

Rice as Valuable War-Time Food

By Robert H. Moulton



Some facts about cultivation of this nutritious and palatable grain that feeds millions of folks throughout the world

MAN must eat, whether he is a fighting warrior or a preacher of pacifism. If porthouse steaks are not available we are satisfied with corned beef. Formerly the lowly "spud" was considered the barricade that separated man from starvation, but of late the poor potato has become as scarce as attractive horse shoes and they are as eagerly sought after. Many a disconsolate lover has found that another sister of the starch family is possessed of attractions second only to her expensive sister, and today the eating of rice is becoming general throughout the country.

It isn't a bad habit to acquire, either, this eating of rice. Rice is nutritious and palatable and digests well. It can be cooked quickly, without the necessity of troublesome preparation and without waste. It is almost a perfect substitute for potatoes, and it forms the basis for the food supply of over two-thirds of the peoples of the world. In fact, practically every other country in the world consumes more rice than the United States, on the basis of population, and its enforced use here, due to war conditions, ought to prove a benefit to our people. Rice has been grown in this country for more than two hundred years, the growing areas being restricted, however, to several of the Southern states. Within the last few years California has entered the field as a rice producer, and the development of the crop in that state has been remarkable. From 7,500 acres planted in California in 1913, the acreage has grown to 60,000 acres in 1916, with a crop valued at over four million dollars. The 1917 planting will exceed 100,000 acres. The total devoted to rice culture in the United States is about 900,000 acres, and the 1916 crop amounted to 40,702,000 bushels. This is less than half the quantity consumed in this country, however, as great quantities are imported from the Oriental countries. Japan, a great rice producer, has more than two thousand varieties of rice, but there are only three or four varieties grown in this country.

Rice, like oranges and lemons, requires certain favorable conditions for its growth. The climate must be warm, with plenty of sunshine and hot days. The land must be practically level, with plenty of water available. The top soil should be underlaid with a subsoil that is impervious to water. The subsoil should lie near the surface, for a deep soil requires more water and more time for its submergence than a shallow one. Good drainage is necessary to get the land in condition quickly for harvesting and to prevent the crops from becoming waterlogged. Like all cereal crops, rice should be harvested quickly after it reaches maturity. One of the great difficulties which the Southern growers had to contend with was their inability to get on to the land quickly to harvest the crops after the water had been drained off. In California the growers have solved this problem by using small but powerful ball-bearing tractors that run on their own endless track, and are capable of pulling the harvesting machinery through mud that would mire horses. These tractors, by reason of their adaptability to changing conditions, are also used for almost any kind of work on the ranch. They will do the plowing and checking of the land, will haul supplies to and from markets, will pump water from the irrigation ditches, or the motor will turn a feed mill or churn the butter for the housewife.

In rice culture the size of the field depends largely upon local conditions. Where the land is very level, a field may range from sixty to eighty acres, while in other localities the field cannot be larger than one or two acres. In Oriental countries, where all the labor is done by hand, the fields average half an acre in area. As water is required to stand at a uniform depth over the growing rice it must necessarily follow that the topography of the country will largely determine the size of the fields.

Where rice lands are along a river it is customary to run a canal to the outer rim of the rice field, entirely surrounding it. The dirt taken from this canal is thrown upon the outer bank to form a protecting levee against sudden rises from the river. Water to flood the rice fields is let in from the stream. The larger tract inclosed by the main canal is now cut up by smaller canals into fields or subfields of suitable size and small levees are thrown upon each side. It is essential that the surface of each of these subfields be level. The main canals average from 10 to 30 feet wide and are about 4 feet deep. They connect with the river by flood gates. The subcanals average from 6 to 10 feet wide and are nearly as deep as the main canals. Boats are used to reach any point of the growing areas, and sometimes the levees are made wide enough to form roads.

Various methods for preparing the soil for the crops are used, some growers advocating deep plowing, while others use the shallow method. Naturally, the character of the soil should govern. One of the advantages claimed for deep plowing is that, as the rice does not feed much below the plow line, the deeper the plowed area the more food is placed at the disposal of the growing crops.

After the ground is plowed, a disk harrow is run over the surface, followed by a smoothing harrow, and often a heavy roller is used to break up the clods.

Sowing is done early in spring and about two bushels of seed are used to the acre. While there are several methods of planting the seed, the best results are said to be obtained with a drill. This insures the equal distribution of the seed at a uniform depth. Flooding is the most important feature of rice growing. Except where water is necessary for germinating the seed, flooding is not practiced until the rice is 6 or 8 inches high. When the rice reaches that height water is run onto the land to a depth from 3 to 6 inches. It is constantly changed to prevent stagnation. The principal thing to watch is the height of the water, as it is essential that the water be kept at the same depth throughout the entire field, otherwise one part of the crop will ripen before the other.

