

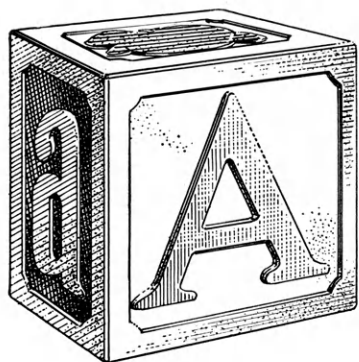
Kansas State College AG STUDENT

OCTOBER 1954

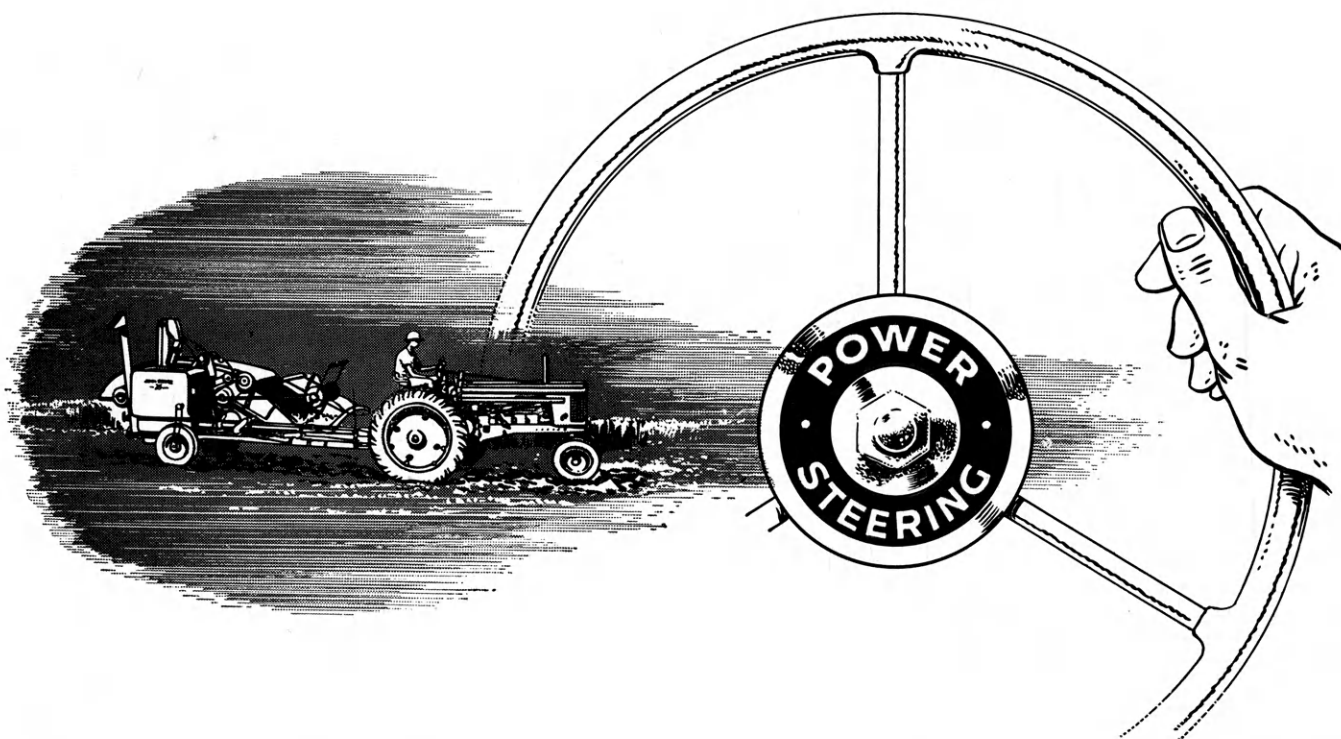


*Barnwarmers
and Queens*
..... page 13





is for Applause



NOW, as most of us know, the farmer isn't a particularly demonstrative fellow. Which is to say that he accepts most things and events with what you might call a quiet philosophy. And when it comes to making an appraisal—whether it's a heifer or a new piece of machinery—it's a pretty rare farmer who is careless with either his Oh's and Ah's or his flattering adjectives.

Still, every so often some big news comes along—like the announcement of the new John Deere Power Steering—and then even that philosophical armor of his can't hide his enthusiasm. You can detect it easily. For, to the farm equipment man, that gleam of approval in a farmer's eye is as bright as the Milky Way, and his silent nod of satisfaction is as loud as the applause at a Carnegie Hall concert.

And, of course, it's perfectly natural that farmers everywhere are applauding the announcement of new John Deere Power Steering. It's the biggest news to hit the row-crop tractor field in years. To the farmer it means new freedom from steering effort, new freedom from driver fatigue, and safer, faster, more convenient tractor operation.

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Kansas State College AG STUDENT

October 1954

No. 1

The Best of the Best

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ON THE COVER

ALL SMILES and as happy as, well—happy as a queen, Bonnie Morton, PEW Fr, from Southeast Hall, reigns over the 1954 Barn-warmer. Dean Weber climbed the straw throne at intermission to crown the queen and bestow the traditional kiss—lucky man.

Bonnie, whose home is Goodland, doesn't live on a farm, but performed well enough at the farm chores and rated high enough with the farm boys to get the nod over the other candidates.



Ever try to pick out your best instructor? On what basis would you choose him?

K-State officials are pondering this question now as they make arrangements for an "Outstanding Teacher Award" of \$500 which some qualified prof will receive next spring for his year's efforts.

Last spring an award of this type was suggested to various College administrative groups for approval. Several other Midwest colleges and universities already give similar recognition to teachers who have done exceptional work and the award was readily approved here, but without any provision for immediately deciding a method of selection. The Kansas State Endowment Association, however, did agree to make available each year the \$500 for the award.

Probably a committee for selection will be chosen from the teaching faculty with perhaps one or two students included. Methods used to pick the best teachers at other schools can't be copied in most cases as selections are made by methods that are kept secret to be effective.

It will be quite a task, as anyone familiar with the Ag School staff must realize, to accurately choose a teacher on his ability to interest students in his subject, to unite his material with knowledge in other fields, to inspire his class to better study, and to present sometimes dry material in an interesting and practical manner.

The upper class Aggies have had opportunity to become acquainted with more instructors than have the freshmen, and seniors, especially, would do well to consider who their best teacher has been. They might get a chance to help pick the outstanding teacher by naming one from the Ag School who stands out just a little above average this year.

PHOTO CREDIT—J. R. McLeland, cover, 17; Arlan Potwin, 6, 12; Fish & Game Commission, 10, 11; C. Kesavamurthy, 12, 22; Ag Student Magazine, 13; Illustrations Dept., 15, 16, 18, 19; Lester Kimball, 14; Dan Henley, 16; John Saylor, 20, 21.



Big Yields Burn More Humus

Above left: The new New Idea shredder has three shredding heads with adjustable hammers. Outside shafts rotate in opposite directions. Cleans two rows and center.

Above right: New Idea-Horn loader has fast lift, high reach. Handles loads up to 2,500 lbs. Low profile permits working in cramped quarters. 10 easy-on attachments do 101 other jobs. Fits more than 100 tractor models.

Below: Four New Idea spreader models, including a 120 bu. PTO job, give you a wide choice of capacities to fit your requirements. Wide range of spreading rates controlled from tractor seat.

NEW IDEA
FARM EQUIPMENT CO.

Division **AVCO**
Distributing Corporation

Coldwater, Ohio

It's no crime to burn more humus with higher yields. It *is* a crime if you don't put it back, full measure, into your soils.

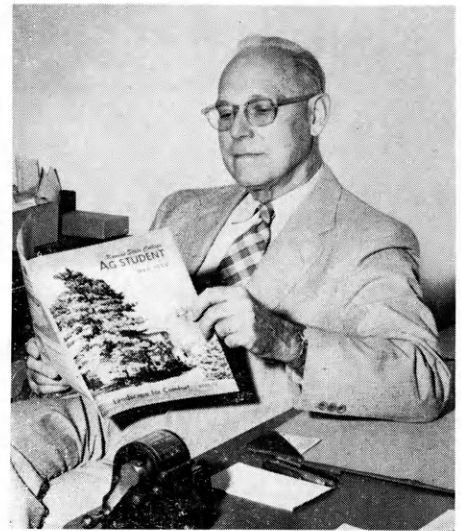
Agronomists say that each rotation requires 8,000 to 12,000 pounds of organic matter per acre. If you do your part in this turnover of organic material, you can expect to maintain the tilth and fertility of your soil. Keep in mind, too, that organic matter holds *five times* as much moisture (pound for pound) as other soil material.

With the three NEW IDEA tools featured here you can do your part quickly and easily. The shredder pulverizes coarse surface material, which then decomposes rapidly into true humus—especially when worked immediately into your soil. A NEW IDEA-HORN loader speeds up manure handling—eliminates fatigue. The famous NEW IDEA Spreader is unsurpassed for fine shredding and controlled spreading.

You need these machines for humus-hungry crops and soils.

Chit Chat

By Clyde W. Mullen, Assistant Dean



Dean Mullen

WE TRIED TO talk the Editor in Chief out of this column for the coming year, but he insisted that students do look over this strip. And that was just what we were trying to tell him. Students do *overlook* this column. However, if no one reads it, we don't have to be too careful about our grammar or subject matter. So here goes for another year.

Now Isn't Too Soon

A whole year has passed without much visible evidence that any progress has been made toward furnishings for the wonderful reading room in the new wing of Waters Hall. I doubt if our students realize and appreciate this unusual asset to their comfort and convenience. It is beautifully finished, well ventilated, centrally located, and it can be turned into a restful spot where students can relax or study between classes.

It is the responsibility of the Agricultural Association to press this project to a successful conclusion **THIS YEAR**. The sooner, the better. There would be high incentive in a program that would promise this year's seniors and other students the full use of this room, fully furnished by February, 1955. Dean Weber may have a proposition to make to the Executive Committee. Let's get going.

Glad You Are Back

Too bad it isn't possible to list here the names of all our boys who are back from the wars. After two years' service in the armed forces, dozens of them have again enrolled in the School of Agriculture.

Welcome back, lads. It is good to see you again. It may seem like four years to you, but to this office it seems as though you have been gone only a year. We hope you will get right back in the harness, join one or two departmental clubs and make your presence known on the campus in more ways than one.

