintenance of a strong faculty—one to continue the tradition of Osborn, Bessey, Marston and their kind—in an era when there is brisk competition for good teachers and capable scientists.

Because such men are seldom happy to teach only from textbooks, a good campus usually is also the center of a continual, patient search for new knowledge. At Iowa State that search is now largely organized into the efforts of the Iowa Agricultural and Home Economics Experiment Station, the Iowa Engineering Experiment Station, the Industrial Science Research Institute, the Veterinary Medical Research Institute, the Institute for Atomic Research and the Statistical Laboratory. Research is often a cooperative venture involving the federal agencies, other colleges and universities, and industry

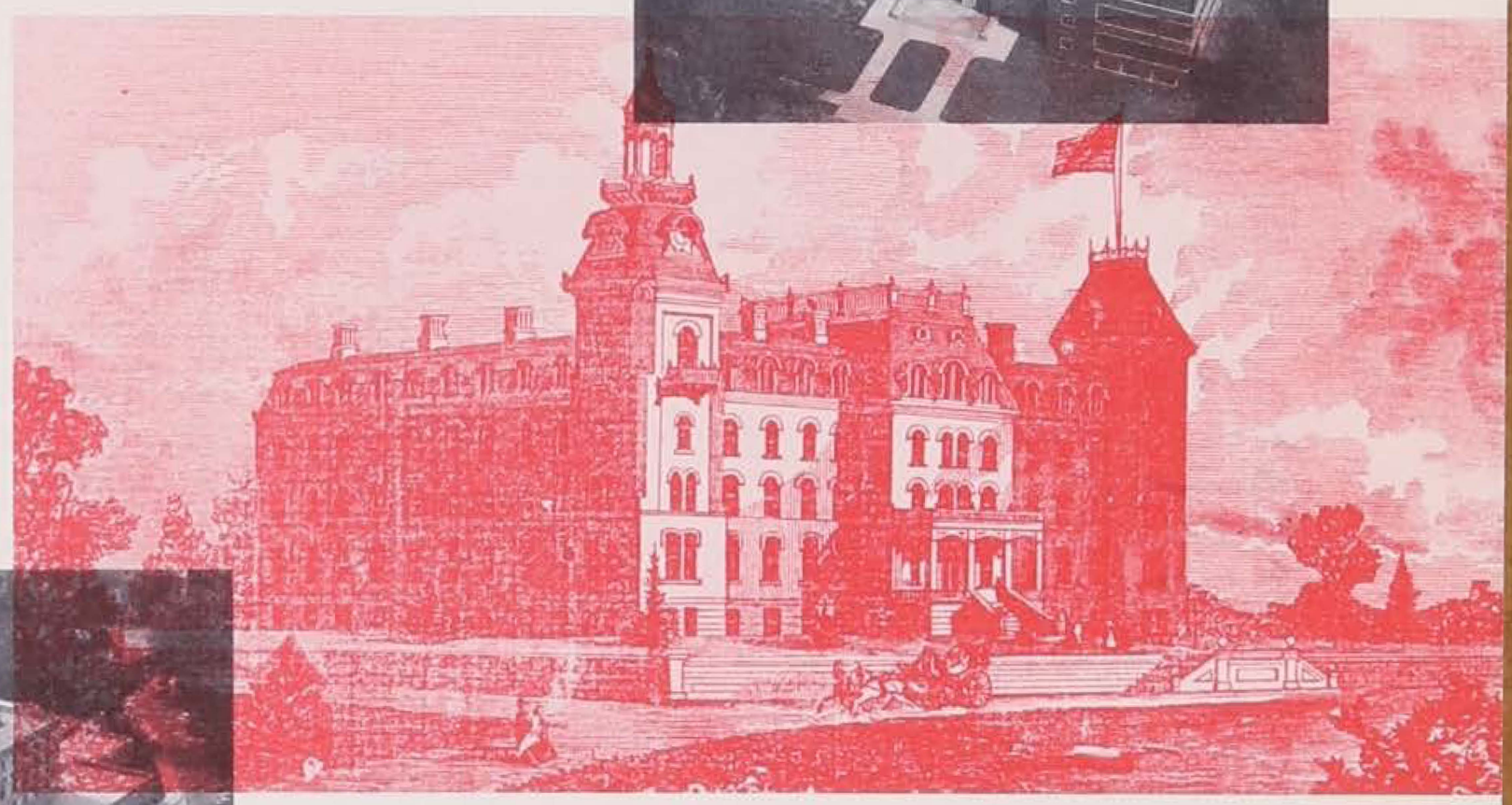
HELSER HALL, MEN'S RESIDENCE

SCIENCE BUILDING

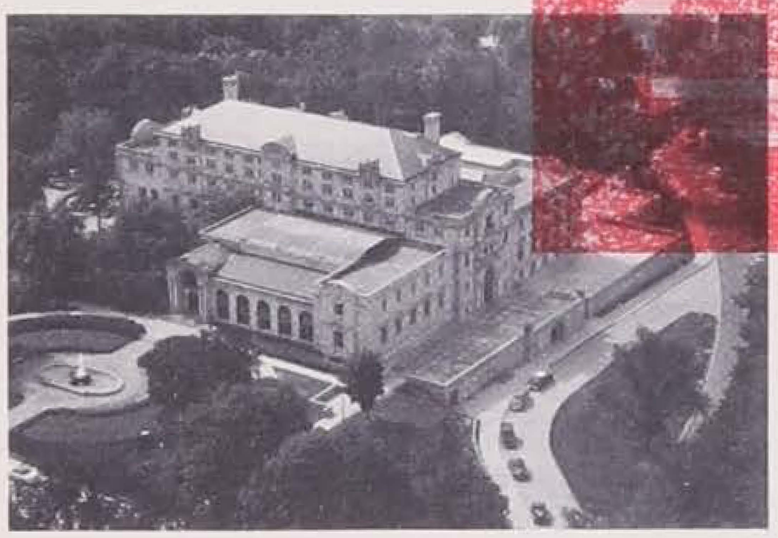




AGRONOMY BUILDING



OLD MAIN



MEMORIAL UNION

or private research foundations. From it comes some of the most important new knowledge for the betterment of all of the people.

The College owns and operates an AM and FM radio station and a television station. It was one of the first to enter educational broadcasting 35 years ago, and in 1950 it became the first educational institution to own and operate its own television station. These facilities are dedicated to bringing the best the College has to offer in education, news, good music and public service to the people of the state.

Still, without the hearty cooperation of all of Iowa's press, radio and television facilities, the College's program of information for Iowans would be far less effective. Through them Iowa State daily enters homes, farms and business places with farm, home and industrial news. These agencies conscientiously report all educational activities.

The College's thinking has changed many times in 100 years. The idea of required manual labor for college students was dropped long ago. Narrow vocational concepts sometimes adopted by Iowa State and her sister Land-Grant institutions through their early history have been expanded to recognize the necessity of a broad basis of general education. Emphasis now is placed on the essential principles and intellectual content of the field, as well as on the routine skills, techniques and practices.

At the same time, many of the older colleges and universities have swung away from