Harvesting machines are brought on the land as soon as the grain is ripe. It takes about six months to grow a crop of rice in this country. Where the drainage is good and the ground dries quickly, reaping machines are generally used. In California the track-laying tractors are almost universally used in the rice fields, and the harvesting can be commenced a week or two earlier by their use.

In harvesting, the rice is cut from 6 to 12 inches from the ground and the cut grain is laid on the stubbles to keep it off the wet soil. After a day's curing the grain is removed from the field and stacked on dry ground. Extreme care must be taken in shocking the grain to prevent the rice from being lost. The bundles are stacked against each other, with the heads in. Slow curing in the shade produces the toughness of kernel necessary to withstand the milling process. The rice is left in the shock until the straw is cured and the kernel hard. The threshing is done by the regulation threshing machine.

The rice as it comes from the threshing is called "paddy" or "rough rice." It still has surrounding it the husk of rice-fitting outside. The process of milling removes this husk and polishes the rice. This polishing is more a fad than a necessity, for by it some of the most nutritious parts of the rice are lost.

The improved method of milling rice is quite complicated. The paddy is first screened to remove foreign substances. The hulls are removed by rapidly revolving stones set about two-thirds of the length of a rice kernel apart. The product goes over horizontal screens and blowers that separate the light chaff and the whole and broken kernels. The grains are now run into huge mortars holding from four to six bushels each, and pounded with pestles weighing about 400 pounds. The grains, if properly cured, are not broken by this pounding, although it would crush to pulp any other cereal. From these mortars the rice is removed to flour screens, where the whole grains are separated from the flour and chaff. During the various processes the rice becomes heated through friction, and at this stage it passes into cooling bins, where it remains for eight or nine hours. It is then passed over brush screens, where the smaller rice and flour are separated from the larger kernels. The grain is now ready for the polisher, to give it the pearly luster.

The polishing is done by friction against the rice of pieces of moss hide or sheepskin, tanned and worked to a wonderful degree of softness. These skins are loosely hung around the sides of a revolving cylinder constructed of wood and wire gauze. From the polisher the rice goes to the separating screens, which grade the rice for the market.

Rice is a member of the grass family, and there are numerous varieties cultivated throughout the world. As it is the principal food of a large proportion of the earth's population, rice growing is one of the oldest agricultural industries known to man.

The average annual imports of cleaned rice into the United States is about 127,000,000 bushels, and that of broken rice, flour and meal, over 70,000,000 bushels more. The demand for the better qualities of rice in this country has always exceeded the supply, and now that this country has been called upon to feed a large proportion of the warring nations, the rice growers of the South and of California are assured of a ready market for their supplies.

At the side of the field farthest from the Germans lay a wood; and the space between the airplane and the trees was so small that the machine could not rise into the air in that direction. All that the pilot could do in his endeavor to escape was to run his machine across the ground directly toward the approaching horsemen and seek to rise sufficiently high to sweep above their heads. He took his machine abruptly toward the air and flew down straight toward them, thinking that his chance was poor, and expecting either to be struck himself by bullets or to have some vital part of his machine hit.

There was one point in his favor, however; the German cavalrymen, taken by surprise when the aircraft came rushing toward them, had opened fire in a scattering and very haphazard manner. Only just above their heads, although traveling very fast, swept the airplane, with its pilot and passenger crouching low in their seats. Over the cavalrymen it flew and then it began to climb rapidly; and although a storm of bullets had met it as it approached and had been directed on it while it passed overhead, the craft flew on unchecked. No vital part of its mechanism was hit, nor were its occupants injured.—Youth's Companion.

AIRPLANE AND CAVALRY MEET

Allied Flier Escapes Capture by Charging Foes and Passing Short Distance Over Their Heads.

To show that it is sometimes possible for an aviator to pass surprisingly low over guns and yet escape being brought to earth, Mr. Claude Grahame-White cites in "Heroes of the Flying Corps" an interesting encounter between an airplane and a squad of cavalry. One of the aviators of the allies, descending near some German outposts, was surprised by a patrol of hostile cavalry that galloped into a corner of the field where the airplane had alighted and rode full tilt toward it to make its occupants prisoners.

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Christianity Gains in China.