How about an article for the Ag Student on agriculture as you observed it in Korea, Japan, the Philippines, Guam, or the Pescadores?

"Thanks" . . . The Staff

This is a good time to commend last year's Ag Student staff for the high quality of editorial material and for the general make-up of the publication. The articles gave good coverage of the School of Agriculture and its departments. They were well written, timely, up-to-date, and in a few instances got the jump on Lowell Brandner and his station publications by several months.

No doubt, some of the articles were read with high interest by persons who were seeking the latest reports on scientific progress in certain fields here at the College. The staff dug up material that was timely, ready to publish, and it served the College and the Ag Magazine readers well by presenting pictures and information in an authoritative manner.

Then the boys on the business side of the desk did a good job, too. The figure is not readily available, but it can be said that the boys did not come out in the red. Collections on local ads were very good.

A few of the senior staff members are gone this year. But in their places are others, some of whom have had training and experience on the staff. It is a substantial group. It is reasonable to expect that the Ag Student will have a more successful and prosperous season than it did last year.

Now, turn to the following pages and let's see how the boys have done with their first issue.

FOR COLLEGE
WEAR

Buy the

Eye Appeal
CLOTHES

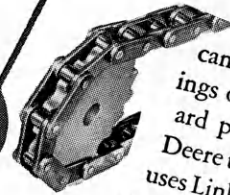
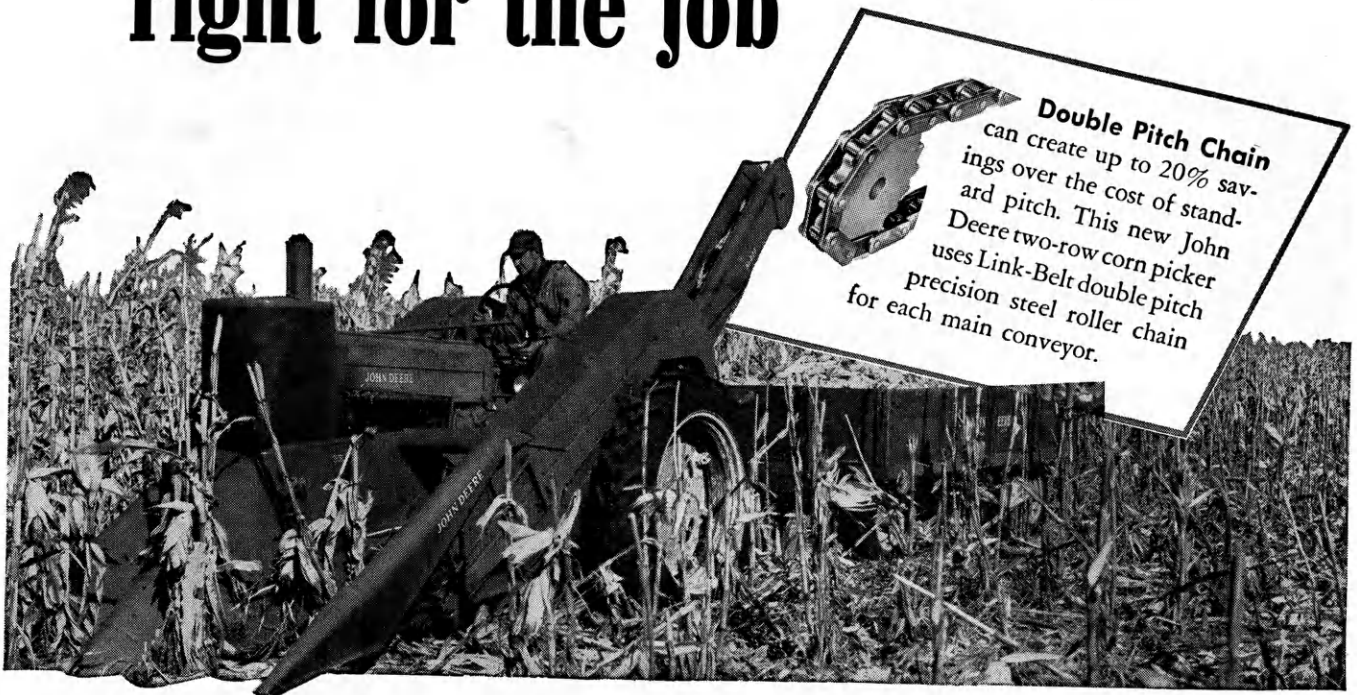
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Double Pitch Chain can create up to 20% savings over the cost of standard pitch. This new John Deere two-row corn picker uses Link-Belt double pitch precision steel roller chain for each main conveyor.

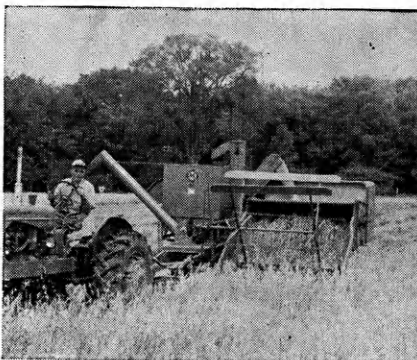
There's good reason why more than 400 farm machinery manufacturers rely on LINK-BELT for their complete drive and conveying chain needs

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CHAINS and SPROCKETS

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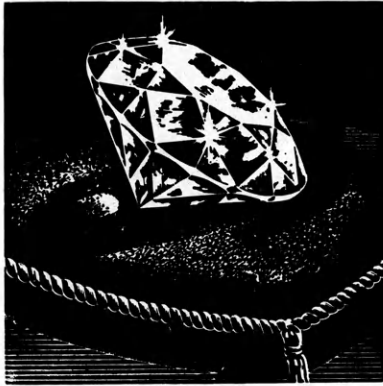
MATCHING SPROCKETS from Link-Belt's complete line provide longer chain life. Combine uses five Link-Belt chain sizes.

DIAMONDS

WATCHES

JEWELRY

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REED & ELLIOTT
Jewelers

NEW LOCATION
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Chicken Man

Prof. Thomas B. Avery, new head of K-State's poultry department, is the state's number one organizer of poultry barbecues. Many times during the year he is called on by groups desiring the savory taste of outdoor-roasted fowl.

It's an unusual activity for the busy head of K-State's poultry department, but Avery says he has always enjoyed barbecuing, except once when the temperature neared zero. Never again, he hopes.

Professor Avery has been head of the poultry department since July 1 when Prof. Loyal F. Payne retired. He is a graduate of K-State (BS in 1934 and MS in '39); a native of Coldwater and 43 years old. His wife is the former Elizabeth Poole, a graduate of KSC. They have five children; four boys and a girl.

Following his graduation from Kansas State, Professor Avery spent three years with Swift and Company supervising hatcheries. He then returned to K-State to get his MS and from 1939 to 1941 served on the University of Illinois faculty. From '41 to '43, he was a member of the Connecticut U. faculty; then, until 1945 he was a senior marketing specialist for the USDA.

Since coming to K-State in 1945, Professor Avery has been an outstanding coach of poultry judging teams. He has had four International championship teams, and four in second place. Last year he was named outstanding teacher of poultry science in the United States and Canada. He has authored some books and other publications, including the poultry production lab manual used by several colleges.

Aside from his teaching activities, Mr. Avery helps organize and carry out judging contests for various FFA groups over the state. An alumnus of Farm House fraternity, he takes an active interest in the local chapter, plus many other campus and civic organizations.

Mr. Avery takes part of his family with him each year on an extensive fishing trip, and though his new job is keeping him quite busy, he says he hopes to continue the annual fishing trips for many years.

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The Store for Men and Women

Hey

FELLOWS

NEED A
BOOK

or

A PENNANT

or a

GISMO

for that

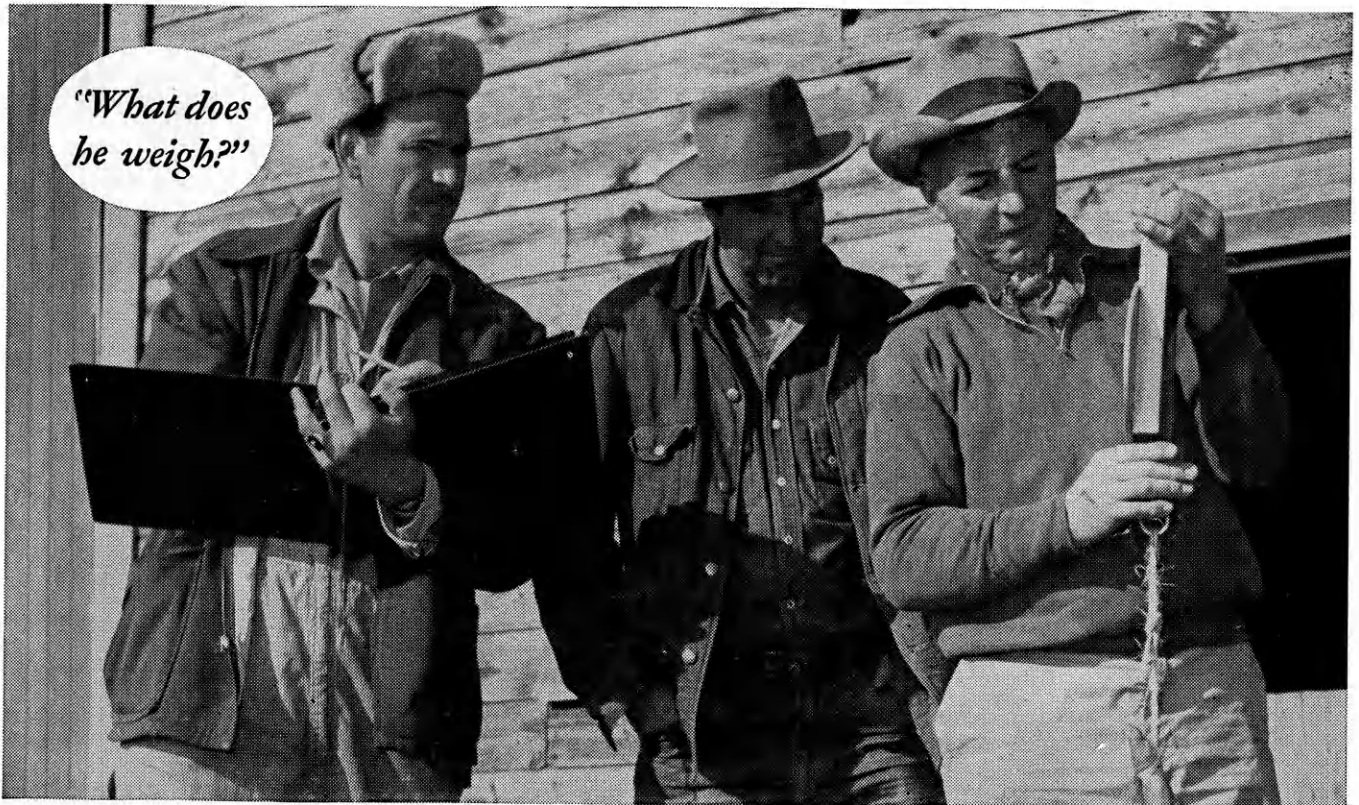
Lab?

