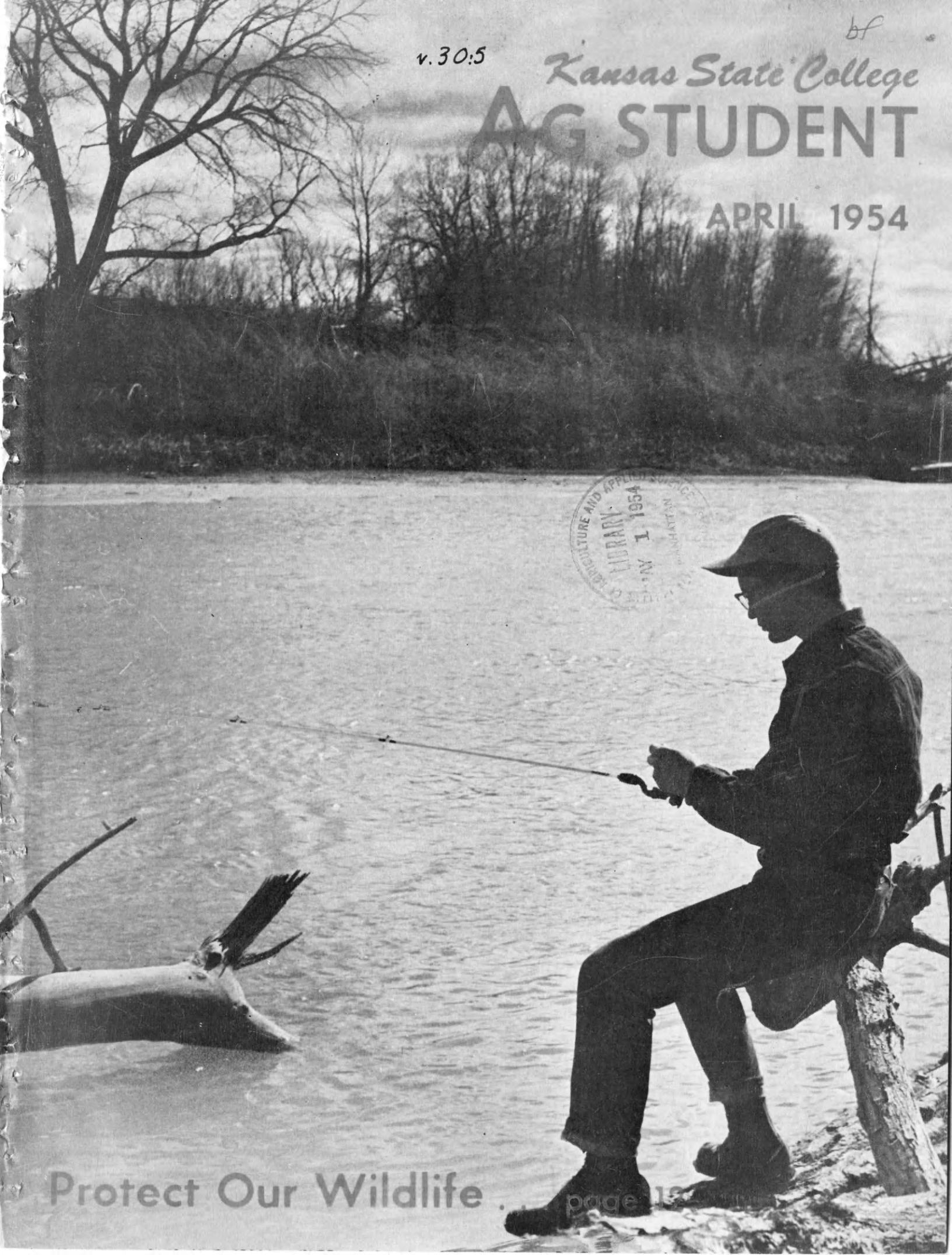


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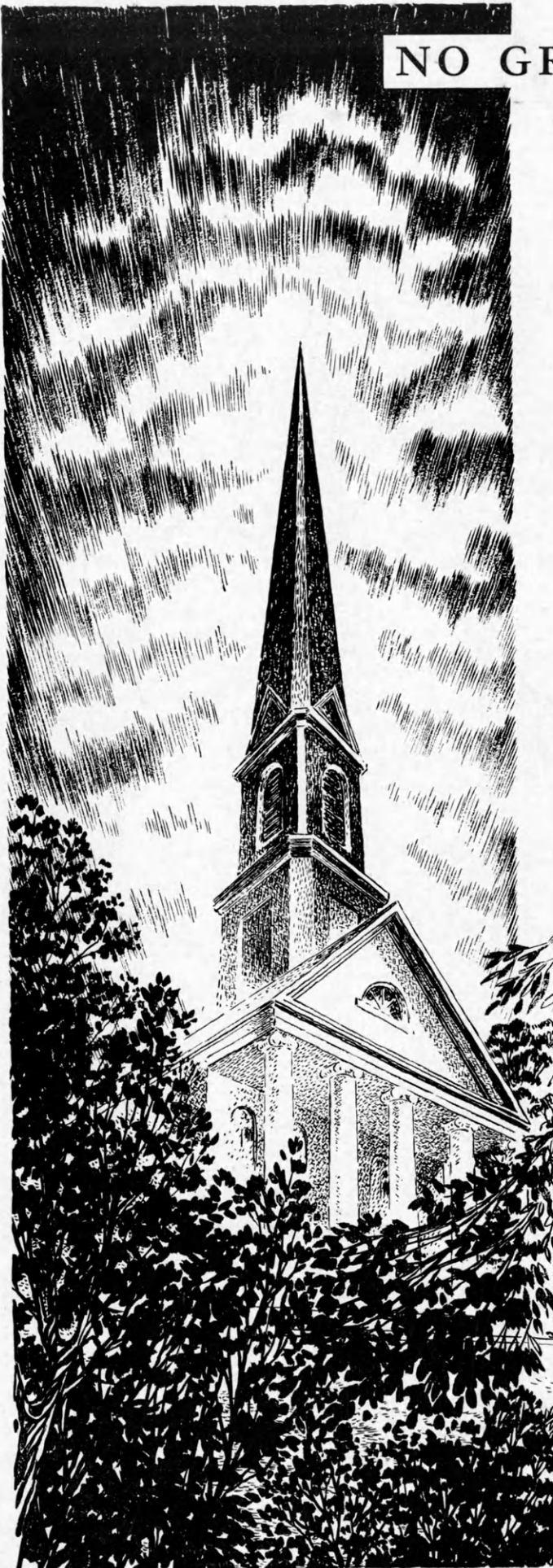
Kansas State College
AG STUDENT

APRIL 1954



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Protect Our Wildlife . . . page 15



NO GREATER HEIGHTS . . .

Eagerly,
I scanned the canvasses
of ancient masters . . . drew forth
each hidden secret of their craft . . .
each principle of line, and form, and hue.

And I grew wise in Art.

Fervently,
I studied works
of great composers . . . delved deep in melody
and mood . . . probed structure and technique.

And I grew wise in Music.

Avidly,
I thumbed through yellowed
manuscripts . . . through ragged volumes, thick
with dust . . . and plied my mind with formulas
and rules.


And I grew wise in Science.

Philosophers and men of wit, I read . . .
plundered every single source
of knowledge . . . made captive all the learning
of all time . . . until, I thought,
I towered in Wisdom over all.

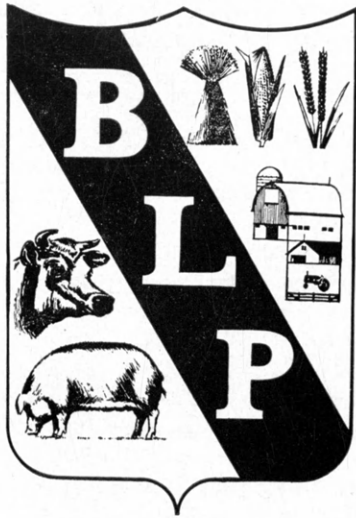
And then I saw a steeple,
against an Easter dawn.

And I was small again.

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JOHN DEERE  MOLINE, ILLINOIS

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BLP—a "Balanced Livestock Plan for every Kansas farm"—tailored to that individual farm through an unusual close-hitch team job by farm paper, college extension, radio, county agent and the farmer himself. It's a reader-compelling series that is getting action on the farm—and will wind up dramatically in October with three great Livestock Jamborees across Kansas.

BLP—the thought behind the reasons your advertisement in KANSAS FARMER does so much more than simply **reach** 110,000 Kansas farm families—the reasons your KF advertisement gets before these families at the exact minute they are most likely to be thinking of **progress**—because they are reading the one publication in all the world edited with the progress of **Kansas farmers** in mind.

