

FARMER OF THE NINETEENTH CENTURY

He Pursues His Calling in a Scientific Way These Days and Does Not Leave Everything to Providence and the Weather.

It used to be the rule that when a man wasn't fit for anything else he was considered good enough to be a farmer; that if he hadn't brains enough to master military tactics or the intricacies of the law or medicine or of theology, and was utterly lacking in creative ability, then his proper sphere of usefulness was the farm. And in those days even the "gentleman" farmer was a person of inferior standing, and he was made to feel his insignificance whenever he came in contact with the superior persons who ruled the State and made or expounded its laws. Society spoke of him as a "gawk," and his sons and daughters were "country bumpkins." But all this

in agriculture includes history and government, French and German, English, and the higher mathematics and music, so that our farmers of the next generation will not only know how to get the best and the most out of the ground, but will be able to hold their own for general information and polite accomplishments with the elect of any land.

Where They Are Taught.

Colleges of agriculture are maintained in universities, with the aid of national funds, in Arizona, Arkansas, California, Georgia, Idaho, Illinois, Indiana, Louisiana, Maine, Minnesota, Missouri, Nebraska, Nevada, New York, Ohio, Tennessee, Vermont, West



IOWA STATE COLLEGE OF AGRICULTURE AND MECHANIC ARTS.

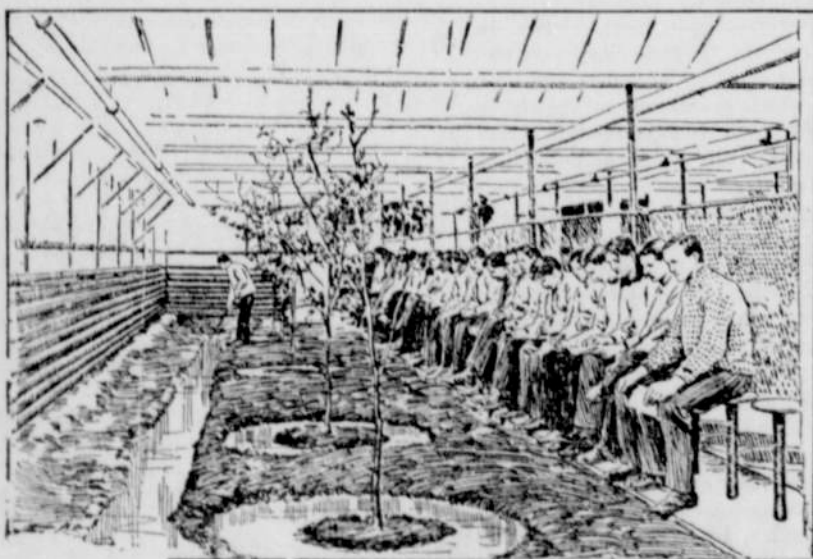
has changed and is destined to still further change. Science, which has done so much for the world at large, has taken the farmer in hand and is investing the man and his works with the dignity and standing that are theirs of right. The masses are being made to realize what they have known dimly all along, but never fully appreciated—that it is the farmer who feeds them, and that he is more necessary to them than they are to him; that without him works great and small would come to a stop and the peoples of all the earth be reduced to a state of savagery and cannibalism.

Farmer Knows Why
Science is bringing not only the pub-



CHEMICAL LABORATORY, ALABAMA INSTITUTE.

lic to a realization of the importance of the farmer, but the farmer himself to an appreciation of the importance of his work and of the necessity of fitting himself for it by studying nature and inducing her by scientific means rather than by haphazard to yield her store. Formerly the farmer could tell you "when" without knowing "why." Experiment showed him that rotation in crops made his land produce better and last longer, but he couldn't tell nature's reason for it, nor explain the thousand other seeming mysteries of the soil. Science has done and is doing that for him. It is experimenting for him day in and day out the year round, and teaching him the why and the wherefore. Uncle Sam is backing science in this matter, and the farmer is getting the benefit without cost. The



LESSON IN IRRIGATION—UNIVERSITY OF WISCONSIN.

farmer learns from the bulletins that are sent out by the Department of Agriculture, and all over the land the farmers' sons and daughters are taking courses in agriculture and horticulture, farm gardening and dairying, and stock breeding and stock raising, in colleges supported jointly by the State and Federal governments.