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Your Friendly Book Store
Nearest the College

"What does
he weigh?"



WHY WE URGE OUR CUSTOMERS TO CHECK FEED CONSUMPTION AND WEIGHTS

We believe a livestock feed is only as good as results prove it to be. And, from the records of thousands of feeders who have accurately checked their own results, we know that MoorMan's Mintrates*, combined with home grown grains and forage, have helped these feeders produce more meat, milk and eggs—more economically—than any other feed they have used.

So we urge every MoorMan user to keep a complete record of feed costs, weights and rates of gain. We want him to know exactly what it is costing him to produce meat, milk and eggs . . . and to prove to himself, by a record of performance, that he is getting the greatest possible return from his feed dollar.

And when a MoorMan salesman or a MoorMan advertisement makes statements or claims about the remarkable low cost, high profit results obtained with MoorMan's Mintrates, you can be certain our files contain not just dozens, but thousands of customer records to back them up.

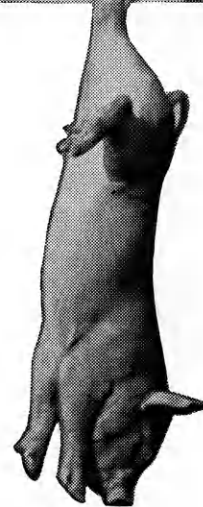
There's no magic about this. It's simply the sensible, logical application of the things modern science has learned about nutrition. There's plenty of food and energy value in your home grown feeds. But, when it's fed alone, the animal gets only a part of the goodness nature put into it. More of it needs to be released . . . made fully available for building meat, milk and eggs. And that's where MoorMan's goes to work.

MoorMan's Mintrates are composed of a scientifically formulated, highly concentrated combination of minerals, vitamins and proteins.** When fed with your own home grown feeds Mintrates make it easier for your animals to get the fullest possible value from the feed they eat . . . help them return greater profit to you in the form of more meat, milk and eggs per bushel of feed or ton of forage.

When you buy MoorMan's Mintrates you buy nothing you can economically raise or process on your own farm. They contain no grain, no added fiber or filler . . . nothing you have raised and shipped to market, and are often asked to buy back in a bag.

Thousands of hog feeders have found that \$1.50 corn, combined with MoorMan's Mintrates, can be marketed in the form of pork at \$3.50 to \$4.50 per bushel. Thousands of dairy farmers have found that only a pound of Cow Mintrate a day increases the milk-making and body-building power in home-grown grain and forage. Thousands of chicken raisers have found that baby chicks started on Chick Mintrate and yellow corn will average well over 3 pounds in 9 weeks.

Are you missing out on these extra profits? Are you getting only part of the true value of your home grown feeds? Are you buying back feed you once raised and sold? Maybe it's time you talked to the MoorMan Man. If he does not call soon, write MoorMan Mfg. Co., Dept.O5-10, Quincy, Illinois.



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Why? When? How?



By Paul Vohs Jr.

A PAIR of wild ducks on the wing, as seen through the eyes of an artist.



THE SKIES OF Kansas will soon be disturbed by squadrons of flying ducks and geese going south to their winter homes.

These feathered creatures of the air enjoy a rare privilege that many Kansans would like to duplicate. They summer in the north, fly south and summer again, never having to face the hardships of winter.

As you watch the waterfowl on their annual migration the questions "Why?" "When?" and "How?" may often enter your mind. For hundreds of years naturalists have toyed with these same questions, trying to discover reasons for migration.

One theory that has some followers is the *Northern Ancestral Home Theory*. The idea here is that in the earlier ages, nonmigratory birds swarmed over the northern hemisphere where, at that time, the conditions of food and habitat were suitable for them throughout the year.

Gradually, as the historical glacial ice fields advanced southward, the birds were forced to move to the tropics. Ages passed and the ice slowly receded. The birds, whose an-

THEORIES ON MIGRATION

cestral homes had been in the north, attempted to return north only to be forced south again each fall. As the ice gradually melted, the flights became longer each year, thereby establishing the habit of migration.

The *Southern Ancestral Home Theory* is based on the assumption that the ancestral home of all birds was in the tropics. Overpopulation caused a search for new breeding grounds. As the great glaciers retreated, virgin areas became suitable for summer residence but the birds were forced by severe winter temperatures to migrate to their southern homes each fall.

A large northern land mass called Laurasia and its southern counterpart, Gondwana, broke into segments which formed the present continents, according to the *Continental Drift Theory*. These two land masses were believed to have drifted close together at times, occasionally touching. The birds that flew between these two lands are supposed to have descendants alive today that migrate between the Northern and Southern Hemispheres.

Geologic history shows, however, that the only birds living at the time when there may have been a continental drift were extremely primitive and there is no evidence of a closely related species existing now.

An attempt to explain the time that birds take to the air for their northern flight each spring is found in the *Theory of Photoperiodism*. Time of migration is held to be caused by the quantity of light and the length

of day. The regularity of arrival and departure of the waterfowl is controlled by something other than coincidence, as most birds travel by the calendar. They leave on a certain date in the fall and arrive each spring at a regular time.

As theories sometimes do, this one has objectionable or questionable features. Some of the migratory birds pass through the region of equal day and night and go as far south as Patagonia in southern Argentina. Also questioned is why the birds that winter in the tropics, where the lengths of day and night vary but little, know when to leave for the north.

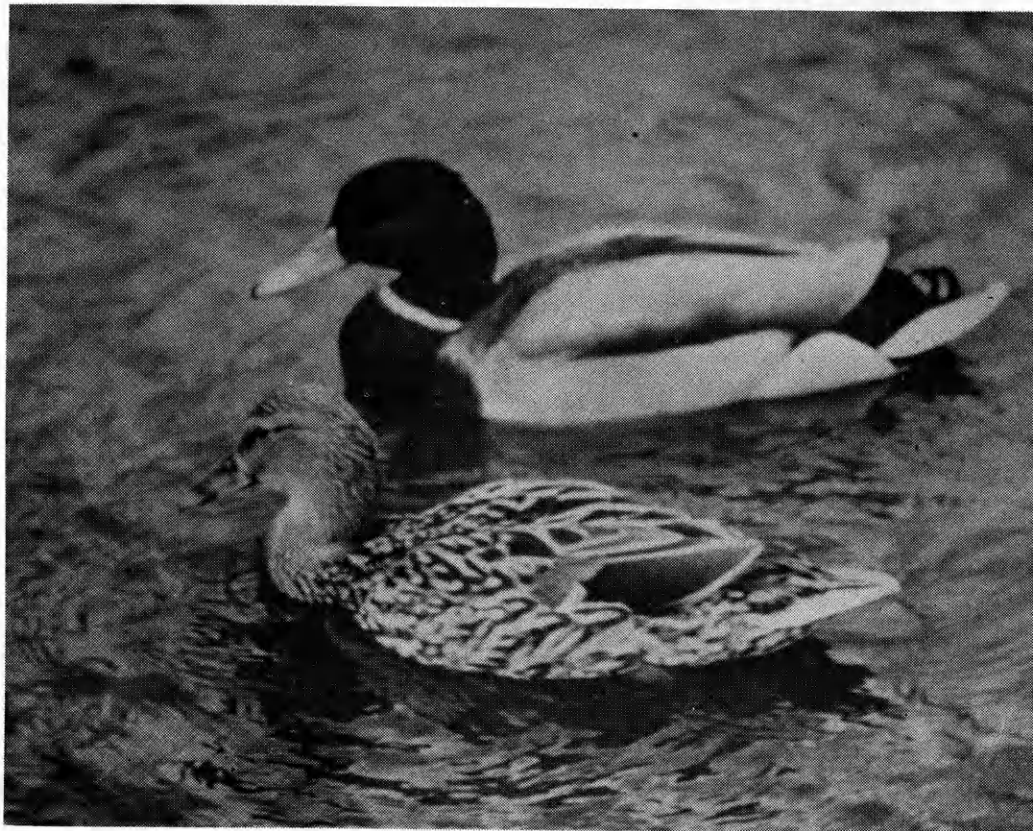
How ducks and geese know which direction to fly is another mystery. It is well known that birds have excellent vision, and some, pigeons for example, have great homing instincts; but this fact doesn't explain why migrating waterfowl can travel through thick fog and rain to small pinpoints in the northern wilderness.

The belief for a time was that migratory birds possessed a "magnetic sense" that enabled them to guide themselves by the strength of the magnetic lines of force emitted from the north magnetic pole. Magnets were tied to pigeons to determine if the magnetic field of the magnet would cause them to lose their way. All the pigeons found their way home, thus throwing question upon this theory.

Migration appears to be only a temporary drive. Birds detained en route until the end of the migratory period either by natural forces or by man do not attempt to finish the journey. In one case, an unusually late season and an abundant supply of food caused the mallard ducks to remain in western Montana and northern Idaho. When heavy snowfall and freezing temperatures finally set in, the birds remained and starved when a flight of only a few hours would have taken them to food and open water.



A PAIR of wild mallards, a familiar sight to anyone who has spent very much time out of doors. The mallard is a large bird, and is one of the most sought after by duck hunters.