Write today, wire or call for details of BLP as it can help **you**.



a Capper Publication

Kansas State College AG STUDENT

Vol. XXX

April, 1954

No. 5

In This Issue

Chit Chat	Dean C. W. Mullen	6
Farm Shop	John Saylor	10
Wildlife	Paul Vohs Jr.	12
Aggies Earn	Elaine Olson and Diane Lanigan	14
Experiment Station	Helen Hamilton	16
Wheat Tester	Hayes Walker III	18
Treasure at Tuttle Creek	Loren Harris	20
Prof. Zahnley	Bob Ecklund	22

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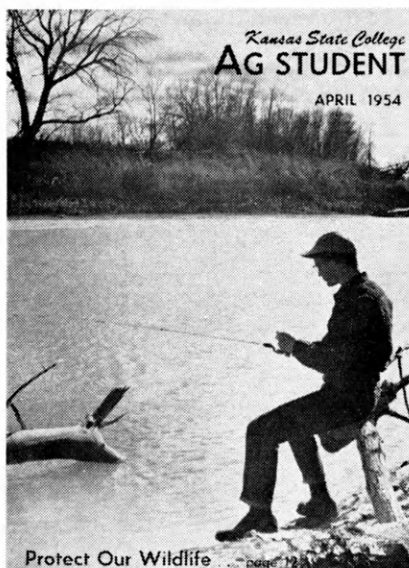
Published by the Agricultural Association of Kansas State College of Agriculture and Applied Science, Manhattan, Kansas, in October, December, February, March, April, and May. Subscription rates \$1.50 a year; 2 years, \$2; single copy by mail 30c, at office 20c.

Entered as Second Class Matter, November 9, 1945, at the Post Office at Manhattan, Kansas, under the Act of Congress of March 3, 1879. Accepted for mailing at special rate of postage provided for in Section 1103, Act of October 2, 1917, authorized November 9, 1946.

ON THE COVER

FISHERMEN are a breed apart. Who else would get up before dawn on a cold, wet morning and sit frozen for hours, or wade in a freezing stream in hopes of catching a few fish?

Jimmie Smith, Agronomy senior, is no exception to the rule. Our cover picture shows him in a typical fishing pose; perched on a log; shivering in the damp early morning wind as he waits for some unwary denizen of the Blue River to come hunting for his breakfast. Jim probably neglected to eat his breakfast; most fishermen do. Fish or no fish, he probably would go for a cup of steaming hot coffee along about now. It's a little early in the season, he admits, but he just had to "wet a line."



An Easy Chair For Tired Ags?

Let's have some action.

Nearly every Aggie at one time or another uses the reading room in Waters Hall, either to study, read magazines or to sleep. You all know how uncomfortable those chairs are.

Last spring the suggestion was made in all ag clubs that the reading room be furnished with new study tables, chairs and a comfortable lounge. All agreed it would make a good project for the clubs. Nothing happened, however. Club funds being what they always are, no one felt they could spare the dough.

Now, a year later, we still need furniture. Last year's estimate of the cost of furnishing the room was about \$3,000. That included lounge furniture—a couple of sofas, easy chairs perhaps—plus six tables with chairs to match, all of a quality and style in harmony with the room decorations.

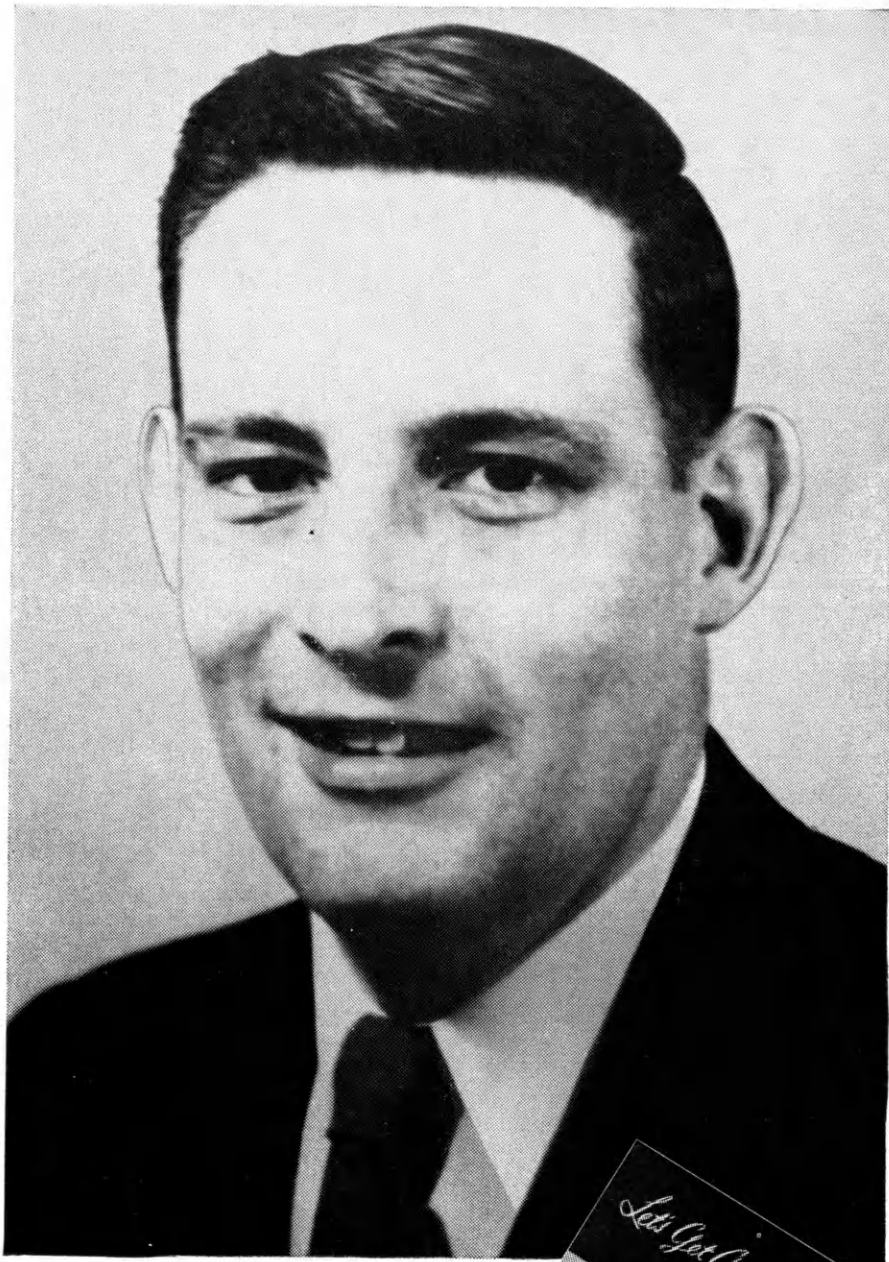
That's a lot of money, and Dean Weber has indicated right now it isn't available from the Ag School. It sounds reasonable that if each club chipped in a little, letting its conscience and its treasurer guide, enough money might be collected to make a start, outfitting the lounge first since we do have makeshift tables. Once we get the project started and show some real interest, Dean Weber might again check his books and perhaps find some funds to help us.



While the reading room is still in mind might be a good time to mention that an active Alpha Zeta committee, with the help of several rows of adequate shelves, now has all magazines filed alphabetically and checks each day to be sure they are in order. There is no complaint that we haven't been helping the committee keep the room neat. All they ask is that we continue to do so.



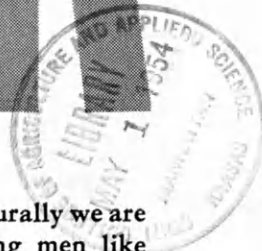
PHOTO CREDIT—Bob Ecklund, cover; Alan Phillips, page 9; Ag Engineering Department, page 11; Zoology Department, page 13; Fred Perez, pages 14, 15, 18, 22, 24; Hays Experiment Station, page 17; K-Stater, pages 20, 21.



BILL CRUMP started with MoorMans in the Collection Department three days after he graduated from the University of Illinois in 1948. In 1951 the Marines snagged him for a 7-month second hitch. When he returned it was to a job in Sales Research, where he remained until 1952 when the urge to sell got the better of him. After 6 months as a Sales Trainee he was made a State Sales Manager. Bill is married, has two little girls and lives in Cedar Rapids, Iowa.

HE'S DOING

OK



Bill Crump is now heading up a hard-hitting State Sales organization in Iowa with 51 men on his team. If you ask him what he likes most about his job he'll probably tell you "the opportunity it provides to get ahead." For, in the sort of work that Bill is doing, there's practically no "ceiling" on earnings. He and his men are selling only things farmers *need—but cannot produce themselves*—that in turn help them convert their own grain and forage into more milk, meat and eggs.

Bill will tell you, too, that his progress is due to hard work and because of a genuine interest in his success by his Company . . . that sales training for himself and his men is thorough . . . that years of research have made his products tops in their field.

We're proud of Bill. Naturally we are interested in other young men like him. If you would like to know more about the opportunities with Bill's Company, we'd be happy to send you a copy of a booklet entitled "Let's Get Acquainted." Just drop a line to us—

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Chit Chat

By Clyde W. Mullen, Assistant Dean

THESE ARE THE DAYS when graduating seniors are being spot-lighted for eligibility for membership in the various honorary societies at Kansas State College.

Gamma Sigma Delta is the honorary society intended strictly for persons in the field of agriculture. It is the one recognition that comes exclusively to graduates whose activities have been centered at the north end of the campus.

It is a mark of scholastic distinction to be eligible for consideration for membership in Gamma Sigma Delta.