Their instruction is practical, too, for the colleges have farms under cultivation and herds and droves of cattle and swine, and dairies and truck farms and orchards. The instructors are men who are entitled to write, "Bachelors of Science" after their names. They know all about the soils and the seasons, and what crops are adaptable and what are not, and their science goes so far as to include conditions in foreign countries and to be able to judge from them whether corn, or wheat, or barley, or whatever product of the farm will be most in demand for export, and so command the readiest market and the best price. They have reduced farming to a science, and are teaching it as a science. The course

in Virginia, Wisconsin, and Wyoming. In Massachusetts Harvard University has a school of Agriculture known as Bussey Institution. Besides these, agricultural and mechanical colleges have been organized in Alabama, Colorado, Connecticut, Delaware, Florida, Iowa, Kansas, Kentucky, Maryland, Michigan, Mississippi, Montana, New Hampshire, New Jersey, New Mexico, North Dakota, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Carolina, South Dakota, Texas, Utah, Virginia, and Washington. Separate institutions of this sort are maintained for colored students in Alabama, Delaware, Florida, Mississippi, North Carolina, South Carolina, and Virginia. Massachusetts has the only college whose curriculum is wholly devoted to agriculture.

In the universities in which courses in agriculture are maintained the general tendency is to make this course correspond in scope and thoroughness with those given in the other departments, to divide the instruction in agriculture among an increasing number of specialists, and to provide buildings and apparatus and illustrative material on a scale in keeping with those in other branches. At the same time efforts are making to bring the university in close touch with the masses of farmers through special schools, farmers' institutes, nature teachings, and other forms of university extension work. Along with this is the deepening and strengthening of the scientific and practical researches, carried on with a view of widening the world's knowledge of the facts, laws, and processes required for the improvement of agriculture.

Thirty Thousand Farmer Students.

The classes in agriculture in these schools range in enrollment from 200 to 900 students. The total enrollment is 30,000. The full course in agriculture covers four years, and practical farmers who know enough of other matters to make them intelligent and desirable citizens are being sent out from these colleges at the rate of 8,000 a year, or 80,000 in a decade. That they will assist wonderfully in the development of the country need not be doubted. Their knowledge and train-

ing will enable them to get more out of the earth and themselves than the tens of thousands of other earnest and honest men who have taken up homesteads and gone to farming without any knowledge of or preparation for the cultivation of the soil.

In an article in the Year Book of the Department of Agriculture on "Some Types of American Agricultural Colleges," A. C. True, Ph. D., Director of these institutions of learning. Of the Massachusetts Agricultural College, which is near Amherst, on a farm of 400 acres, situated in a most beautiful part of the Connecticut river valley, he says:

"In 1807 the college had permanent endowment funds aggregating \$300,000, and its buildings, farms and equipment were valued at about \$315,000. The college buildings include combined dormitory and class room building, chapel and library, laboratory for chemistry and physics, entomological laboratory with insectary, botanic la-