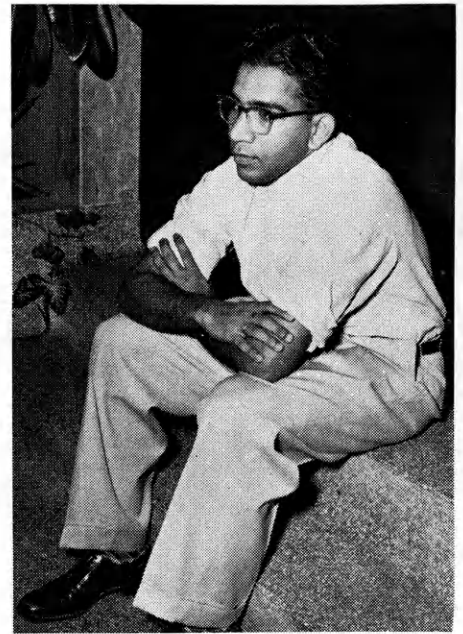


India's

ANCIENT AGRICULTURE

Strives To Go Modern

By C. Kesavamurthy



"Murthy"

With the knowledge he gets from a double degree in Industrial Chemistry and Agronomy, C. Kesavamurthy (Murthy to his American friends) hopes to improve farming in South India, especially on his father's land. After graduation next spring, Murthy plans to do some graduate study, then return to his home, a small town near Madras.

HOW ARE YOU able to feed so many people in India?" is one of the most common questions asked

THE ADMINISTRATION and general classroom building and main campus entrance to one of the more modern schools of India; Loyola University at Madras, where "Murthy" attended classes for one year before coming to K-State. Enrollment averages 2,000 students.



me. My answer is that we are not feeding all the people at home. There is a great proportion undernourished.

"Is this due to lack of enough land for cultivation and overpopulation?" No. But the reasons are many for the food problem being acute.

The methods of farming in India are thousands of years old. A farmer plows his land with a pair of oxen, and a wooden plow. The idea of enriching the soil by means of fertilizers is unknown in many parts even though applying manure is common. Soil conservation is never heard of.

Most of the fields are three or less acre plots. The reason for the small size of the farms in India is mainly due to the belief of Hindus, who form 79 percent of the population, in the law of inheritance. The sons partition the holdings of their fathers equally among themselves. Farmers find it difficult to get reasonable loans. All add up to the innumerable problems which face India today.

India grows a large variety of crops. In the North, wheat, sorghum, milo, legumes and jute are grown and in the South, rice, corn, cotton and tobacco are the main crops. Spices, coffee, tea, rubber and tropical fruits are products of the big plantations.

One can find a struggling farmer only in the vast plains of India. Such a farmer's main equipment will be a wooden plow, a shovel, ax and sickle, and if he is lucky, a pair of oxen. He uses his oxen to plow, draw water out of a well if he has irrigation facilities, and for transport by making them pull carts.

There is another kind of farmer in India, though. He is a landlord. He owns thousands of acres and employs hundreds of men to operate his farm. He may have a truck or two, and he seeks the help of the agricultural schools in India. In all practical ways, he tries to keep up with time and science.

But the common farmer's lot is something of grave concern, or it

(Continued on page 22)

BLUE JEANS and NECKERCHIEFS

An Ag School Tradition

By Elaine Olson

SINCE THE FIRST Ag Barnwarmer on October 27, 1927, many changes have taken place in the celebration, all the way from the duration of ag week to the chores performed by the Queen candidates. However, the same atmosphere of jeans, neckerchiefs and the hay loft dance floor still prevails.

Before the Ag Barnwarmer and Ag Week an Ag Fair was held from the years 1921 to 1927, but was discontinued because of the loss of money each year. This celebration, held in May, was patterned after the state fair in that there was a ferris wheel, fortune tellers, and game booths. All rides, booths, and concessions were built by the Aggies. Along with the fun was a big parade through downtown Manhattan and a rip-roaring rodeo.

When the Ag Fair was discontinued the Aggies still wanted some type of celebration so they kept on with the dance. Queen candidates were selected as they are today. Every Aggie came to the dance wearing overalls with a neckerchief while their dates wore gingham dresses and aprons.

The old hay loft atmosphere was present in that the Aggies and their dates had to crawl through a tunnel of baled straw into the gym. The queen was royally presented by riding into the gym in a new car followed by footmen of Aggies carrying tools of harvest. After the queen was presented she and the dean of the Ag school led the grand march.

Straw has always been a mainstay, except in 1934 when it was too expensive because of the drouth. A wiener roast was on the eats list at



HARVEST QUEEN of the first annual Barnwarmer in 1927 was lovely Miss Grace Madison. She and Dean Call led the march.

first but since has been substituted by cider and doughnuts.

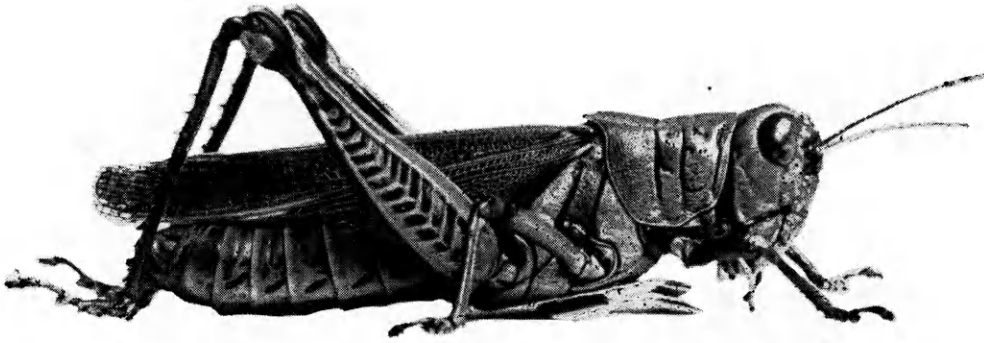
It wasn't until the early '30s that the horse tank came into the picture. Many scraps have resulted from that particular "necessary evil." Two faculty members from the Ag school have made a big splash. One professor was only trying to keep one of his milling students from being dunked—but—Aggies are a pretty persistent bunch, and two dunkings were the result.

Every chore has been thought of for the queens, from milking cows to calling hogs. A rumor started that one year the hogs even came down from the barns when the queen

(Continued on page 26)

THE FAIR, in 1922, was over \$600 successful. It included a downtown parade, displays, amusement booths and rain.





GRASSHOPPER

Invading

Eastern Kansas

By Bob Ecklund

LIKE DEATH and taxes, the grasshopper seems to be always with us; and like taxes he changes his bite from year to year. The grasshopper may in fact have a direct bearing on taxes, for a serious outbreak can quickly reduce a farm's income to a point where nothing remains to be taxed. Man's earliest recorded history often refers to grasshopper plagues, though they called them

locusts. Now another page of history may be unfolding.

Grasshoppers have been increasing in Kansas since 1949, said Prof. Dell Gates, extension entomologist. The three western tiers of counties are usually the trouble spots, but at the present time the eastern third of the state is hardest hit, with southeast Kansas having the heaviest infestation. More than seven hoppers to the

square yard in the field is a threatening infestation. More than 14 to the square yard signals a severe outbreak, and heavy damage can be expected throughout the season.

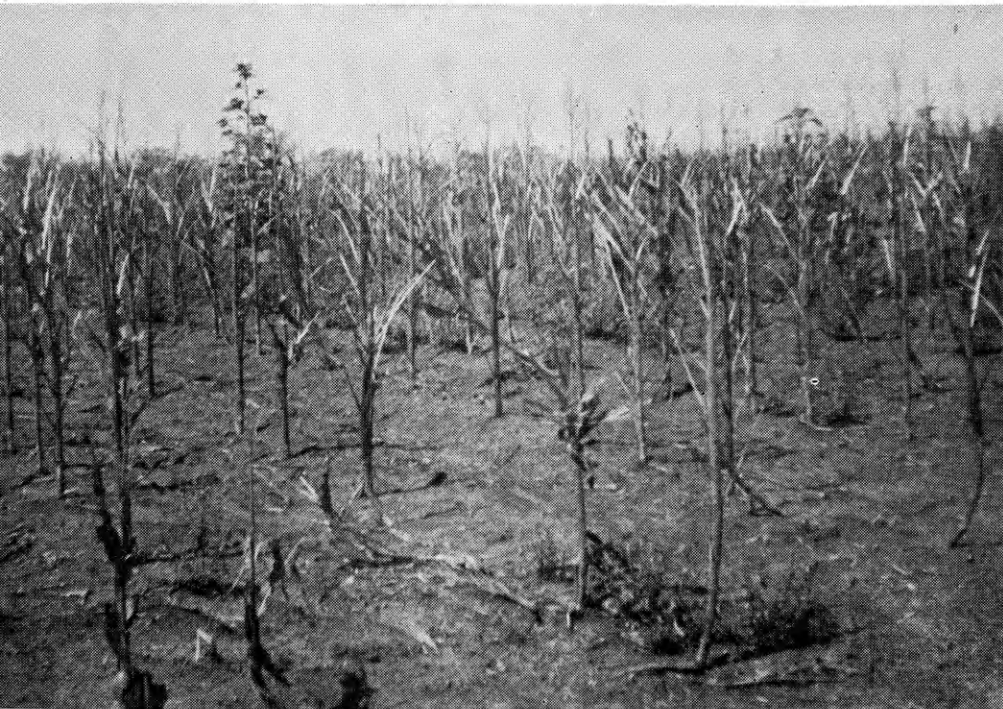
Farmers in the western part of the state employ fairly regular control measures and the grasshoppers are well under control there, Professor Gates said. However, in the eastern counties, where grasshoppers are not an annual menace, it is difficult to get the individual farmers to act until considerable destruction has been done. This delay makes control measures more expensive and less effective.

The USDA recommends starting control measures whenever grasshoppers become noticeably numerous. Early action means less injury to the crop and less control work. A "wait and see" attitude may lead to serious losses.

Grasshoppers can be controlled to some extent by tillage and seeding operations. Any tillage operation is useful in breaking up the egg pods and exposing them to natural enemies, Professor Gates said.

Fall tillage is preferable but spring tillage is sometimes just as effective. Plowing 5 or more inches deep is one of the best of tillage operations in districts where soil blowing is not a problem. Shallow tillage, while less effective, will destroy many eggs by exposing them to the sun and wind. The one-way disk is a good implement for this purpose, said Professor Gates.