In any given year, only 15 percent of the graduating seniors may be elected to membership in the society. This 15 percent may be selected from the top 25 percent of the class.

Extra-curricular activities and evidence of leadership ability may also be taken into consideration by the membership committee. In other words, a senior with a high point average and no outside activities may be rejected in favor of a person with a point average of B, but who found time to participate in college activities and to show that he has leadership qualities as well as scholastic superiority.

The ability to lead and influence others is of high importance in these days of stiff competition.

Will you, as a sophomore or a junior, be Gamma Sigma Delta material in your senior year?

How About Uncle Sam?

When shall I take my turn in the armed services of the United States?

That question is asked many times across the desk in Room 116. It is a serious and important question. There is no single answer that will apply to all cases.

However, we have pretty well come to the conclusion that it is not to a



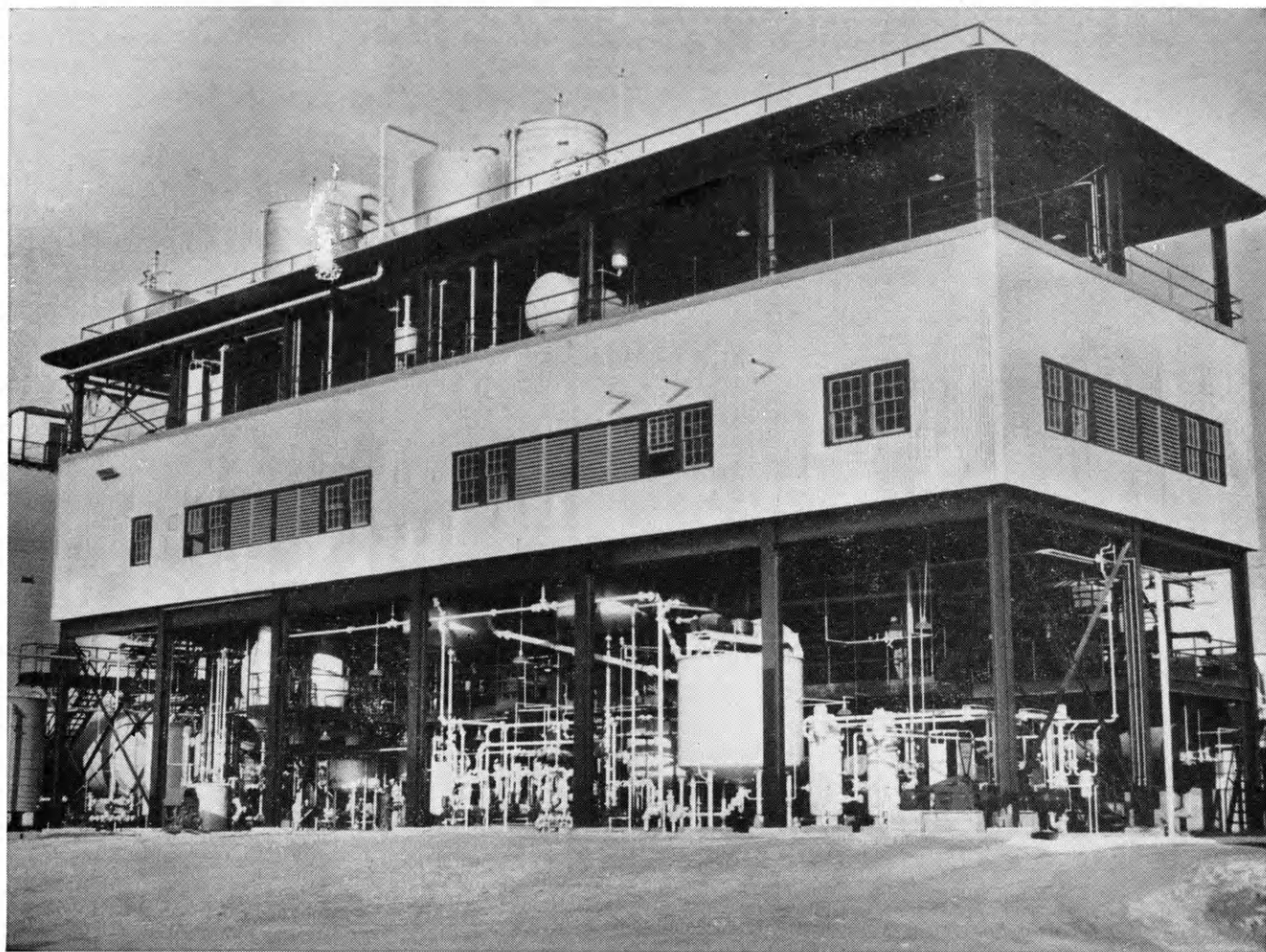
Dean Mullen

student's disadvantage to interrupt his college work, take his turn in the military services, and return to complete his one, or two, or three years for a degree.

Nearly all students who return from military service do better college work than they were doing when they left the campus. They are more mature. They have a better appreciation of the privilege of attaining an advanced education.

Then, it seems to be to their advantage to be graduated and go directly to a position, or to a farm or ranch; than to go into the service and then return to look for employment or to take up farming.

It is noticeable, too, that lads who wish to farm are not taking advanced military. They recall the experiences of brothers or friends who were in the reserves and who were required to sell stock and tools in order to respond to a "call to duty" during the action in Korea. No young farmer can afford to expose himself to the possibility of being called for reserve duty after he has expended thousands of dollars in the purchase of stock and tools for farming.



EXCESS HYDROCHLORIC ACID is put to work in this catalyst plant of the Morton Salt Company at Weeks Island, Louisiana. The acid is used in a process developed by a Standard Oil scientist to produce a top-quality catalyst.

What the scientist saw in the sandpile!

This story starts with a child's sandpile and a scientist's curiosity. It ends eight years later with a new top-quality catalyst—the result of a scientist's ingenuity.

One day a Standard Oil chemist took home some granular blast furnace slag from a neighboring steel mill for his children's sandpile. Suspecting that it had properties of potential value, he took a pailful back to his quarters in the Whiting Laboratory the next day.

Treating the slag with hydrochloric acid and then drying it in an oven produced 30 cc's of powder that proved to be an effective and active catalyst. However, commercial production of the catalyst was uneconomic because of the market price of hydrochloric acid. To overcome this obstacle, Standard Oil contacted

the Bay Chemical Company, a salt cake producer which, at times, had difficulty marketing hydrochloric acid—a co-product of salt cake.

The Bay Company, of Weeks Island, Louisiana, now merged with Morton Salt Company, became interested in the new catalyst and built a plant with the aid of Standard Oil scientists. The output of this plant is a top-quality catalyst with unlimited new sources of raw materials.

This is only one example of what Standard Oil scientists accomplish in an atmosphere of independent research. In our constantly expanding laboratories, our scientists are free to investigate and pursue ideas, for Standard Oil knows that one of a scientist's greatest assets is his curiosity.

Standard Oil Company

910 South Michigan Avenue, Chicago 80, Illinois





ARNEL HALLAUER

That \$300 scholarship helped when it came to paying college fees, Arnel Hallauer found during enrollment this semester. He won it from the Standard Milling Company, which this year established the scholarship fund for outstanding agronomy students.

Arnel is a senior from Horton. He has a 2.4 grade average, won Phi Kappa Phi freshman recognition and sophomore honors, and is now secretary of the Klod and Kernel Klub.

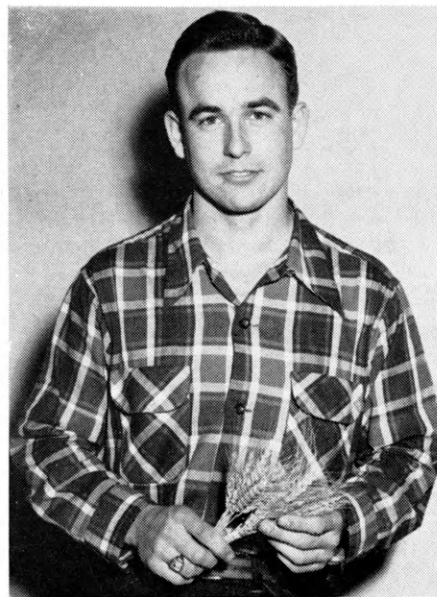
He has worked part-time for Dr. L. A. Tatum of the Agronomy Department on corn breeding research since starting to college.

Agronomy Scholars

Carl Helmle of Garden City, a senior in agronomy, received a \$100 award from the Kansas Seed Dealers Association at their annual meeting in Wichita.

A transfer student from Garden City Junior College, Carl now works as a lab assistant in crops and is a member of the Klod and Kernel Klub. He is an active YMCA member.

His name will be engraved on the plaque displayed in the agronomy show case and on a similar plaque in the association's state office.



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South of the Campus

Pitchers, Platters, Plenty of Silver

Large silver pitchers were awarded for the first time to the winning showman in the Dairy division of the Little American Royal this year. Block and Bridle division winners received silver platters.

Each trophy has the name of the award engraved on it and the winner's name is now being added.

An engraved cane was given to the reserve champion of the Block and Bridle division this year also.