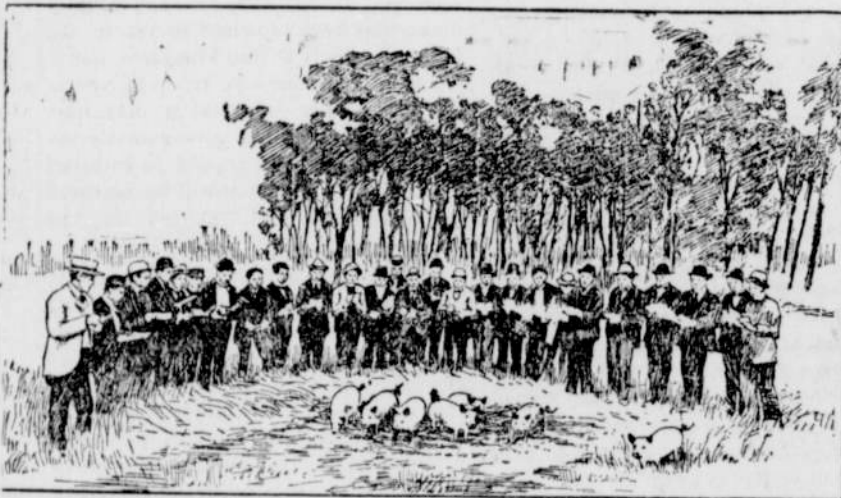
boratory and museum, drill hall, dormitory, president's house, several residences for professors, farm houses, boarding house, horticultural plant houses, and barn, including creamery and dairy laboratory. The experiment station also has a chemical laboratory, botanical laboratory with plant house, and barns.

Excellent Equipment.

"On the farm 150 acres are under cultivation with a variety of field crops, and the extensive college barn is stocked with 100 head of cattle and equipped with the most improved agricultural implements and machinery. The horticultural grounds cover 100 acres, with orchards, vineyards, small fruit and vegetable plantations, and groves of forest trees. Much attention is given to floriculture and landscape gardening, and the ample plant houses are well stocked with numerous varieties of exotics. Some eighty acres are devoted to the work of the experiment station, including numerous plot experiments with varieties of field and horticultural plants, fertilizers, methods of culture, etc., feeding experiments with animals, soil investigations, etc.

"The laboratories of the different scientific departments are well equipped with apparatus for experimentation and demonstration and with illustrative material, such as specimens of plants, insects, animals and machines, particularly those of importance in their relation to agriculture. The library of 18,000 volumes has been carefully collected with reference to the needs of an agricultural college, and is thoroughly catalogued and managed with a view to providing the students every facility for obtaining the information they desire to gather from books. It is one of the most extensive and valuable collections of books on the science and practice of agriculture to be found in this country.

"The instruction is given by a corps of eighteen professors and assistants. The chairs include botany, chemistry, agriculture, horticulture, zoology, veterinary science, mental and political science, English and Latin, modern language, mathematics and civil engineering, and military science and tactics. There is also a lecturer on farm law. The student is required to follow a definitely prescribed curriculum during three years, and in the last year of



CLASS SCORING PIGS—IOWA STATE COLLEGE.

the course he is allowed wide latitude of choice among numerous specialties, English and military science being the only required studies."

For a time the college was open to men only, but women may now attend special elective courses in such branches as botany, entomology, floriculture, fruit culture, market gardening and dairying. Candidates for admission must be at least 16 years old and are required to pass examinations in English grammar, geography, United States history, physiology, physical geography, arithmetic, the metric system, algebra (through quadratics), geometry and civil government. The students as a rule room in the college dormitories and are boarded in clubs or private families. The expenses for room rent, board, fuel, washing and military suit for the college year are estimated to range from \$150 to \$300. Students performing labor at the college are paid by the State, and there are small endowment funds for the assistance of needy students. The students have their athletic associations and glee clubs and social amusements the same as at Harvard and Yale, and they are required to attend prayers and worship in the college chapel.

The Michigan State Agricultural College is the oldest in the country. It was established by an act of the Michigan Legislature in 1855, and for thirty years, like the Massachusetts College, had only an agricultural course. In 1880, under a materially increased income, a mechanical course was added, and later a woman's course. The laws of the State prescribe that it shall be a "high seminary of learning, in which the graduate of the common school can commence, pursue, and finish a course of study terminating in thorough theoretic and practical instruction in those sciences and arts which bear directly upon agriculture and kindred industrial pursuits."