A WABAUNSEE COUNTY field of corn destroyed in early summer. Damage like this was spotted over the state in 1954, mainly in the eastern counties. Next year could be worse.



GRASSHOPPERS

de

Kansas



CORN ON THE COB for the grasshoppers, but empty bins for the unfortunate farmer.

manufacturers' directions. Dieldrin or heptachlor at 2 to 4 ounces of actual insecticide per acre may be used on range land or weedy margins for fall grasshopper control if there is no danger of insecticide residue on forage for animals, Gates said.

Most damage in Kansas is caused by four species of grasshoppers: the lesser migratory, the differential, the red legged, and the two-striped. The lesser migratory, while the most destructive of the four species, is the one most easily controlled by tillage operations due to its habit of laying its eggs throughout fields of small grain. Tillage immediately following harvest to make the field undesirable as an egg-laying site, or in the fall to expose and destroy the eggs are both effective, said Professor Gates.

The three other troublesome species prefer to lay their eggs in field margins, weedy areas bordering the fields, and fence rows or turn rows at the ends of fields. Any control measures employed must consider that factor.

(Continued on page 23)

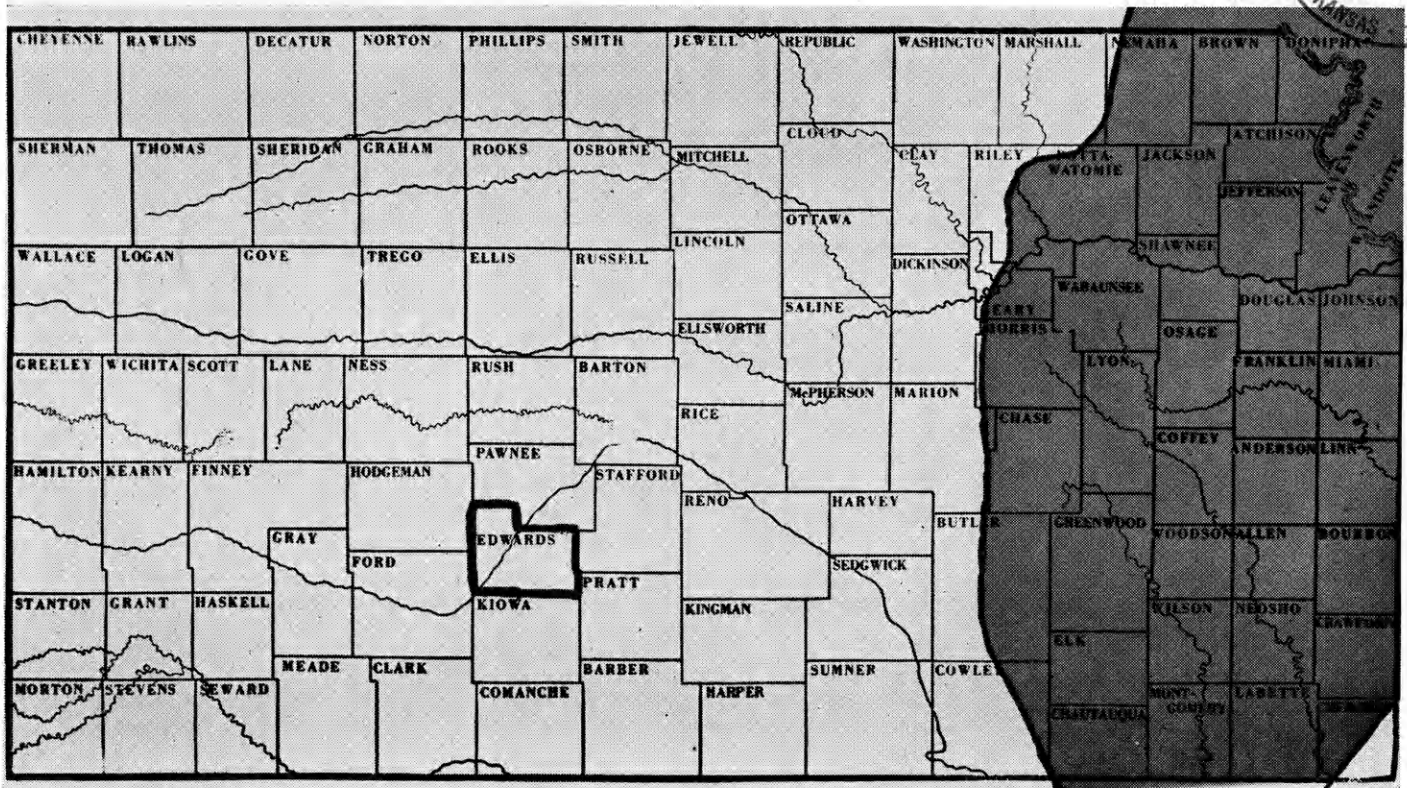
Tillage operations should be used in conjunction with insecticides to control severe outbreaks. Fall tillage, if possible, followed by sprays when the eggs are hatching the following spring, usually late May or early June, should greatly reduce the number of grasshoppers in the fields the following summer. The young grasshoppers cannot hop far from the hatching area

until they are more than a month old. The adults soon leave the hatching area for a better food supply. Control measures become more difficult and the damage is increased if spraying operations are not properly timed.

Aldrin, chlordane and toxaphene are all recommended insecticides, and should be applied according to the

THE OUTLINED and dark areas on the map show the most heavily infested sections of the state. Outbreaks are still sporadic and local.

Map Courtesy Extension Service



Beat the Drouth

By Gary Neilan



A NEW ANGLE is to dig a reservoir to store water from irrigation wells. Then use it to supplement the wells during hot, dry spells when they won't pump fast enough.

FOR MANY Kansas farmers, 1954 has been a grim repeat of the 1930's when the Sunflower state acquired its Dust Bowl title.

Many Kansas counties have been hard hit by the prolonged drouth. The plains of Western Kansas were whipped with blinding dust storms throughout the spring and summer months, and rainfall was far below average. Farmers saw their crops struggle for existence, and then wilt under the intense heat. Now, with the winter season approaching, many cattlemen and farmers find a depleted

feed supply. With present livestock prices already threatening to dissolve any would-be profit, the farmer certainly cannot afford to buy expensive hay or grain to feed during the winter months.

These farmers then find themselves confronted with a very serious problem—one that even the so-called experts cannot hurdle. How can they produce enough feed to supply at least their own demands, when rainfall is so scarce?

The most suitable solution to this situation is probably to irrigate. But, many of these farmers who do not have the advantage of large dams or rivers to use as water sources, find they cannot pump enough water to cover fields of any size using normal methods of irrigation. It is true that in such dry areas, irrigation can't make up for the lack of rainfall. But, many farmers have discovered methods by which they can at least produce their own livestock feed.

Several Kansans have found they can raise good sorghums or other crops on a comparatively small acreage even though their irrigation pumps can draw only 2-300 gallons of water a minute. They have constructed reservoirs near the fields they wish to irrigate. Rather than pumping onto the field at a slow rate for a

few hours each day, they pump continually into the reservoir. Then when the reservoir is filled, they irrigate from it, giving them a much larger volume of water. Many farmers who irrigate only at night pump water into the reservoir during the day. Thus they have the advantage of the reservoir water to go with the normal amount pumped during the night.

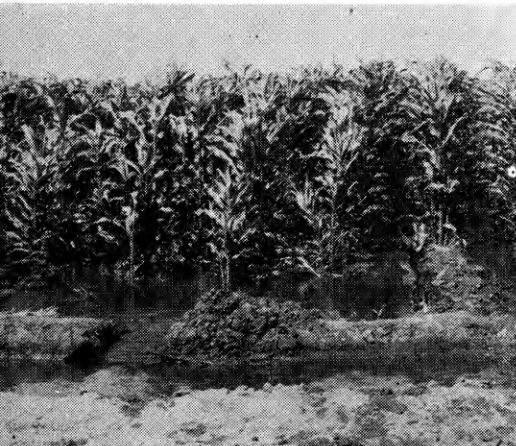
In many instances, these reservoirs will not be used every season. During a year of higher rainfall, less irrigating will be done, and perhaps the reservoir will not be needed. As one farmer stated, "They're mighty handy to have when Mother Nature rations her water supply, and it's better to have one and not need it, than to not have one and need it!"

Another variation from the normal methods of irrigation which Kansas farmers have begun to use is off-season irrigation. By this system the farmer irrigates during a time when no crops are growing on his land. Much of the normal rainfall will fall during this period also, and thus an abundance of moisture is supplied the fields.

Paul Whitehair of Abilene used this system on his farm this year. In late February and early March he

(Continued on page 26)

A POND reservoir supplies a drink of water to a thirsty field of corn on a Kansas farm.



Frozen Semen

Will it last?

By Dan Henley

DEEP-FREEZE calves (the term used in some reports to describe calves produced by artificial insemination with frozen semen) have now taken the spotlight in the research program of the K-State dairy department.

Reports on use of frozen semen for breeding dairy cows have been put out by several other ag research stations in the U.S. and England. All say it compares favorably to liquid semen in breeding trials and some think it may soon revolutionize the

artificial breeding programs. K-State dairymen are not so optimistic.

Advantages it might have over the liquid semen now in use are:

1. There is less need of hurry. While liquid semen will keep only a few days and in a few cases has had to be shipped by plane, frozen semen has been used with a high rate of success after 10 months in cold storage.

2. Semen from a young pedigreed bull can be accumulated during the period before he has been proven, then can be used to augment his



A KIT CARRIED by field men to keep semen frozen. The large thermos jar is filled with alcohol and dry ice. The small attached bottle contains cool alcohol for thawing.

normal production if the demand is great.

3. During light breeding seasons when there is little demand for semen, artificial breeding units can store the excess for later use.

4. An individual breeder can plan long range breeding programs using semen from his choice bulls long after they are dead.