The pitchers and platters, displayed in Waters Hall for several weeks before the Royal, drew considerable attention and comment, especially from the men and women who were competing for them. Sherlund Prawl,



SILVER TROPHIES taken by winners at the Little American Royal. On the top shelf are the Dairy division pitchers; below, the Block and Bridle silver platters. Names of the winners could not be included in this issue but will be listed, with pictures, in May.

dairy senior, awards committee chairman for the Little Royal, said he thought the pitchers were much more practical awards than were given in the past.

Besides the trophies, first through fifth place ribbons were presented in each class and everyone who entered the contest received showman ribbons as a reward for their efforts.

Hey FELLOWS

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or
A PENNANT
or a
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for that
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(In conjunction with Kansas City Lamb and Wool School)

April 29, 1954

50 Selected Purebred Rams Offered at Auction
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Southdowns — Dorsets — Cheviots

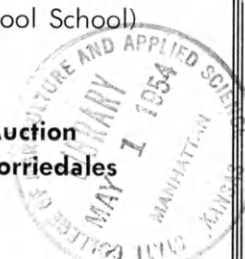
8th Purebred Ram Sale and Show
State Fair Grounds — Hutchinson, Kansas
May 10, 1954

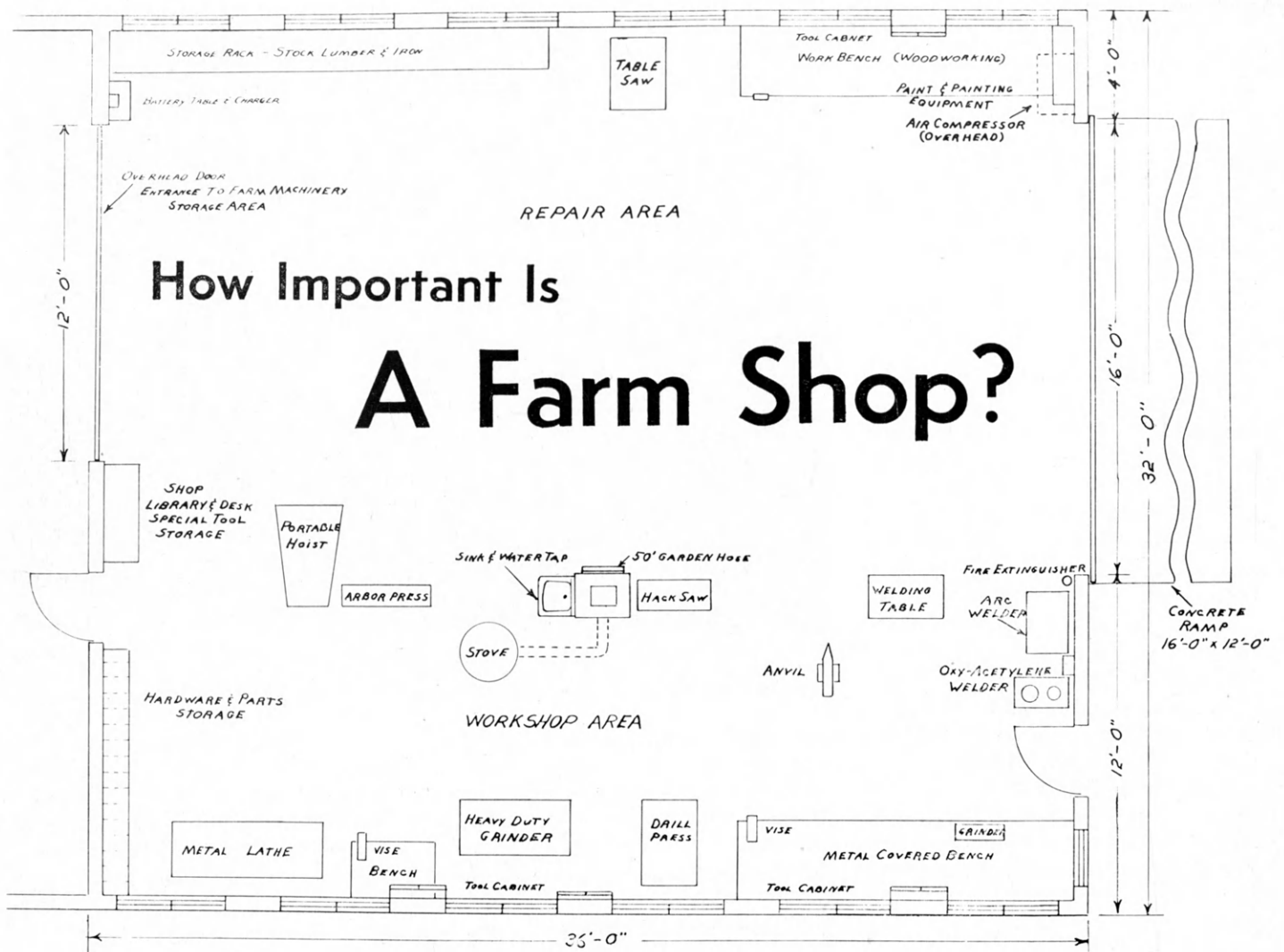
130 Purebred Rams carefully selected from the best flocks in Kansas.

Also some young ewes and wether lambs for 4-H and FFA members

JUDGING RAMS, 9 A.M. — SALE, 2 P.M.

Write for Catalog to
Kansas Purebred Sheep Breeders' Assoc.
T. Donald Bell, Animal Husbandry Dept.
Kansas State College, Manhattan, Kansas





A WELL ORGANIZED SHOP designed by Clinton O. Jacobs, K-State agricultural engineer.

By JOHN SAYLER

LISTEN, DAD, the farm shop is more than it used to be. In fact, it's getting to be so important, agricultural engineers are going to offer a farm shops course next year at Kansas State." This could be a young Aggie in a son to father talk.

The son is repeating a much discussed topic over in the agricultural engineering building. With new power tools and equipment to make the farmer more independent, farm shops are changing. Just like a kitchen, the old wood stove has gone back to the foundry for remodeling. A new, labor-saving model is brought in to replace it. Being human, a woman enjoys labor-saving devices. One thing leads to another and in comes a new sink, then a refrigerator. The

same is happening in the farm shop.

A woman will usually have her kitchen arranged in an efficient manner to make items easy to reach. She gets the most out of her cooking appliances, but a man seems to have trouble getting his money's worth out of a shop. He may have the building and all the modern equipment, but he doesn't know whether to pile it all in the middle of the floor, or throw equal amounts in each corner. According to Clinton O. Jacobs, instructor in agricultural engineering, many shops appear to be arranged in this manner.

Here's How Important!

How important is the farm shop? Mr. Jacobs took a poll among Kansas

farmers as to the values of a farm shop. The most frequently listed advantages were:

1. It is a great time saver.
2. When repairs are made in the shop, expenses are cut.
3. Spare time in the winter is utilized.
4. Farm equipment can be constructed.
5. Immediate repair work can be done.
6. Machinery is kept in better repair.

Saving of time, thrift, year around activity and good equipment are essential to good farming and these factors are all in the shop. Mr. Jacobs has a map of Kansas in his office with the location of good farm shops pin-

pointed. For an agricultural state, the pins are few and far between.

In Jacobs' survey, the 10 most popular pieces of equipment were: 1) portable drill; 2) arc welder; 3) hydraulic jack; 4) drill press; 5) bench grinder; 6) air compressor; 7) oxygen-acetylene welding unit; 8) portable paint sprayer; 9) table saw; 10) coal forge.

Arrangement Makes the Shop

"Having the needed equipment makes a farm shop, but having equipment arranged makes a good shop. And in arranging, the tools should be divided into sections, according to their purpose," Jacobs said.

Dividing the shop into sections, there would be a hot metal area with a gas welder, arc welder, forge and heating stove. Work benches need an area where there is plenty of light. Large window space, or sufficient artificial light should be provided for this section of the shop. Here would be small portable tools and a large storage space for hand tools. Another section of the shop would include drill presses and grinders.