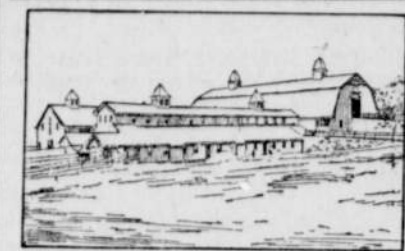
The college land, comprising 676 acres, is divided into the farm of 230 acres, devoted to field crops grown under a system of rotation, forty-five acres of woodland pasture, 114 acres of lawns, gardens and orchards, 240 acres of forest, and 47 acres of experimental fields and plots. The farm is equipped with cattle, sheep and swine of the principal breeds. There are an arboretum of 150 species of trees, a botanic garden containing 1,200 species of native and foreign hardy herbaceous plants, with some shrubs, a grass garden of 200 species of grasses and clovers, and a weed garden of 100 species of the most troublesome weeds. The students in agriculture are required to work two and one-half hours a day on the farm or garden. The annual average expenses of students for board,

room rent, heat, light, books, laboratory and other fees are estimated at \$125. These expenses are often reduced by receipts for labor performed on the farm or elsewhere about the college. There are thirty or more professors and assistants in the faculty, and in addition to the chairs provided by the Massachusetts College there are professors of mechanical engineering, domestic economy, and household science.

Negroes Not Received.

The Mississippi Agricultural and Mechanical College is conducted on the same general plan, except that women and negroes are not received as students. Out of a total of 368 students entered last year 316 elected to take the agricultural course. By farm labor the students may reduce their expenses there to \$100 a year.

Over 800 students took the farming course last year in the Kansas State Agricultural College, in Manhattan.



MASSACHUSETTS COLLEGE BARN.

The college farm comprises over 300 acres, and is well equipped with live stock. The State has supplemented the United States grants by the erection of a number of substantial buildings, which are valued at \$350,000. Students of both sexes are admitted at 14 years of age, after passing an examination in reading, spelling, writing, arithmetic, geography, English grammar and United States history. Connected with the course of study here is industrial training in several of the arts, to which each student is required to devote at least one hour a day throughout almost the entire course. Young men may have farming gardening, fruit growing, woodwork, ironwork, or printing. Young women may take cooking, sewing, printing, floriculture, or music. Tuition is free, and the annual expenses of the student range from \$100 to \$200. Students are paid at the rate of 10 cents an hour for work.



CLASS SCORING PIGS—IOWA STATE COLLEGE.

The Iowa State College of Agriculture and Mechanic Arts is a flourishing and well attended institution. It has fifteen buildings, erected by the State at a cost of \$500,000, and these include a hall for women. There are besides dwelling houses for professors and other employees, a creamery, barns, stables, seed houses and forcing houses. The college lands, of which 120 acres have been parked as college grounds, are 900 acres in extent. "The farm," Mr. True says, "consists of rolling prairie, bottom and woodland, and is stocked with good representatives of five breeds of horses, six breeds of cattle, seven breeds of sheep, and six breeds of hogs. These animals are used in class illustrations and for the various experiments in breeding and feeding for milk, meat, wool, growth, and maintenance, conducted by the experiment station as a department of the college. All the crops of the farm are grown for some educational purpose; all the animals are fed by rule and system, and the results of their management reported upon and used in glass work. Labor is not compulsory, but students in the agricultural courses are given work that is parallel with their studies. Some students pay for their board by work in the mornings and evenings. There is a practical working creamery and cheese factory in operation throughout the year. During the summer season from 15,000 to 25,000 pounds of milk are taken in daily and manufactured into butter and cheese. The number of students in 1897 was 573, including women."

Deep Down in the Earth.
The deepest hole in the earth is at Schladebach, near Ketschau, Germany. It is 5,135 feet in depth and is for geologic research only. The drilling was begun in 1880 and stopped six years later because the engineers were unable with their instruments to go deeper.