pure classical instruction toward the more practical matters which were the first concern of the Land-Grant colleges.

Could some divine intercession bring back founder and first trustee, Benjamin Gue, along with first president Adonijah Welch as guests of the College for its centennial year, they would understand and approve many of its activities.

They would grasp the meaning and significance, for instance, of such Iowa State institutions as:

- An outstanding library noted particularly for its collections of scientific books and periodicals.
- A Soil Testing Laboratory, Seed Testing Laboratory, Plant Pathology Clinic and Veterinary Diagnostic Laboratory devoted primarily to the service of agriculture in Iowa.
- An Agricultural Travel Course that sends students over a large part of the country each year, observing agricultural practices, visiting research centers, and learning first hand about the production, processing and marketing of agricultural products.
- A tearoom, operated by undergraduates as a laboratory in one phase of their training in home economics.
- Six home management houses where home economics students live and practice the principles of sound household management.
- An ambulatory clinic where veterinary medicine students make calls through the neighboring countryside to gain experience in their professions.
- A typical Iowa farm managed by undergraduates studying farm operation, and giving them the mature judgment that comes with making everyday management decisions.
- A group of distressed farms taken over by the College rebuilt from their own earnings, and serving as demonstrations of sound farm management.
- A self-supporting dormitory system, an idea in which the College was an early leader, thus providing without cost to the taxpayers comfortable living quarters for students, and adding assets of millions of dollars to the physical plant.
- A large college club, known as Memorial Union, which carries on many of the informal educational activities associated with concerts, meetings, seminars, lectures, social activities and other group gatherings. This club has been built and is maintained entirely without state appropriations through memberships and contributions of the undergraduates and alumni.
- Even a small cemetery, perhaps the only one in the nation maintained by a college, where staff members of long service and their immediate families may be buried.