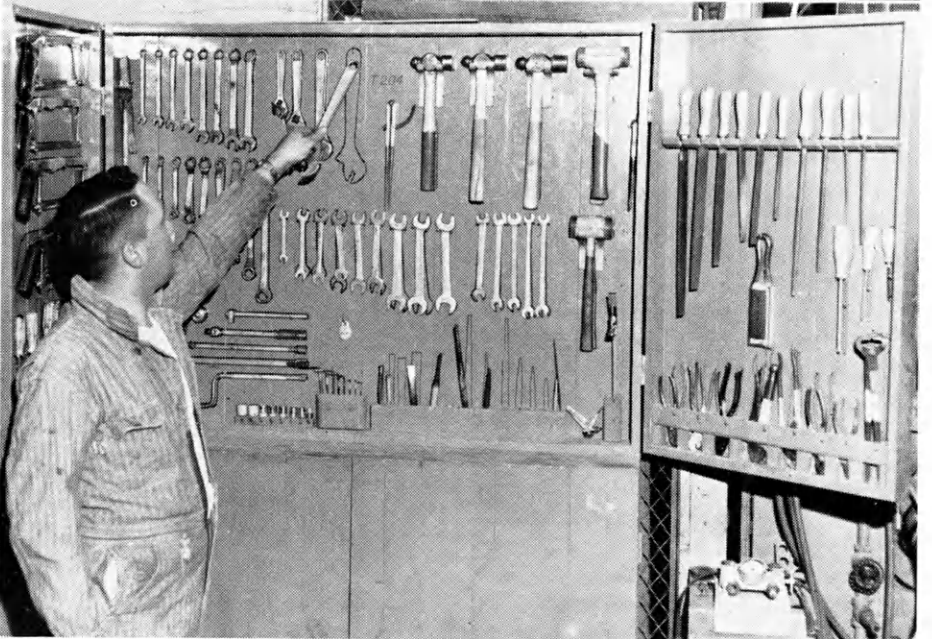
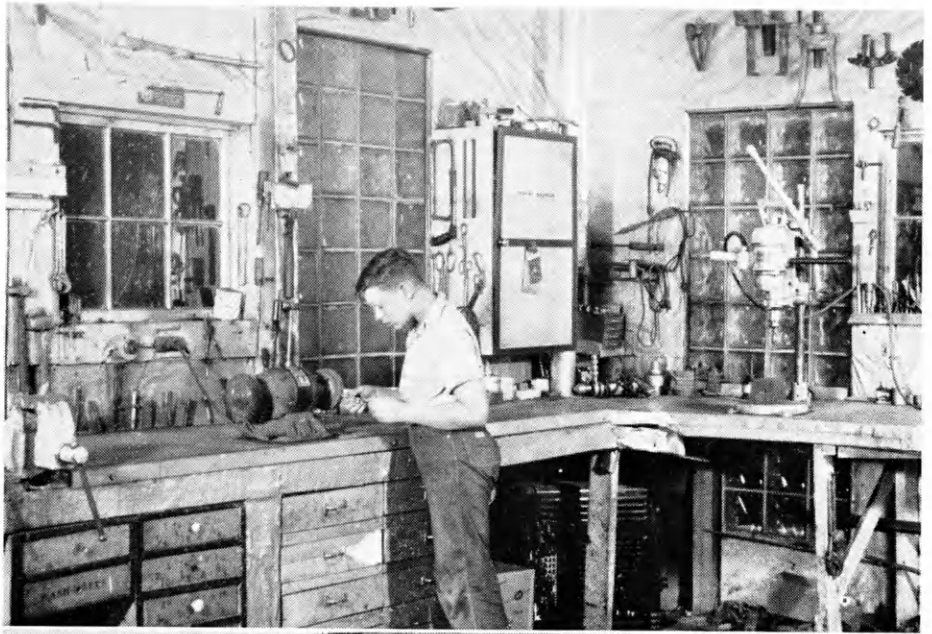
If large stock is handled on a piece of equipment, it should not be crowded against other tools. For more open space, such equipment might be set near the larger motor and machine maintenance area.

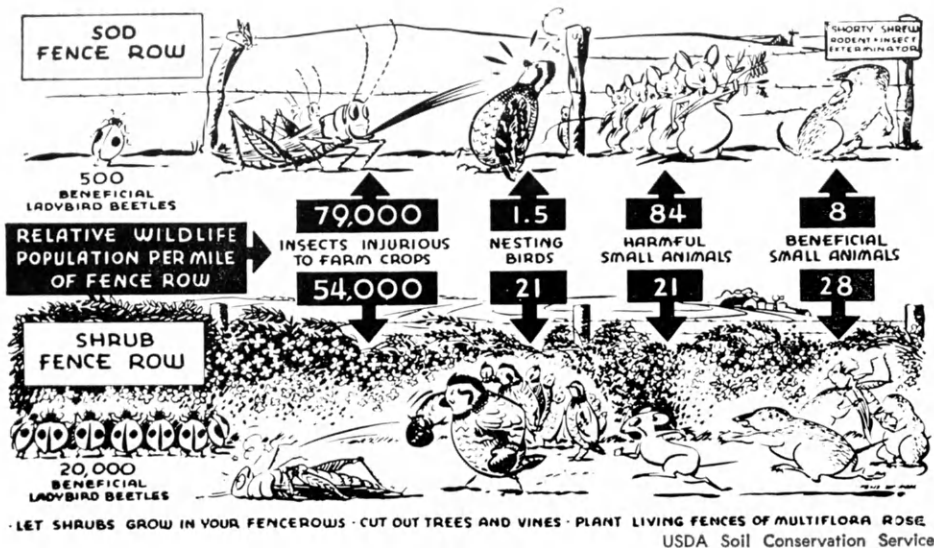
Although a metal turning lathe isn't among the 10 most popular tools, some farm shops have them. The lathe should be in an out-of-the-way place with plenty of room for handling large stock.

An air compressor is a handy unit but only the hose end need be handy. The bulky tank and compressor should be out of the way, preferably overhead.

"For a farm shop to be practical, there needs to be a repair area," said Mr. Jacobs. "With this area in the center of the shop and the tools efficiently arranged around it, a farm shop will be invaluable to the present day farmer."

MANY FARMERS may think the shops shown here are too elaborate for them, and do not realize they may have all these tools scattered around. At top, glass brick in walls provides good lighting and walls are insulated. Center, a handy, orderly tool cabinet designed at K-State but practical anywhere. Right, several handy shop tools: phone, radio, clock, note pad, calendar, extra electric sockets and room to work.





By PAUL VOHS JR.

LET'S PROTECT OUR WILDLIFE

THE FEDERAL, state and local governments are doing their utmost to protect and propagate wildlife. They can not accomplish their goal without help. Every citizen of the U.S. should help to give fish and game better chances of survival.

While the city dweller can contribute his small share through the purchase of hunting and fishing licenses and by obeying game laws, the heaviest burden is on the shoulders of the farmer. His cooperation is a must in any successful game management program.

Values of Wildlife

The time and energy spent on wildlife conservation may seem a waste unless careful consideration is given to the monetary and recreational values of wildlife. On 100 acres of land where no managed wildlife plan or soil conservation practice is carried on, monetary value of wild animals is nearly \$60 annually: \$14 for wild game that can be eaten, and \$46 for control of harmful insects and rodents. The value is considerably higher on land containing a stream, pond or marsh where muskrat or beaver are trapped. Studies of well managed farms show there are more than 400 beneficial birds and over 1,000 beneficial small animals per 100 acres.

Besides the income from meats, furs and pest control, there is a recreational value of wildlife through hunting and fishing. In a well managed wildlife program, bag limits as set by the state Forestry, Fish and Game Commission are a necessity in order to maintain a favorable balance of life. These limits are set only after thorough census studies by the Commission's biologists.

A landowner may improve his farm for wildlife by many inexpensive methods. One of the more important is to leave uncultivated the strip of field bordering a woodland. This area will produce little in the way of crops since it is usually shaded by trees, but will greatly aid birds and animals by increasing the food and cover. Living fences of multiflora rose between fields and along high creek banks are a new development for wildlife protection.

Proper Management Helps

Proper management of farm woodlands and windbreaks offers much to soil conservation as well as wildlife. Woodlands stabilize steep slopes and also yield a crop of timber, fur and game. Firewood, fence posts and other wood products may be sold at a profit. To best maintain it for game, timber and soil conservation, the woods should be protected from over-

grazing, fire and indiscriminate cutting. Brush trimmed from logs should be piled in gullies to stop erosion and give additional protection to wildlife.

Fence rows are excellent wildlife cover and may act as filters to slow the water flow from one field to another. Multiflora rose is recommended as an outstanding shrub for use as a fence. It requires no trimming or pruning and when established will take the place of wire as a barrier to livestock. It is fast growing and has some value as an emergency wildlife food.

Wildlife population is, of course, much higher in a shrub fence than in a sod fence row and the number of beneficial insects is also greater. Studies show that ladybird beetles are four times more numerous in shrub fences than in sod fence rows while many injurious insects were one-third less. This might be due to the number of nesting birds, 12 times more than in a sod fence row; and beneficial small animals (such as shrews), 3½ times more. Harmful animal population was one-fourth less in the shrub fences.

Ponds Are Beneficial

Farm ponds may provide recreation for man in the form of swimming, boating, ice skating; and for wildlife, drinking water, some food and a



FISH ARE WILDLIFE and fishing a conservation practice. Unless fish are removed each year, a pond may become overcrowded.

home, in the case of fish. The most important problems in building a pond that will be a favorable environment for fish are size and depth. Ponds with less than one-half acre of surface area are not suitable for stocking with fish. The minimum depth of a pond depends somewhat on the amount and seasonal distribution of rainfall. Ponds in Western Kansas should have considerable area 11 to 12 feet deep while in Southeastern Kansas, ponds 8 feet deep will usually prove adequate.

Select Proper Combination

It is difficult to select the proper combination of fish species for stocking a pond. There are three characteristics the selected combination should have. (1). The fish should be able to maintain a favorable balance with their food supply and with other species. (2). Every species should be fast reproducing and rapid growing. (3). They should be of a desirable type to fishermen, both for sport and eating qualities.

Combinations of species to meet all of these characteristics are few and the fish in a well stocked pond will have the most trouble because they develop an unbalanced population. The fish crop from a pond should be harvested annually by the landowner, his friends or outsiders (*with permission*) to help the fish maintain a favorable balance with their food supply.