The progress of Christianity in China has become so marked that the Mohammedans of the nation are arousing themselves to greater activity. A recent conference of 500 priests discussed translating the Koran, improving schools, preparing a defensive literature, and taking other steps to protect the faith of Mohammed.

stories are old men who learned their trade in the days when the industry was at its height.—Scientific American.

Call the Police.

"I met with an unusual experience today."
"That so? What happened?"
"I upset an ink bottle on a clean tablecloth."
"Nothing unusual about that."
"Yes there was. The bottle was empty."

He Was Right.

"I helped with moving pictures 20 years ago."
"Why, moving pictures weren't in existence then."
"Yes, but moving pictures was. I was a drayman."

A Meal There.

"Growing anything useful in your garden?"
"Well, I looked out of the window this morning and I'd say off hand there are two bushels of dandelions in the front lawn waiting to be picked."

GOthic-ROOF BARN HAS BIGGEST SPACE

This Type of Structure Also Most Attractive for Many Farm Buildings.

HELPS FOR SMALL FARMER

He Need Not Improve His Property Haphazardly When Journals, Text Books and Catalogues Show Him How to Plan.

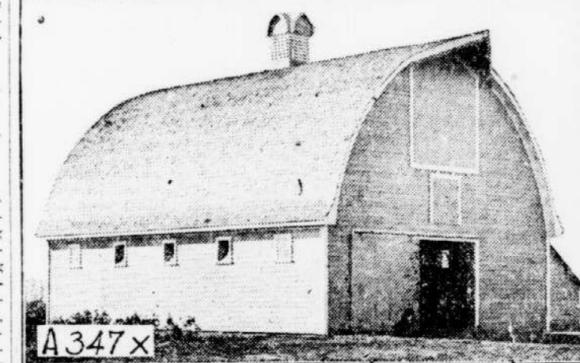
Mr. William A. Radford will answer questions and give advice FREE OF COST on all subjects pertaining to the subject of building work on the farm, for the readers of this paper. An account of his wide experience as Editor, Author and Manufacturer, he is, without doubt, the highest authority on all these subjects. Address all inquiries to William A. Radford, No. 187 Prairie avenue, Chicago, Ill., and only inclose two-cent stamp for reply.

By WILLIAM A. RADFORD.

The progressive farmer is careful of the appearance of his farm. Whether this is because of the fact that he knows it has an effect on the sale value of the farm, because of his personal pride or because of the influence of improved farming methods and sanitation, makes little difference. It is sufficient that this tendency is in force. Naturally the appearance of the buildings will determine very largely the appearance of the farm.

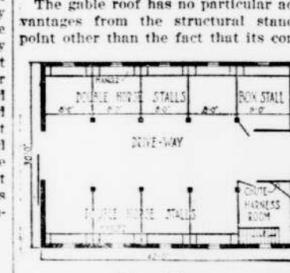
Some of the best farms are built according to a definite plan which predominates just where each building is to be placed, the type of building which it is to be and the style of all of the buildings is made to conform to a selected standard. The scheme may even be carried to a conformity between building materials used. The most noticeable manner in which farm buildings may be designed to follow a selected style is in the shape of the roof. The roof of a barn constitutes a large proportion of the total external surface and its shape will, therefore, have a decided effect upon the appearance.

There are three principal types of roof which are used on farm buildings. These are the pitched or gable roof, the gambrel roof and the gothic roof. In



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selecting the style of roof for the buildings of the group, the barn which is to have a hay mow should govern the decision. This building should have a roof which will provide the largest possible haymow volume for every square foot of ground covered by the building, under ordinary circumstances. There might be conditions such that a large haymow would be unnecessary in any of the buildings and then the style of roof would be wholly a matter of personal taste, based on appearance only. Assuming that the large mow is necessary, however, the following facts are considered: The gable roof provides the least volume of any of the three types mentioned for a given height. The gambrel roof furnishes a larger volume for the given height and the gothic roof gives the largest volume of the three types.



Floor Plan.

The gothic roof has no particular advantages from the structural standpoint other than the fact that its construction is exceedingly simple. The gambrel roof has the advantage that it is adapted to the various forms of plank frame construction, which is a type of construction that has replaced the heavy timber and beam barns in many parts of the country. Its principal advantages are that it requires no lumber having a thickness greater than two inches, it may be framed by a small force of men because there are no exceedingly heavy members to be raised into place and the hay mow space is unobstructed except for the purlin posts and the main truss chords, which project only a few feet into the mow. The gothic roof may likewise be classed as a plank frame structure. There is absolutely no obstruction of any sort in the mow of a gothic roof barn. When properly braced with diagonal strips spiked and bolted across the studs and rafters it is a very strong type of construction.