More difficult to explain to Mr. Gue and Mr. Welch, perhaps, would be the fact that staff members, intent upon research, are "smashing atoms" in a cyclotron or studying other problems with the aid of a nuclear reactor. It is hard even for us moderns to realize that other campus machines digest huge quantities of raw data, and solve in hours a complicated series of mathematical problems which would take months or years to do by labor of head and hand only.

Those patriarchs could only guess at the broad and important implications of agricultural climatology, nuclear engineering and food technology—all areas of study added since World War II.

More innovations will come with the new century. Educational administrators, like other executives, must live in part in the future, must try to chart the course ahead of them.

Says Dean Floyd Andre of the Division of Agriculture, "I believe that future teaching will be less in applied studies and will place more stress on basic knowledge, along with increased attention to the able student. In research we will move more and more from the one-man approach to the team approach, and will concern ourselves more with fundamental than applied research. Our Extension Service will devote its time less to specific problems and more to finding out the goals of families and helping them meet those goals. We probably will work with urban as well as rural families."

"The ever-widening horizon of home economics into a great variety of positions in the areas of business, industry, communications, education, health and welfare is the striking aspect of home economics today," reports Dean Helen LeBaron of the Division of Home Economics. "We are now entering a period of rapid expansion of the youngest phase of the program, that of home economics research."

"In industry the trend toward automation will accelerate," believes J. F. Downie Smith, dean of the Division of Engineering until Jan. 1, 1958. "We'll need better trained engineers, and we'll have to concentrate more in the basic sciences, leaving the practical training to industry. An increasing percentage of our population will need to be engineers, but since the number capable of high-level training is limited, we will need the support of technical institutes and trade schools to help the total engineering effort. The present trend in engineering is toward fewer rather than more areas. Witness the tendency toward the use of more electrical engineering in all fields, an indication that all engineers should be trained broadly in technology."

"Chemistry came into its own in the first decades of the twentieth century, physics during the following years," observes Dean Richard S. Bear of the Division of Science. "The 'Atomic Age' thus produced will continue to surprise us all. The biological sciences are due for the next phenomenal development, which promises much for a state whose welfare is so much concerned with biological products. Activities of non-scientists, in industry, government, education and journalism, will have to take increasing account of these scientific developments. The College's traditional aims place it in a natural position to produce leaders for these diverse activities of the emerging world."

"Veterinary medicine is drawing closer and closer to human medicine in the areas of teaching and research," says Dean I. A. Merchant of the Division of Veterinary Medicine. "Even in the field of general practice we find veterinarians and physicians sharing common problems. These usually lie in the area of diseases of animals that are transmissible to man. Medical practice, whether for animals or man, uses the same instruments and usually the same drugs, so it is not surprising to find these two groups working in closer conjunction. Likewise, 'shotgun' diagnoses and 'shotgun' remedies are on the way out."

Deans aren't soothsayers, but their words do suggest that the next hundred years at Iowa State College can easily be as busy, as perplexing and as rewarding to all of Iowa as the last.

As President Hilton Sees the Future

The record of distinguished service to Iowa and to the world which Iowa State College has made during its first century is but a prologue to what lies ahead of this great institution. Certainly the next 100 years will bring many new responsibilities and exciting opportunities for service.

While the teaching of science and technology is a first responsibility of Iowa State, the faculty recognizes the need of a broad, general education. Scientists, engineers, farmers and homemakers are first of all citizens who must be prepared for leadership and living in a complex world society.

As Iowa State College begins its second hundred years, we stand at the threshold of a new age. Automation, the potential applications of nuclear energy, the rapid expansion of basic knowledge, open new vistas for research and education beyond the comprehension of educators a generation ago.

Iowa State College proposes to assume its responsibilities in the next century as it has in the past. In meeting this challenge, I am certain that the College will have the active support of the citizens of Iowa, who traditionally have believed in the benefits to be derived from institutions of higher learning and have willingly made the necessary sacrifices to support them.