Suggested species and numbers of fingerlings (minnows) per surface acre recommended by Dr. O. W. Tie-meier of the College Zoology Department are:

- 100 bass—300 bluegill, for clear water.
- 100 bass—100 crappie—300 bluegill, for slightly muddy water; or
- 100 bass—100 channel catfish—100 crappie; or
- 200 channel catfish alone; or
- 100 bass—300 bluegill—100-200 bullhead.

Most ponds stocked by the Commission contain the bass-bluegill combination because bluegill utilize the natural food of the pond and the bass forage on the bluegill. Fishermen should be advised not to fish for only one species but to take a varied catch

in order to help the fish keep their check and balance system functioning properly. Overpopulation results in stunted fish and poor fishing.

No Channel Catfish

Channel catfish are a favorite food of fishermen in this area, but they do not spawn readily in farm ponds. From three to four years are required for catfish to spawn in Kansas waters and predators take high tolls of the young.

Little more time and effort will be required of the modern farmer, who practices soil conservation, to give a little consideration to wildlife and provide it with a better home. Even if he isn't a hunting and fishing fan, a man will still find enjoyment in watching wild things live in their natural surroundings.



(Detailed information on wildlife and fish management programs can be obtained from the Forestry, Fish and Game Commission at Pratt and from the U.S. Department of Interior.)

THIS FIVE-YEAR-OLD multiflora rose fence replaced the old wire fence in two years and provides an excellent home for quail, song birds and many other types of wildlife.



K-State Ag Students Prove That

AGGIES CAN WHILE LEAR

By

ELAINE OLSON

and

DIANE LANIGAN

DICK BAIR, Ag freshman from Mission, is hauling feed at the poultry farm. He lives on the farm and works to pay his rent.



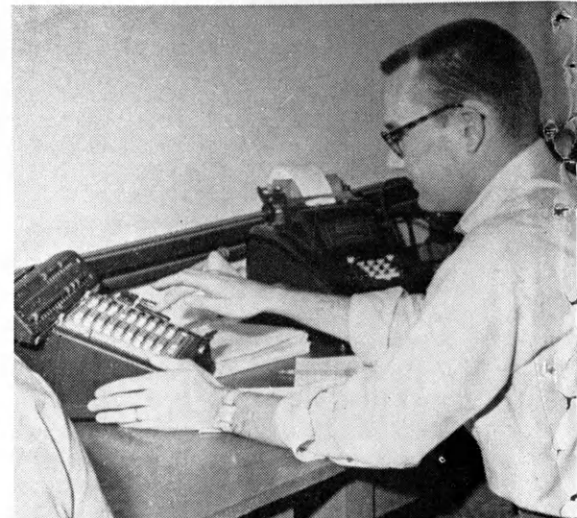
NOT ALL K-STATE Aggies get all their education from books, nor do their papas pay all college expenses. Many Aggies learn the why and how of a business as well as earn spending money working at an unusual variety of college jobs.

About 148 Ag students are employed by the various departments in the School of Agriculture. Their jobs range from tabulating charts to a more physical chore of feeding cattle.

More Aggies work for the Dairy Department than any other in the Ag School. About 50 are employed in the College laboratories and creamery; on experimental work at the dairy barn; general work at the barn; and at the Kansas Artificial Breeding Service Unit.

Max Zahner is working his way through school by testing the College dairy herd for butterfat production. He sends the butterfat records to the national dairy breed associations.

It's the job of Benny Gerber, Merlin Dennis and Darrel Gale to address labels, stuff envelopes and mail 8,000 college publications every year. Their



TABULATING FARM MANAGEMENT reports gives Dean Robson, Ag Ad senior from Abilene, experience and spending money.

work in the bulletin room is under the supervision of Assistant Dean Mullen.

Besides working with technical bulletins, bulletins and circulars, the boys have to get ready for the mail 9,000 abstract publications twice a year.

Some Aggies Are Bakers

The aroma of fresh bread has led many a hungry Aggie to the baking laboratories in Waters Hall. Baking good bread is not always a home economist's job for it takes an Aggie to test the baking quality of grains.

Three students work in the cereal chemistry and baking labs producing

EARN NING



SPREADING THE WORD, this time about bees, Merlin Dennis, Ag senior from Kensington, hands Jim Brown a bulletin on Bee Culture. Jim is a high school senior at Agra and plans to attend K-State next year. Bulletins are available from every Ag School department.

loaves of bread from flours made of various grain varieties, and also testing cereals. Four other students help operate the flour mill and sack flour.

Every year an average of 16 Ag students are employed by the Ag Economics Department. Their main project now is the analysis of Farm Management records under the supervision of two senior Aggies, Dean Robson and Charles Thomas. A student working with this project receives valuable experience which will put him in a position for quick advancement when he receives a job after graduation.

John Unger keeps a set of charts on the market up to date for Prof. L. W. Schruben of Ag Economics.

Hort Has Jobs, Too

Two Aggie hort students live in the College greenhouses while working there. About 10 more students are employed by the Horticulture Department. Their jobs include working at the hort farm south of Manhattan and in the Kansas Experiment Station fields.

The Agronomy Department now has 34 students employed. Every professor has a project which usually requires some student help to complete. The jobs range from working in laboratories to duties at the agronomy farm. Many of the students also work in the agronomy greenhouses. During May and June the Agronomy

Department employs twice as many students as at other times to take care of the large amount of spring field work.

Dr. L. A. Tatum of Agronomy has students working with him on breeding of hybrid popcorn.

Animal Husbandry employs 25 to 30 students. Their jobs deal with research and helping at the College barns. Several Aggies live in the barns.

Aggies Construct Machine

Waller Robinson, Richard Talbot and Bob Schneider constructed an automatic feed processing machine for the Ag Engineering Department. After completing one successful machine, they built a duplicate for a Shawnee County farmer. K. A. Harkness, ag engineer who supervised the project, plans to exhibit the machine at the state fair next fall.

Four Aggies work at the poultry farm. They do mostly hand labor such as hauling feed to chicken houses, cleaning chicken houses, feeding chicks, sorting eggs and general work around the farm. Most of the boys live with the foreman and his assistant on the farm.

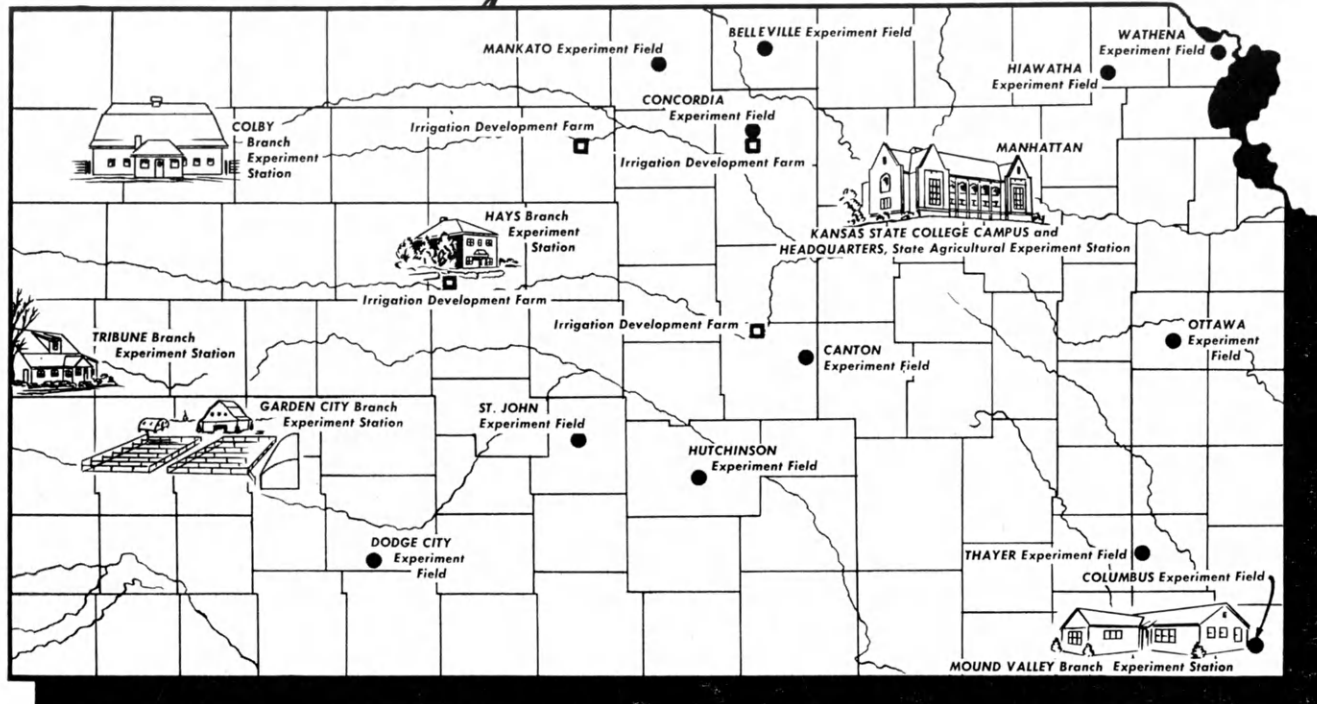
All the present staff members of the Poultry Department were student workers at the poultry farm while they were going to K-State, according to Prof. C. D. Mueller of that department.