Bullet of Great Force.
A rifle of very small bore, invented by Capt. Daudeteau of the French army, fires a bullet with such force that it will penetrate a horse, from head to tail, at a distance of a mile and a quarter.

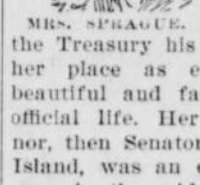
Cake at English Weddings.
The cake at English weddings is always a star feature. Usually at a fashionable affair it is fully six feet high and is a marvelous architectural structure of icing adorned with flowers and figures.

Some folks are so industrious that when they haven't anything else to do they worry.

Women's Doings.

KATE CHASE SPRAGUE.

THE career of Katharine Chase Sprague, to whom Secretary Gage has recently given a place in the treasury department, has been one of the strangest and most romantic on record. She has known almost every vicissitude of life. When she was 16 her father was Governor of Ohio, and she, a mere girl, was the brilliant head of his household. When Chase became Lincoln's Secretary of the Treasury his daughter Kate took her place as easily as the most beautiful and fascinating woman in official life. Her wedding to Governor, then Senator, Sprague, of Rhode Island, was an event of prominence even in the midst of those historic days. Sprague had been War Governor. He had the prestige of military service, he was the youngest man in the United States Senate, and one of the richest men in the country. Her marriage was the climax of Kate Chase's career. Since then her life has been a constant struggle against adverse circumstances.



MRS. SPRAGUE.

First, her husband's fortune was swept away. Then came trouble in the family, and Mrs. Chase secured a divorce. She removed to Edgewood, the country estate of her father, Chief Justice Chase, near Washington. There Kate Chase, though retired from society, still quietly entertained the most distinguished people in public life. But there was a mortgage on the homestead, and it was about to be foreclosed, when the friends of Mrs. Sprague and of her father satisfied the indebtedness, and left her the place unincumbered. She then determined to start out as a market gardener, raising vegetables for the Washington market. This has proven unsuccessful, and now the once brilliant beauty is to take a modest clerkship in the treasury department.

When Making a New Home.
Calculate in advance not only the cost of building the house, but the added cost of furnishing it when finished, and keep within your means. But if the error is made, don't double it by furnishing temporarily in the hope of some day doing it over again. It is much the better policy to start with everything good, even if that means to be short a few pieces, for a good start demands a good continuance; to fill a house with things one doesn't like, on the plea of "temporary," is to invite years—perhaps a lifetime—of living without that keenest and most constant of all pleasures—beautiful home surroundings. A suggestion worth following is to concentrate the family birthday and holiday gifts on the furnishing of a room; in a remarkably short time the seemingly unattainable is attained, and the doing of it gives a living interest not only to the room itself, but to the entire home life.—Woman's Home Companion.

Shirtwaists Are Popular.
White shirtwaists have become an important part of the summer wardrobe, and the number, including colored ones, should count just as many as can be afforded. Made of lawn with fine tucks and insertions of lace and embroidery they are dainty and desirable for warm weather. Yokes of embroidery are pretty with plain or tucked

Delighted the Babies of Long Ago.
Those who believe that feeding bottles for babies are the result of modern civilization are out of date. The Greek nurses used to carry with them a sponge full of honey in a small pot to stop the children from crying; and in the British Museum are two Greek vases, dating from 700 B. C., which are much like feeding bottles used by the Romans subsequently.

An Egyptian Wedding.
When one receives an invitation to a wedding in Cairo, Egypt, it is an important event, because, instead of being asked for a ten minutes' church ceremony or a brief evening reception, the invitation reads for three days. There is feasting during all this time, and the house and streets are liberally decorated with flags and lanterns.

To Match the Guimpe.
It is a caprice of fashion to cut off the top of the sleeve and fill in the space with the soft, white, finely tucked India muslin, or of whatever other fabric the chemisette is composed. This fashion is carried out better when the bodice is all of wash goods, but still it is feasible in any case.