The gothic roof would be selected by the farmer who wishes to make his farm appear distinctive. Buildings having this type of roof are characterized by their neat appearance and in most localities they are out of the ordinary. This matter of appearance, together with the structural advantages already mentioned, are sufficient to recommend such a barn to any farmer who wishes to follow a plan somewhat different from the usual layout found on farms throughout the country. It is noticeable that the farms which are carefully planned usually are the large

ones built practically in their entirety at one time. This fact is to be regretted, since the smaller farmer, if he cares to do so, may consult with the builder and building material dealer and plan his farm in just as systematic a manner as that used for the largest farms. Progressive building material dealers in farming communities in all parts of the country are rapidly equipping their offices with all kinds of literature and various other helps which are at the disposal of the farmers. Builders who are interested in farm building construction are studying catalogues, textbooks and building journals so that they will be fitted to offer useful suggestions to the farmers who come to them for advice on building subjects. This building service need not be limited to the farmer who is planning a new farm. It is just as useful in the development of a farm which has been established and is growing beyond the limits of its present facilities. The advice to farmers—all farmers—is, then, to make friends with the builder and the building material dealer in the nearby town. He can serve you and his service may save you money on your improvements.

Coming back to the gothic roof barn shown in the accompanying illustration, let this structure serve as an illustration of what the appearance of such a structure may be. Clean cut lines are responsible for the neat appearance. The appearance of a group of buildings modeled as this pattern may easily be imagined.

This barn is 30 feet wide by 42 feet long and it is arranged as a horse barn with haymow above the stable. A building designed as a cow barn would be made a few feet wider in order that plenty of space would be available for two rows of stalls and three alleyways. The length of any barn may be varied to increase or decrease its capacity, but the width remains constant. Windows are placed rather high in the horse barn, hinged to swing in at the top for ventilation. In the cow barn arrangement, when used as a dairy barn, the windows would be made larger and a special ventilating system would be installed.

There are eight double stalls, a box stall and a harness room shown on the plan. If the capacity of the building were to be increased, it would be lengthened in increments equal to the width of a single or double stall, as preferred, until a sufficient capacity would be obtained. The harness room is carefully inclosed to make it as near dust-tight as possible. It pays to give harness a little extra care, during these

days of high-priced leather. The central driveway is nearly 12 feet wide. In case a concrete floor is placed in the building this central driveway will be of concrete, but the floor in the stalls must be built up above the concrete with wood planks, wood blocks or some other material which will not be uncomfortable or cold for the animals to stand or lie on.

Ghetto a Serious Place.

"Americans are accustomed to say that nothing can be really good that does not show a 'sense of humor.' A person who, no matter what his defects may be, has that irradiating light, is saved, and it is that quality in a book which we pick out with perhaps the greatest approval. But the serious ghetto is entirely lacking in the genial sense of humor," says Hutcheson Hapgood in the Century. "The Russian Jews do not know how to play, either physically or intellectually. There is no play in their art, their literature, or their life. They do not understand what is light and graceful. Charm of the mere evanescent kind, the charm of the nuance, is lacking. The spirit and the art of the Japanese are the opposite of the spirit and the art of the ghetto Jew. The young men of the ghetto—those of the intellectual type—pass their nights, after working hard all day, in serious conversation in which there is no lightness or humor, although there may be, and often is, a sense of the incongruous or of the ridiculous."

One-hundred-pound Thank Offering.

What will Folkestone do with Sir Charles Wakefield's £100 thank offering for escape from death in the recent raid? One of Sir Charles' predecessors in office, while in the Arabian desert, came face to face with a lion of parts. Down on his knees went the worldly knight in fervent prayer. The lion understood—or did not—and retreated supperless. Thereupon the pilgrim came home and gave £200 to the church of St. Katherine Cree, London, which is still preached on each anniversary of the escape, October 16.—London Daily Chronicle.

Origin of the Word "Lady."

Why we call a woman a lady is known, probably, to few women. It came from a practice that obtained in the manor houses of England where, once a week, the lady of the manor distributed to her poor neighbors, with her own hands, loaves of bread. She came to be called "Læd day," the Saxon words for bread giver. These two words became one: "Lady."

Man Who Reaches the Top.

The steadily successful man is neither rash nor timid. He is prudent and courageous. He will take a chance where there is a reasonable prospect of success, but he will not rush into a venture blindly nor be so cautious as never to take any risk.—Irish World.