The value gained from students holding campus jobs was pretty well summed up by Mueller when he said he received as much education from his job as he did from some of his college courses.

MUST BE A HIGH producer. Al Spencer acts as if that milker were heavy anyway. He works at the College dairy barn part time.



Kansas State College AGRICULTURAL EXPERIMENT STATION



SERVING 105 COUNTIES IN THE CENTER STATE OF THE NATION

By Helen Hamilton

WHY IS SO LITTLE actual field work done at the Ag Experiment Station at K-State since it is obvious that only through application of research on the farm can new crops and farming methods be proven?

To answer this question, Dr. Harold E. Myers, associate director of the station, stated that field work is not emphasized at Manhattan because K-State is the headquarters only for the 13th largest experimental farm in the U.S.

In other words, the entire state is an experiment station where better farming is studied. The Kansas Agricultural Experiment Station at Manhattan only centralizes the work of many branch stations and experimental farms and fields throughout the state.

Of the five branch experiment stations in Kansas, Hays is the oldest and largest. It was started on the old Fort Hays Military Reservation in 1901 and now contains 3,674 acres; part state owned, part leased. Work there, under Superintendent W. W. Duitsman, includes everything from improvement of cereal grains to weed

control. A large beef cattle project is maintained and station personnel are trying to determine how heavily grass should be grazed in that area and how to use pasture land to the best advantage.

Many Query Station

Many farmers visit or write to Duitsman each week for answers to their farming problems. In fact, answering questions is an important part of the activities of all experiment stations. Field days are held periodically so visitors may come in and look at the livestock and test plots; and many bulletins and circulars are written by station personnel to supply information to the farmers.

The Garden City station, since it was started in 1907, has been supplying a lot of information for one group of bulletins—those on irrigated pastures. The station has a herd of dairy cows and by moving them from one to another of 25 or 30 pastures, A. B. Erhart, superintendent, can tell which pastures are best.

Part of the 550 acres of land owned at Garden City is devoted to the search for disease, insect and drought resistant varieties of wheat and sor-

ghums. There, too, is the center for dry-land soil management studies.

Cereal improvement is the major project managed by E. H. Coles at the 594 acre Colby station. Little plant breeding is done there, but concentration is on testing wheat, sorghums, corn and barley varieties developed elsewhere. Mr. Coles' pet project is an orchard where he tests many varieties of apples, plums, cherries and pears. Dr. Myers said Coles' orchard has been "remarkably satisfactory from the standpoint of growing home fruit in Northwestern Kansas."

The one-man station at Tribune is under the care of Bruce Stinson. In 1911 work on this 110-acre station started with tests of various crop varieties to see which would grow best in the area. Today, Stinson also runs some tillage and crop rotation studies.

Runways to Test Plots

Newest of the five ag branch stations is Mound Valley, started on an abandoned air field in 1949. It contains 282 acres and is managed by Floyd E. Davidson.

For some time farmers around Mound Valley had noticed serious

deficiencies in their dairy herds. Feeding tests at the station comparing feeds with those from other areas showed a decided phosphorus deficiency in feed produced in the Mound Valley area. This study tied in well with other research conducted there on how soil fertility affects dairy production and on the best forages grown in the area for livestock feed.

To spread the research into more sections of Kansas, 12 experimental fields have been leased or purchased from farmers. The Agronomy Department staff from the College, with Dr. R. V. Olson in charge, is responsible for the fields.

Fields Have Specialties

The field at Columbus is the oldest. It was started in 1923 and it and the Thayer field emphasize soil fertilization and crop production studies. At Dodge City, the field is devoted to studies of wheat and sorghums; and at Hutchinson, to wheat.

The St. John field is on a rather sandy site so attempts are made there

to prevent sand from blowing. Ways to eliminate bindweed, a serious pest in the area, are featured at Canton; and in North Central Kansas, Concordia is the site of an irrigation study project.

Nature Against Ottawa

The experimental field at Ottawa is just getting under way. For two years bad weather has prevented establishment of the planned fertility tests on pastures.

Mankato and Belleville fields are in adjoining counties and have similar projects of crop variety rotation and soil fertility tests. A horticultural field at Wathena includes fruit tree pruning and spraying practices. There also is a small vineyard and a strawberry patch where variety tests are made. A stone-fruit orchard is to be started this year.

A corn belt experiment field is being started at Hiawatha this spring. Dr. Clyde Wassom will direct the study of corn breeding for highest yields and resistance to insects.

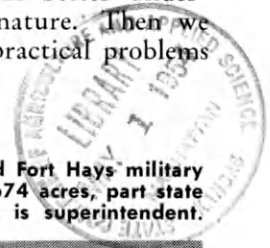
The ag experiment station plan includes irrigation development farms sponsored jointly with the Extension Service. These farms, in Osborne, Cloud, McPherson and Ellis Counties, are owned and operated by the farmers under supervision of a technical committee headed by John Ferguson of the Extension Service.

The farms are located in or near areas where irrigation water is available from Bureau of Reclamation Reservoirs. The farmers are encouraged to use the best type irrigation practices. Before and after comparisons will be made to see just how valuable irrigation is in these areas.

"In research we don't try to solve just the problems which appear to have practical significance," Dr. Myers said, "but also work on problems that may help mankind in the future. As we learn and get more information, we will better understand the laws of nature. Then we can solve a lot of practical problems easier."

AN AERIAL VIEW of the Ft. Hays Branch Experiment Station looking southwest. Note the numerous experimental fields in the background. Ft. Hays is the oldest and largest of the five branch

stations in Kansas. It was started on the old Fort Hays military reservation in 1901, and it now contains 3,674 acres, part state owned and part leased. W. W. Duitsman is superintendent.



Some Wheats Hard to Mill

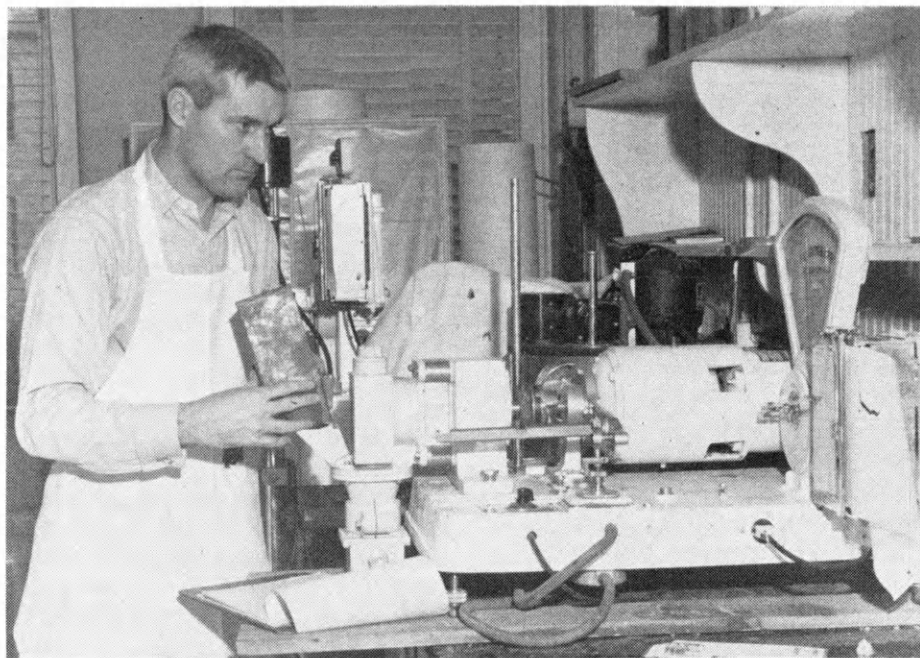
New Tester Tells Which

By HAYES WALKER III

ANOTHER STEP in the testing of new wheat varieties may have been added recently with the development of the Brabender "wheat hardness tester."

By using this machine, milling experts can now compare hardness of a new wheat cross with that of older proven varieties. Importance of the knowledge they get is exemplified by the dock in price placed on wheat of hard varieties because it is hard to mill.

For this reason, the millers are quite interested in the hardness of every new variety that looks to be high yielding. Dr. Brabender, a German cereal chemist who has built up a



THE BRABENDER HARDNESS TESTER, being operated by Don Palmer, determines milling quality of different wheat varieties and the results are recorded on a graph at the extreme right. Palmer tested the machine for its manufacturer and for the Milling Department.

large testing equipment corporation in the United States, last fall sent his new instrument to the K-State Milling Department for trial. Don Palmer, instructor in milling, drew the job of testing the machine and for several months has been running small samples of various varieties

through it in an attempt to find some trend in hardness that will give millers and plant scientists new knowledge of wheat variety characteristics.