A Costly Handkerchief.
Queen Margherita, of Italy, owns a lace handkerchief on which three artists in lace worked for twenty years. When laid on your hand the weight of the handkerchief is not perceptible, and it is kept in a gold case not larger than an ordinary lima bean. It is valued at \$30,000.

Woman's Ways.
Women are things of beauty and jaws forever.—Central Illinois Democrat.

A woman doesn't need a blotter when she writes. She uses her fingers.—Washington Democrat.

When a woman meets a mind reader, somehow, she always shudders.—Little Falls Transcript.

Ever since Eve thought of dress, woman has thought of nothing else.—Philadelphia Bulletin.

The woman most greatly to be envied these days is she who has naturally curly hair.—Philadelphia Times.

When a man offends a daughter, her mother and all her sisters go out on a sympathetic strike.—Acheson Globe.

It is a habit with some women to set a whole house to rights before they think of taking off their hats.—Berlin (Md.) Herald.

Money and women are at the bottom of all a man's trouble. Usually it is a lack of money and another woman.—Baltimore Herald.

There may be some women who find a greater joy in saving money than in spending it, but we have not met them.—Feminine Observer.

One reason why Eve went around as she did was because, like any other woman, she disdained to be her own dressmaker.—Kansas City Star.

something or other, which probably every one in the room or in the car or on the street corner, it may be, knew before, and probably nobody can help. Why say anything about it? It is cold, it is hot, it is wet, it is dry, somebody has broken an appointment, ill cooked a meal; stupidity or bad faith somewhere has resulted in discomfort. There are plenty of things to fret about. It is simply astonishing how much annoyance may be found in the course of every day's living, even of the simplest, if one keeps a sharp eye on that side of things.—Helen Hunt Jackson.

Decoration Don'ts.
Don't put a gaudy or bright-colored carpet in a room where the furniture is dull, old or of neutral tints.
Don't furnish a north room in blue or any other cold color; something of a warm tint should be chosen.
Don't hang a heavy portiere over a narrow door; generally speaking, hangings are out of place in a small house or with small rooms.
Don't fill the center of the room unless there is plenty of space on all sides; nothing offends good taste so seriously as the sense of being "cluttered up."
Don't have too much of one kind of decoration in the house; two rooms upon the same general pattern are quite enough—an individual scheme for each apartment is better.
Don't forget that flowers and handsome decorative plants are no more expensive than much of the cheap bric-a-brac and imitation statuary; and while the latter will cheapen any room, the former will give an air of refinement and good taste to the most scantily furnished home.

"Talking Classes."
Miss Marion Jean Craig has found in teaching women the art of impromptu speech. By studying the shortcomings of the platform woman Miss Craig finally reduced all her ideas on the subject to this triple rule of Edward Everett Hale, which is worth pasting in every feminine bonnet: "Have something to say. Say it. Stop." Happily this instructor of impromptu speech is "agin" the written paper to which the average clubwoman clings like grim death. "Don't believe in reading papers," is her declaration of independence. "This breaks the magnetic current between speaker and listener."

NEW SHIRTWAISTS.
lawn, which is made with the tucks diagonal in front and straight in the back, straight all around or crosswise both back and front, as you like. In whatever style you make it pin your faith to the white shirtwaist. Dainty lawn waists in pale blue and pink have a white guimpe of tucked lawn and lace insertion, which also forms the top of the sleeve.

For the Hands.
When the hands are very dirty it is better to rub them thoroughly with cold cream before washing them. Then wash in warm water, using pure soap and a nail brush, rinse in cool water and dry thoroughly in a soft towel. Two-thirds of all women dry their hands very imperfectly, and then wonder why the skin is rough. A few drops of a good hand lotion should be rubbed all over the hands and allowed to dry in after they have been in water for some time, as so many housekeepers' hands must be so often, and always at night. The hands should not be exposed to cold air for some time after they have been washed.