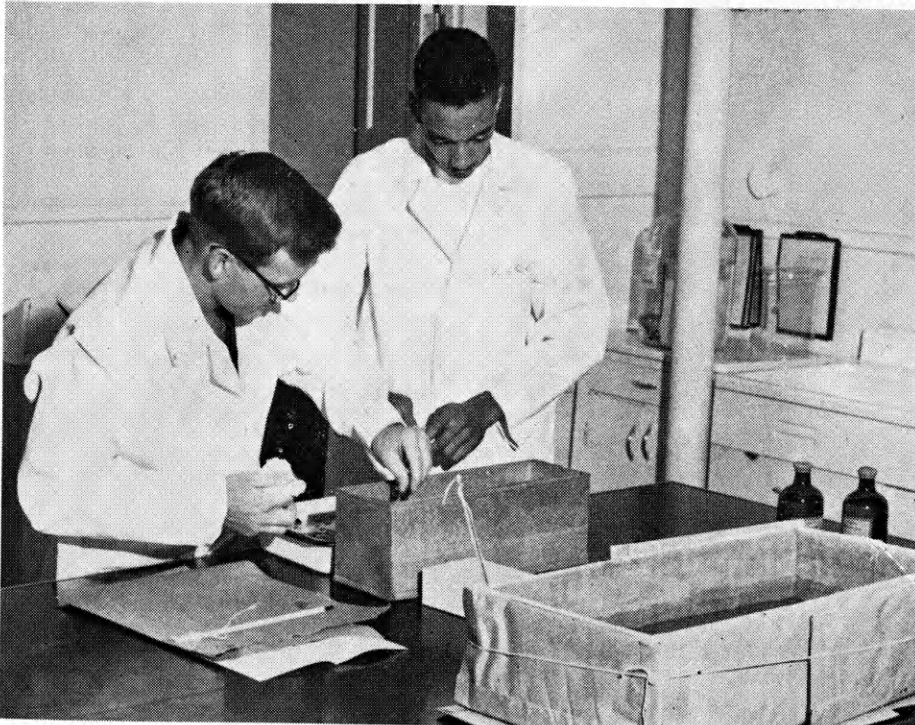
All except the first advantage, of course, depend on the possibility of being able to store semen for many months or even years. Long storage periods may be possible, but so far keeping frozen semen for more than a year has not been tried.

Here at K-State, dairy scientists were quick to realize the potentials of frozen semen as a benefit to the dairy industry, according to Prof. F. W. Atkeson, dairy department head.

"Although Kansas investigators admit possible advantages of the program, they are inclined to feel, from their experiences, that too often only the favorable side of the frozen semen picture is presented and not enough emphasis placed on unsolved problems and disadvantages. To be of maximum benefit to the industry, this program must not only be effective under controlled conditions, but also must have practical economic value in every-day use if it is to even partially replace the liquid semen program now being effectively used."

(Continued on page 24)

FREEZING SEMEN at the KABSU laboratory. Jack Snyder (left), K-State dairy department, and an assistant place small ampuls of dilute semen in an alcohol-dry ice bath. The small tank is then placed in the much colder (-110° F.), insulated tray in the foreground.



\$100 MILLION Annual Loss from Termites

By Herb Lee

Termites Thrive on Two of Every Three Kansas Farms

FARM OWNERS DON'T worry enough about termites until too late. Too many farmers blame decay when the sills or floors of the home or farm buildings suddenly give way under pressure. However, it may well be those subterranean little creatures

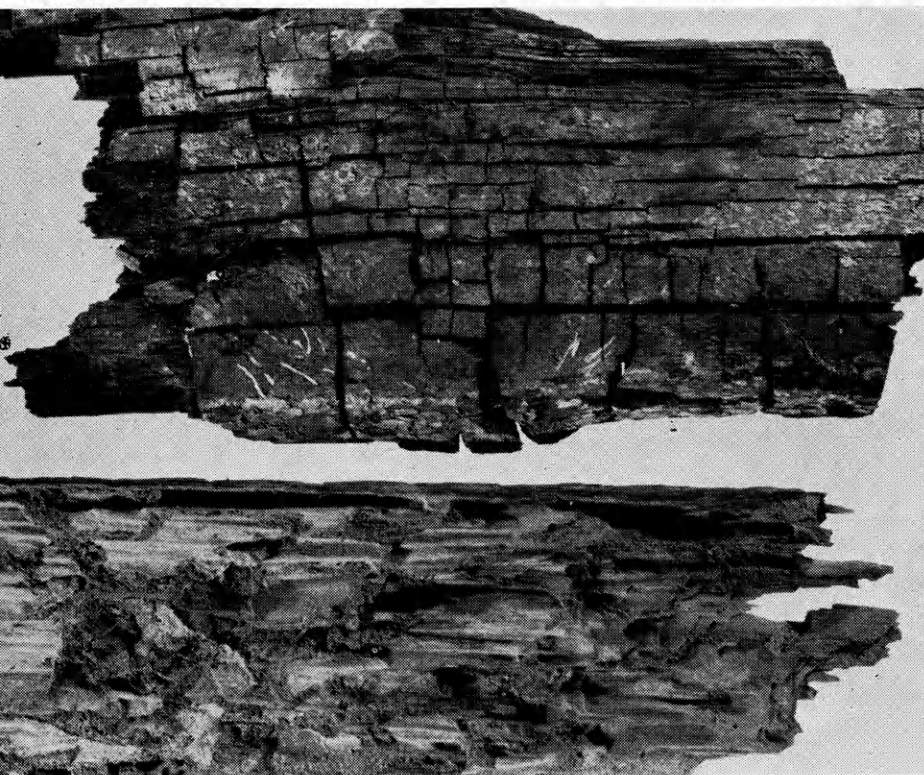
called termites which gnaw the strength from the wood and cause farmers to dig deep in their pocket-books.

Termites do \$100 million worth of property damage each year, the National Pest Control Association fig-

DON'T MISTAKE termite damage for rot. If your barn blows down during a wind storm, check the supports. If they are riddled like the lower sample, then it is termites. The upper sample of wood is an example of natural decay caused by weather and temperature.



DINNER TIME for this colony. White termites are workers and do the damage. Blacks are soldiers that protect colony.



ures. "A surprising number of farmsteads are infested with termites," said Dr. Roger C. Smith, former head of the K-State entomology department. He estimates two out of every three farm homes and buildings in Kansas have termites gnawing away at them or will have in the next five or ten years.

Termites thrive under farmhouses and buildings built close to the ground where ventilation is poor. Since they must have a constant supply of moisture to survive, these ingenious insects build tunnels sometimes several feet long of clay and excrement up to a floor or supporting foundation. Here they eat inside the wood, plugging all holes that might lead to their detection. Instinctively, they stop gnawing before the wood becomes so weak it will shatter.

Even Fairchild Infested

Nearly all buildings on the K-State campus, especially those with lime and sand supports which crack easily, have been infested. Some time ago the floor of Anderson Hall was completely relaid after termites rendered it unsafe. Damage has even been seen in Fairchild, headquarters of the entomologists, the termite's greatest enemies.

"Termites will eat anything that is derived from wood," Dr. Smith said. They prefer oak, ash, maple and hard

Most K-State Buildings Damaged



THIS IS WHAT happens when the floor supports touch the soil. The insects eat the insides from floor boards leaving only paper-like hulls, which are unsafe. Proper repair of floors and foundations and proper spraying with Chlorodane will usually eliminate the nests.

pine, but also eat all other native woods and paper, books, leather and clothing. They even damage live trees.

The entomology department has the remains of books that were devoured in a Manhattan home. Termites advanced to the second story of another home near Manhattan and ate their fill of stored books.

'51 Flood a Favor

The 1951 flood, instead of washing out termite infestations, actually favored them. "Mud deposits in and around foundations will invite their entrance," Smith said. Barns and other buildings settled by the flood are easy pickings.

Chances are on poking around with an ice pick in weak spots such as sagging or hollow sounding supports, white workers and brownish soldier termites will be found. The white or cream colored, wingless, soft-bodied, ant-like creatures, one-tenth of an inch long, are the fellows that devour houses. The brownish insects with conspicuous jaws act as protectors for the colony.

Ninety percent of infestations are in wood that is too near the ground. Smith says to examine porches for points of entrance and the casing of cellar windows and weatherboarding near the ground. "Wooden beams that extend into the soil should be checked, also. It's a good bet termites

have honeycombed them and are now advanced to the second floor."

"But don't get excited," Smith advises. Even if the infestation of termites is heavy, they won't eat up the farmstead overnight." In past years quacks and confidence men have made fortunes by capitalizing on the fear and ignorance of persons who thought they had termites on their premises or were convinced of that fact by the false operators.

"Experts" Often Fakes

Farmers were especially good prey due to the distance between homes. The confidence men sometimes pointed out ants or bugs as termites and recommended prompt action at fantastic prices. Some even carried termites with them and placed them near homes in order to dupe their victims.

Even if a home did have termites, the quacks seldom killed them. In one instance, a quack merely spread crankcase oil around the floor. Others used some worthless material producing a foul odor to convince customers they were getting rid of termites.

The danger of falling victim to a false exterminator, however, is smaller now since the Kansas Termite and Pest Control Association was formed

in 1953. A list of legitimate operators is available from the Kansas State Entomological Commission at Topeka, Kansas State College.

Repair Is Cheap Control

Some farmers feel they cannot afford an exterminator on old buildings. Repairs then will help keep termites out. And perhaps applying chemicals liberally will do the job.

"Actually, I'd lose my respect for termites if they didn't get into some buildings," Dr. Smith said. "If no thought is given to prevention of termites when buildings are constructed, then chances are good that they'll come visiting soon."

Smith said prevention is not difficult. "All stumps, wood debris and other cellulose material should be removed from the construction site.

Don't allow scraps of lumber to become buried near the building. Place the building on a foundation that termites cannot penetrate. Poured concrete is best. Leave space to crawl beneath the building for frequent inspections and provide for ventilation and drainage."

Additional information can be obtained in Circular No. 54 by Dr. Smith and in USDA Farmers' bulletins, Nos. 1911 and 1933.



Water Witching—pseudo-science?

*Burt doesn't give a darn;
he makes money at it.*

By John Saylor

CAN A MAN walk over the upper terrain holding a peach tree limb in certain fashion and locate underground streams of water by the actions of the limb?

H. B. Beck, K-State professor in geology and geography, and a specialist on underground water, would not commit himself. He had heard favorable reports, but had never seen the bewitched limb in operation. "My personal opinion," said Beck, "is that a water witcher is either a shyster or he doesn't have any idea what he is doing."