Battles Which Made the World

ARMINIUS' SLAUGHTER OF THE ROMANS

The Original of Hindenburg. More Than Nineteen Hundred Years Ago He Led the Swarms of Germans to Overwhelm the Romans.

By CAPT. ROLAND F. ANDREWS

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Arminius was a German who fought for the liberty of a people against the most powerful and warlike empire of the time. He won it. Oddly enough he won it by employment of the very tactics which have gained the most marked success for the German armies in the present war. He may almost be said to have furnished the inspiration for Hindenburg. For he gained his great victory by luring the legions of Rome into the mire of his swamps and morasses and there slaughtering them almost to a man. The great fight took place nine years before the beginning of the Christian era. It drove the power of Rome out of Germany forever.

Vercingetorix, the great Gallic chieftain, had been overcome by Julius Caesar, had been made to march in Caesar's triumph and had afterward been murdered in his Roman dungeon. Augustus, the voluntary and prodigal, was on the throne of a Rome now largely given over to pleasure. Tiberius, afterward to become emperor himself, had been recalled from the command of German armies, then held as an outpost of German empire. To succeed him came Quintillus Varus, fresh from exile as the proconsul of Syria. He established his headquarters near the center of the modern country of Westphalia, where he not only gave up himself to the gratification of his rapacity and licentiousness, but encouraged all manner of excesses on the part of his soldiers. No man's life or property was safe. Less so was the honor of any woman. The Romans wallowed in evil. The German swarms buzzed in indignation. In the mind of Arminius formed the plan, preposterous as it seemed, not only to take vengeance upon the oppressors, but to defy the whole Roman empire, and turn Germany back from vassalage of Rome to its own independence. But for his success the Europe of today might be populated by an entirely different race.

As is not infrequently the case a woman figured in the meltem. Arminius, himself a citizen of Rome by the benign concession of the Roman emperor who had conquered him, eloped with the daughter of one Secestes. For this he was denounced and proscribed. So he took to the forests where he roused and organized the wild herds of German fighting men.

Very crafty was Arminius. He waited for the heavy rains. These coming in due season turned the country into bogs through which it became most difficult to maneuver regular troops. Then he directed the tribes near the Weser and the Ems to take up arms in minor revolt against the Romans. This was represented to Varus as a local disturbance which required his immediate presence on the spot. Varus fell into the trap. Promptly he set forth, starting his army on a line parallel with the Lippe. Here, not far from the source of the Ems, where the country is rugged and heavily wooded, with streams which are shallow in the dry season, but which overflow their banks in the time of the rains, Arminius staged his terrible enterprise. No modern Hindenburg drew on the invaders with more gulf.

Varus was little more than an ordinary general, but he had with him a force of the best-disciplined, most formidable troops in the world—Roman legionaries to the number of some 14,000 supplemented by a thousand Roman cavalry and numerous light auxiliaries. These were commanded by skillful officers, although the incompetent Varus had permitted his force to be encumbered by a rabble of camp followers and women who greatly impeded the march. Into the dark forest entered this doomed host.

Once clear of the firm level ground came trouble. In the marshes the cavalry often found itself unable to proceed. Even the infantry must make roads of logs. The camp followers got in the way of the engineers. And then suddenly came the word that the rear guard had been furiously attacked by the barbarians. Confused and startled, Varus gave the command to press forward. His troops struggled on, but from the woods on either flank came heavy discharges of missiles. Some of the best of the cohorts were mowed down by enemies whom they were unable to see. On such ground the legions could not deploy. The Germanic auxiliaries began to desert. But Roman discipline held firm. Advancing until it reached something which approximated an open spot, the army, continually beset by harassing foes, stolidly pitched its regulation Roman camp.

A House Guest.

"She's a house guest of her mother's." "That's a queer expression. She's at home all the time." "Well, she's around while her mother does the work."

Too Tame for Him.

Mike, in his third year, had been transplanted to the country by his careful parents. The move was made for Mike's sake; the city is no place for a growing boy. Mike, however, had not been consulted. During the first long day of his rustic seclusion it rained, and Mike, forced to stay indoors, made repeated trips to the windows to look out.

"Why isn't anybody passing?" he asked his mother, and again, "When is somebody going to go by?" and yet again, "Nobody is going by now, either."

Friendly Advice.

No doubt Jenkins married Lobelia Genoff for love. At any rate beauty can't have had anything to do with it. Her face would have ripened a cheese or stopped a train. One day, soon after his marriage, Jenkins met a pal and timidly asked him what he thought of Lobelia.

The veteran officers of Varus' army... "Beauty is only skin deep..." "One's Real Duty..." "Aren't They Thoughtful..."