Even an old-time witcher from way back would not admit there was anything to witching. Burt Jones, Hodgeman county well driller, said he didn't exactly believe in it—and he's been successfully finding water

veins for the past 20 years. Said Burt, "People have been ribbing me about it ever since I started, but I pay no mind to them anymore."

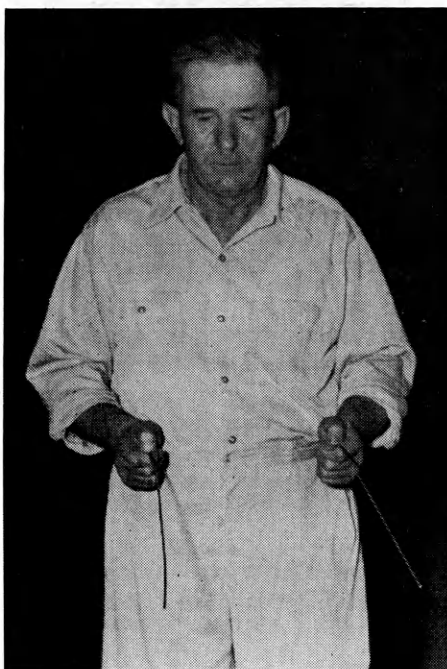
Burt's demonstration was given to me with his accustomed unconcern. He used two wires rather than the popular forked peach limb. Burt admits it's a trifle unorthodox, but the wires are easier to manage on long water hunting tramps.

With the wires bent down on one end to form handles, Burt walked toward a known water vein, holding the wires straight forward, one in each hand. As he walked over the vein, the wires swung around and crossed at his Adam's apple in a strangling fashion. He passed over the vein and the wires went back to their normal positions.

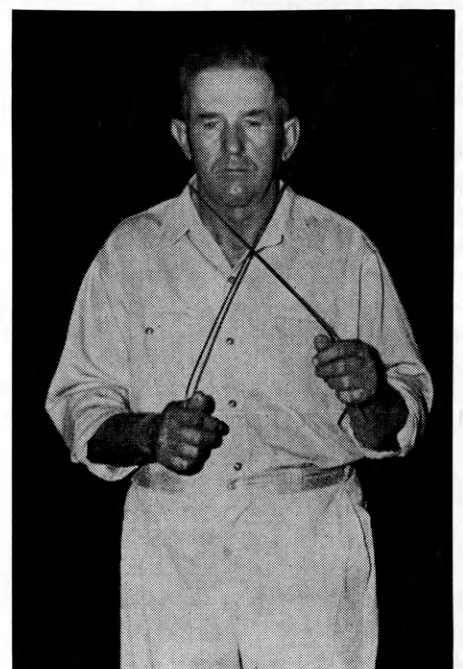
A rumor passed around the neighborhood that Burt would some day walk over the papa of all water veins and get himself hung with his own wire.

Burt was convincing, but he insisted that I try it. My main worry was that it really would work.

I took the wires in both hands and walked over the vein. The wires went the opposite direction and threatened to bat my ears. Sure, that was my hands twitching with expectation, purely mechanical. I walked back over the vein. Nothing happened. Burt immediately took hold of my hands and together we marched over the vein. This time the wires were back in tune and I received a whack on my Adam's apple, a sure sign of water in Burt's estimation. Whether



DIG THOSE CRAZY mixed-up wires. At left, Burt is standing about 6 feet from an underground vein of water. At right, he has walked forward 6 feet and is standing directly over the vein. The wires crossed at his throat indicate a spot to dig a well.





PROFESSOR Beck studies a water vein on a geological map of Kansas. Still a skeptic of water witching, Beck remains scientific.

it was mechanical or spiritual, I really don't know.

"I guess you just have to have a gift for it," said Burt.

Burt transferred from farming to well digging 20 years ago when he was in need of pasture for his cattle. A farmer in the Pawnee valley agreed to keep the cattle through the winter if Burt would help him dig an irrigation well when spring came. With the dirty thirties at their windy best and with no nest egg, Burt made a quick deal. Then he began to worry about drilling a well, an undertaking he had never attempted.

For \$3 he built a drilling rig and when spring came, he drilled a well that still irrigates a quarter section of land. This first well was drilled "by guess, by gosh," for Burt had not yet discovered the virtues of a peach limb. Later when he found well digging profitable, he expanded into the more reliable field of "water witching."

When Professor Beck heard of Burt Jones' success he agreed that a few people made a living at it, but said if he were hiring a well dug, he would prefer to have it dug scientifically rather than by "the ouija board system."

"There may not be anything to it," said Burt, "I just don't know—but now have you ever seen my doodle bug? Let's just get in the car and go out west of town and I'll show you where there's some oil . . ."



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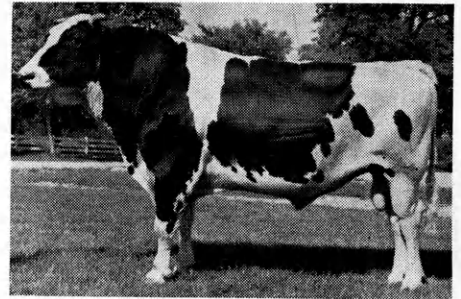
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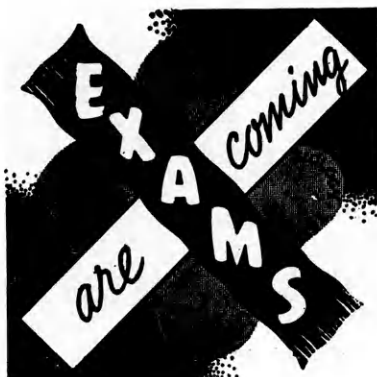
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INDIANS ARE MODERN in that they irrigate, but quite old fashioned in the power they use. In South India, oxen are still used to draw water, a tub at a time, to be dumped in a ditch running to the fields. Tobacco, rice, corn and cotton are the crops irrigated.

Ancient Agriculture

(Continued from page 12)

would be more appropriate to say his lot has been so. India attained her independence from England only in 1947 and until then there was no definite plan for agricultural industry. The present national government is trying its best to improve agriculture in every possible way.

Aiding agricultural colleges in research, planning soil conservation programs, organizing cooperative farms among small farmers, and building irrigation projects are some of the ways the government is trying to follow to improve the farms in India. Until recently the Indian farmer did not have any way of getting advice from experts. The extension department in India is only two years old and is far from fully developed.

With all these improvements, India will be able to feed her 350 million people, and it is only a matter of time before India can become self-sufficient in food.

In attaining all these improvements, there are some problems that seem impossible to overcome. Finance is one of them, but fortunately aid comes from all over the world, especially from the United States. Reluctance of farmers to adopt new methods is another obstacle. The plots are too small for machinery operation. But India's surplus population cannot afford to use machinery in agriculture anyway as it would replace a large number of people and the already existing problem of unemployment

would become more acute. A self-propelled combine puts about 75 to 80 men out of work. A slow and steady growth of industry does not permit the machinery to take over.

A man who plows his field with a wooden plow is in no way different from a man who plows his field with a Farmall M, in principle. They both have a common aim—to raise crops. With all the differences in ways of doing things, there is no distinction in the basic principles of people.

"Oh! East is east and west is west
And never the twain shall meet,
Till earth and sky stand presently
At God's great judgment seat,
But there is neither east nor west
Border, nor breed nor berth,
When two strong men stand face to
face

Though they come from the ends
of the earth."

—Rudyard Kipling

I drink to calm my nerves,
My steadiness to improve;
Last night I got so steady
I couldn't even move.

A new farm hand was harnessing a cow in the dark, thinking it was a mule.

"Hurry up," calls the farmer,
"what are you doing?"

"I can't get the collar over this mule's head—his ears are frozen," answered the hand.

Grasshoppers

(Continued from page 15)

Grasshoppers have many natural enemies that normally keep their numbers within reasonable limits. Fungus and bacterial diseases kill great numbers of them, but unfortunately the weather conditions most favorable for an outbreak of grasshoppers are unfavorable to the development of these natural controls.

Grasshoppers thrive in warm, relatively dry seasons with no wet periods long enough to stimulate diseases which might destroy them. The past

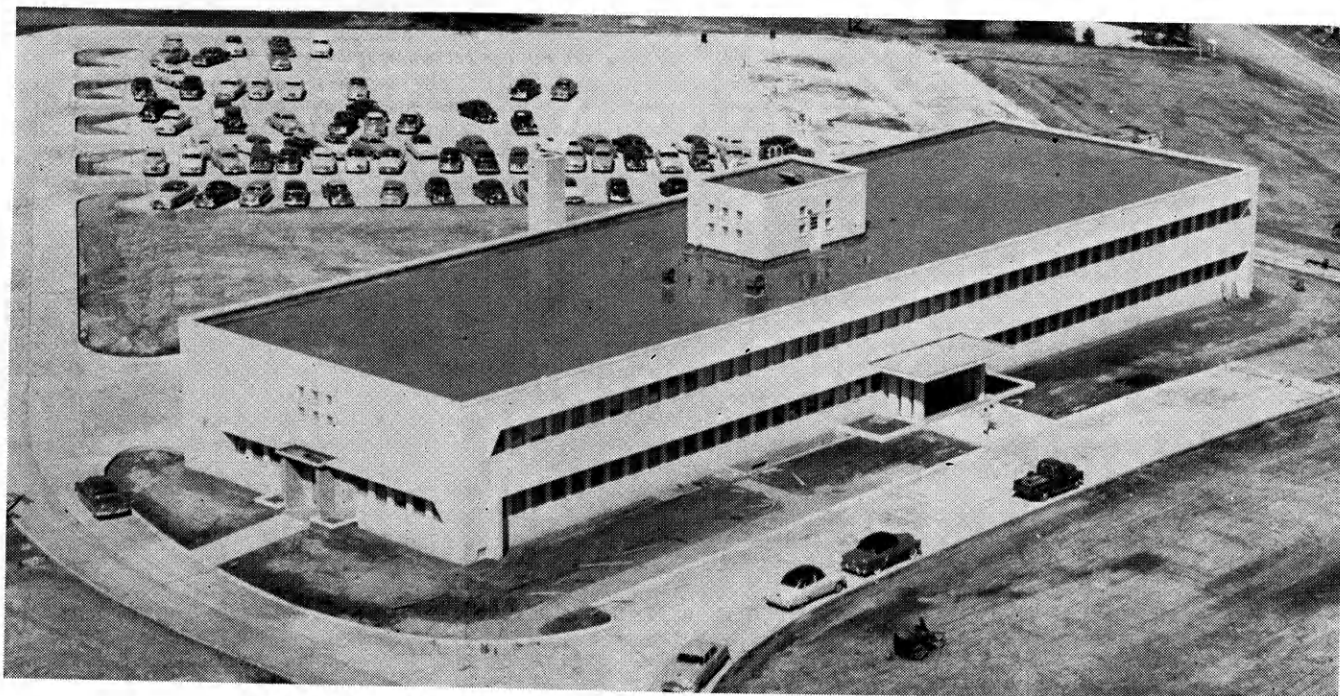
three years have provided near ideal conditions in Kansas and the grasshopper population has increased accordingly, said Professor Gates.

The USDA in a bulletin on grasshoppers takes pains to list a few of their traits on the credit side. They make good fish bait. No other live bait, except angle-worms, is more widely used in trout fishing. They are eaten in great numbers by game birds and poultry and make good feed for them. People in many lands use grasshoppers for food. The Philippine government has even issued a pamph-

let with 33 recipes for preparing them for the table.

These doubtful assets are small consolation to the farmer whose crops have been destroyed. He can't afford to go trout fishing. He is in no mood to furnish free food for the game birds, and while thoroughly disgusted, he is scarcely mad enough to eat them himself, in spite of 33 good recipes.

The best solution would be to stay alert to the problem and to try to prevent any serious outbreak by proper use of insecticides, tillage and seeding practices. Community action is necessary for successful control.



New Home Office building of the Kansas Farm Bureau and Insurance Services located on Highway 24 Northwest of Manhattan.

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Frozen Semen

(Continued from page 17)

Now, with their recent report showing nearly two years of successful work in frozen semen research before them, K-State scientists say it will be quite a while before the process can be developed for commercial use. Their tests, though carried out in the field, included select bulls whose semen gives good freezing results. Semen from some bulls loses its potency when frozen.

Better Than Nature

Their report is very favorable to frozen semen, though. Results of its use to breed 904 cows in eight nearby counties show a first service conception rate of 66.7 percent, which for all practical purposes, is equal to results obtained from liquid semen and above those from natural breeding. Age of the semen used varied from a few days to three months.

So far the process is expensive. There is the normal expense of collecting semen and artificial breeding. Added to that cost is the cost of freezing semen and storing it at a low

temperature until it is used; and freezing it is a delicate process requiring skilled technicians and special equipment.

Here is how it is done. The collected fresh semen is first diluted in egg yolk solution at a rate of 1 part semen to 30-100 parts yolk citrate (1 part egg yolk extended in 3 parts sodium citrate to maintain acidity). It is then sealed in tiny (2 cc.) glass ampuls, each containing enough semen to service one cow and the ampuls placed in an alcohol bath cooled by dry ice.

Starting with the semen at a cool 5° Centigrade (41° Fahrenheit) it is cooled 3° C. per minute to -15° C.; 4 to 6° C. per minute from -15 to -30° C.; and approximately 6° C. per minute to -79° C. (-110° F.) where it can be stored with only a small reduction in live sperm.

The freezing process so far has been done only by using dry ice in alcohol and acetone. Frozen semen is stored in specially designed containers filled with alcohol and dry ice. The freezing equipment used at K-State is not elaborate and only a few ampuls can be frozen at a time.

Special Vacuum Jars

One-gallon thermos jars are used by the field men to carry semen. Each jar will hold about 250 ampuls and enough dry ice to keep it frozen for a day. Attached to the jars are small thermos bottles containing alcohol a little above freezing. Just before a cow is to be serviced, an ampul of semen is placed in the small thermos and allowed to thaw slowly. Improper thawing, like faulty freezing, can result in poor breeding results.

Though the Kansas Artificial Breeding Service, a service unit of the dairy department, is freezing some semen from each of 12 bulls, it is all being used to continue the study and none is for commercial use. Tests are now in progress to determine if semen can be kept frozen for a year and still be potent. If so, other samples will be kept for longer periods and more work will be started on developing proper equipment for freezing the semen easier and cheaper.

He: "Something seems to be wrong with this engine, it—"

She: "Don't be foolish; wait until we get off the main road."

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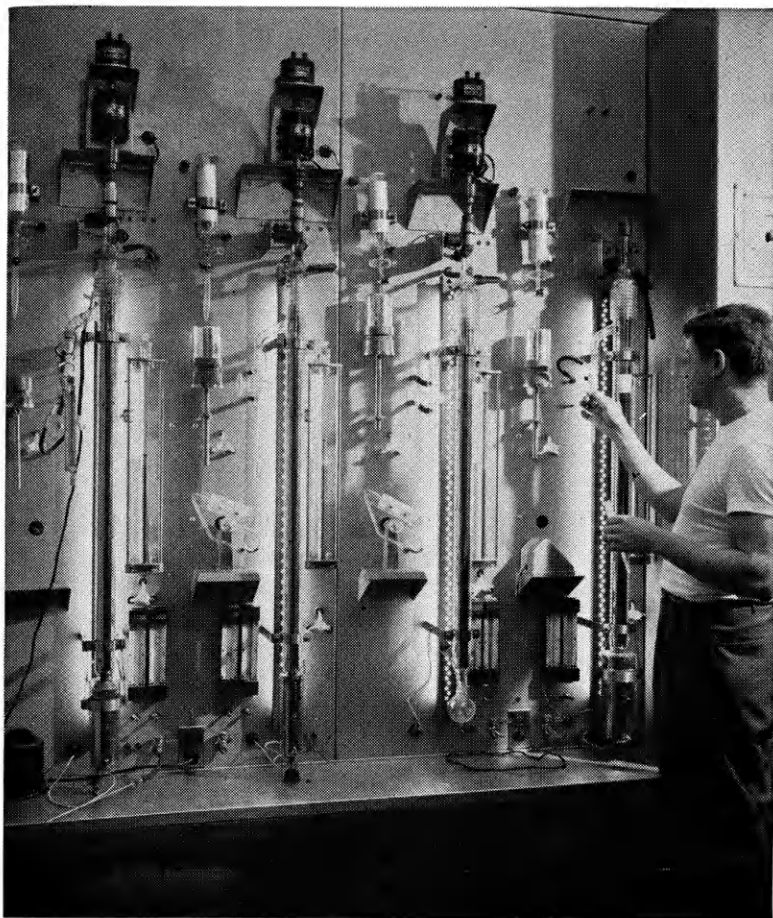
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A laboratory assistant (above) takes a fraction from one of the new miniature stills at Standard Oil's Whiting laboratories. The small charge in the large bottle (below) can be separated into 60 fractions in these exact stills.



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Some stills in oil refineries are gigantic devices which process 30,000 barrels of petroleum a day. Others are so small—and so exact—that they may take more than a week to distill five ounces of liquid.

Scientists at Standard Oil's Whiting laboratories now are working with eight new miniature stills so precise they are considered the finest of their type in the world. These stills, installed last year, are used to study liquids produced during research on such things as aviation gasoline, synthetic lubricants and detergents, plastics and plasticizers, and petrochemicals.

Laboratory men often work with only an ounce of liquid which may be made up of hundreds of different chemical compounds. Technicians usually wind up with individual "fractions" of about 1/50 of an ounce to be examined with mass and infra-red spectrometers, chromatography and other aids.

Another new research still at Standard Oil's Whiting laboratories has a packed column one inch in diameter and 16 feet high. It is probably the most efficient packed column ever built.

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Blue Jeans

(Continued from page 13)

started exercising her talents. Milking the cows has lasted longer than any of the other contests. That began in 1940 and is always looked forward to by those enjoying the fun.

The Ag Barnwarmer was discontinued from 1942 to '46 because of the drop in enrollment during the war years, but came back all bright and shiny and will last as long as the Aggies can buy a pair of Levi's and fight off the vet students from the horse tank.

Beat the Drouth

(Continued from page 16)

flooded a small field in which he was going to plant corn. As soon as the ground was dry enough, he planted the corn, and from then on, the growing crop did not have the advantage of either rainfall or irrigation. The yield from the 22 acre field was 240 tons of ensilage, while neighboring fields tilled in the same manner, with the exception of the early spring flooding, produced next to nothing due to the drouth conditions.

This fall, Mr. Whitehair is irrigating a much larger area. He believes the moisture will cause the ground to heave when it freezes, giving it a more aerified surface. In the spring, just before planting, he will again flood the field. Then, rather than letting the crop go without any moisture as he did this year, he will irrigate with sprinklers throughout the growing season.

This type of irrigation may solve a lot of headaches for Kansas farmers in years to come. It has been proven that stored-up moisture can be utilized, even in the driest years. While we cannot overcome the powers of Mother Nature, it appears possible that through the use of reservoirs and off-season irrigation, farmers may have an answer that will at least partially solved their drouth problem.

"I want to change my name, Judge."

"What's your name?"

"Joe Stinks."

"I don't blame you. What do you want to change it to?"

"Charlie."

You can't tell a farm girl that a stork brings baby calves, because she knows it's the bull.

For a change, let's blame the Indians for the shape this country is in. They should have been more careful about the class of aliens they let come into the country.

Once there was a traveling salesman. He was new to the job, but he had heard a lot of jokes about farmers' daughters. So when it got late, instead of stopping in town, he went to the nearest farmhouse. The people were very hospitable; they invited him to spend the night. They had a daughter! And as usual there were only two bedrooms—one for the couple, and the salesman was told to sleep in the daughter's room. About nine o'clock they all went to bed for a good night's rest.

The next morning the farmer got up, his wife got up, the salesman got up, and the daughter got home from college.

Mother and daughter were very busy with the wedding plans. "We have so much to do," said the bride-to-be, "we mustn't forget the most insignificant detail."

"Oh," answered the mother, "don't worry about him; he'll be there."

She: "How did you find the men at the party?"


Her: "I just opened the door marked 'MEN' and there they were."

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