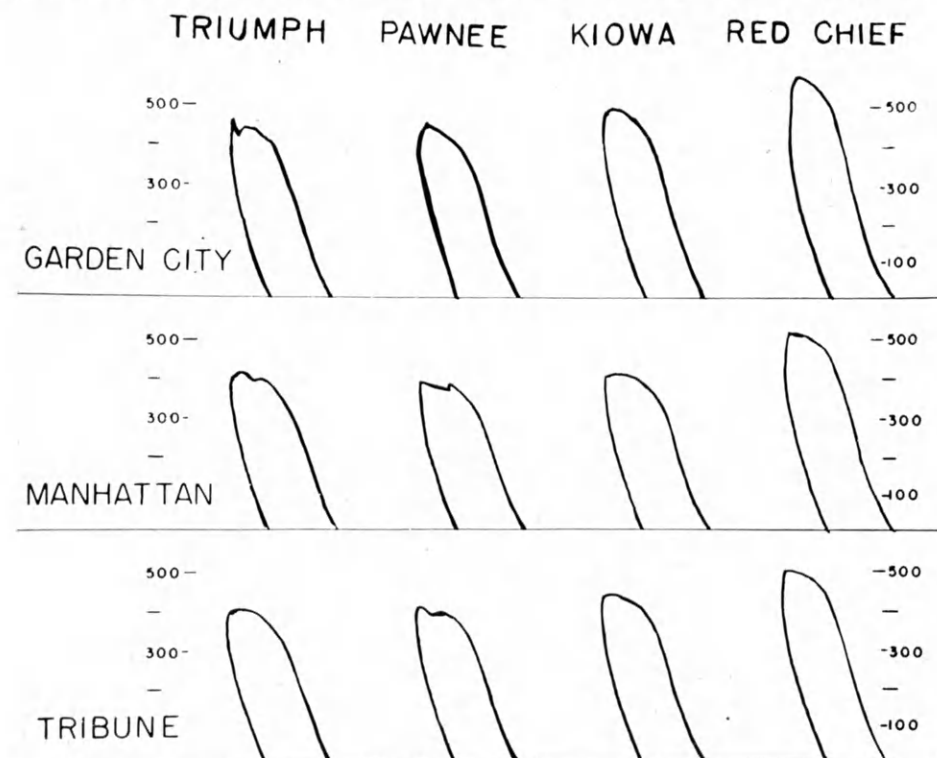
Previous indications of hardness were learned only by observation as wheat was run through a mill. This method presented a handicap to the wheat breeder because he had to increase each new cross until he had a sample of grain large enough to mill. The hardness tester only requires a 100 gram sample, thus undesirable new crosses can be discarded in much earlier stages of development.

The machine has not been in use long enough for Palmer to single out any particular new varieties that he can say are either good or bad. He has found that a higher moisture content in wheat kernels means less hardness and harder kernels indicate higher test weight.

The original instructions for proper operation of the hardness tester said the wheat samples should be measured by volume for each test. Palmer found this method tended to give unequal results as some varieties weighed more per volume than others. He has used samples of equal weight in all his tests and has got better results in most cases.

The hardness tester was constructed as an attachment to the Farinograph, an important dough testing instru-

THIS REPRODUCTION of the graphs made by the hardness tester shows the comparison of common wheat varieties from three experiment stations. The tallest graphs indicate particular samples that were hard to grind. Scale along edge is only for comparisons.

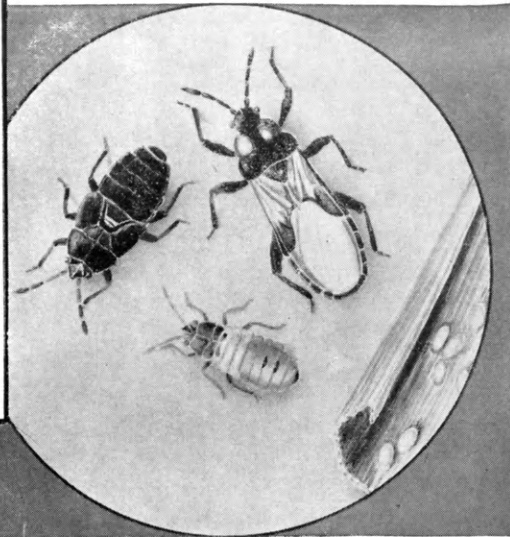


(Continued on page 26)

insects

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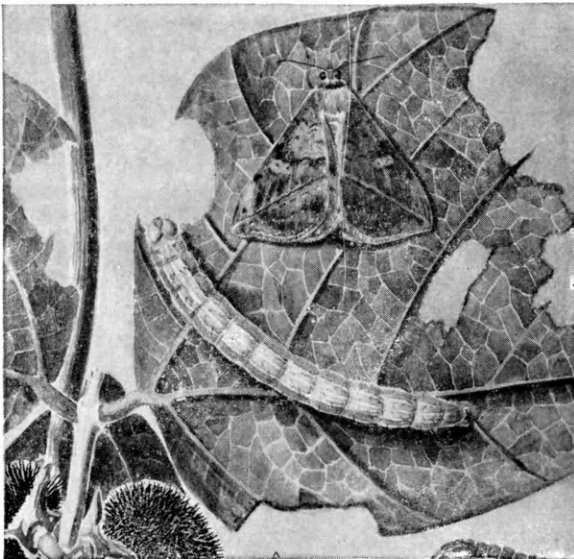


CHINCH BUG

Blissus leucopterus (Say)

Especially destructive to corn and sorghum, the chinch bug usually feeds on large grasses and small grains. Serious crop losses are mostly confined to the Middle West and Southwest in the United States.

Adults migrate to fields in the spring where eggs are laid on plant leaves or on the soil. Newly hatched bugs then crawl to nearby crops to feed. Barriers are used to stop this advance, but sprays or dusts have been effective with the newer insecticides.

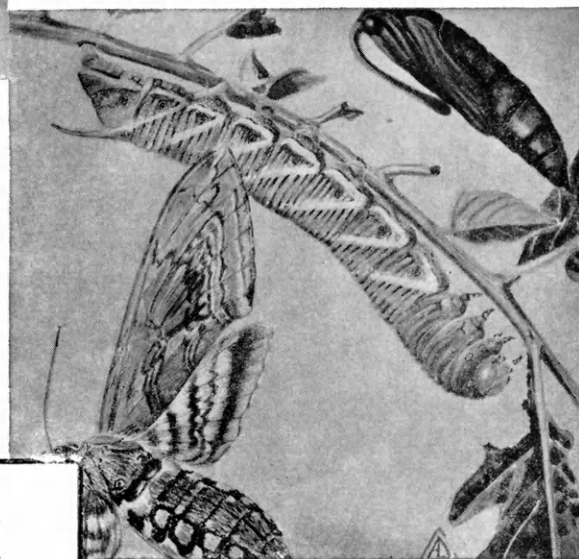


VELVETBEAN CATERPILLAR

Anticarsia gemmatilis (Hbn.)

In addition to velvetbeans, this insect does serious damage to soybeans, peanuts, alfalfa, and other plants. Heavy infestations generally appear in late summer, and may completely strip the plants.

Eggs are laid on the leaves. They hatch in three to five days, and the caterpillars will feed approximately three weeks before pupating in the soil. Moths appear about 10 days after the caterpillars enter the ground. Three generations may develop during the season.



TOMATO HORNWORM

Protoparce quinquemaculata (Haw.)

About six to eight days after the moth lays her eggs on the underside of the leaf, the eggs hatch and the larvae do their destructive feeding on leaves and fruit.

Before reaching full growth, the larva passes through five or six stages. After burrowing into the ground, larva changes to a pupa. When moth emerges from the pupa, egg laying begins a new cycle.

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Hodgdon finds

Tuttle Creek Treasure

By LOREN HARRIS

ABOUT 75 YEARS ago, the Blue River Valley north of Manhattan was an active camping site of the Kansa and other Indian tribes. In fact, the lush vegetation and good water supply in the valley had lured Indians for thousands of years.

When the U.S. government set up its program in 1945 to build hundreds of river basin dams, the Smithsonian Institution started a nation wide project to save as many of the cultural artifacts buried in the river valleys as possible before they were permanently covered.

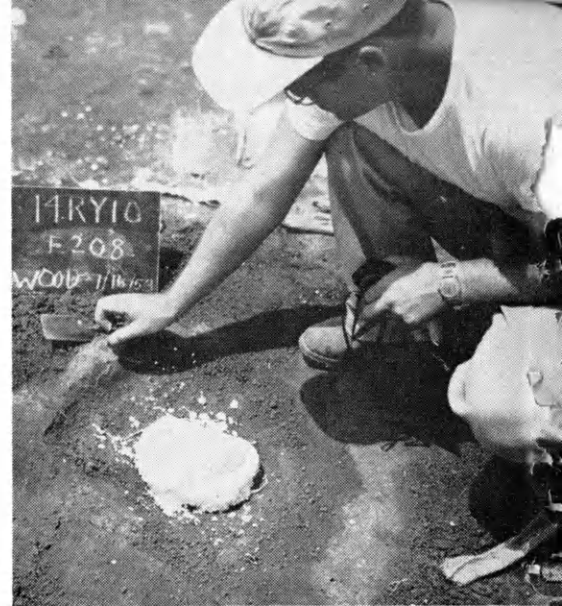
In the fall of 1952, an archaeo-

logical survey along the entire Blue River watershed area revealed 119 sites of Indian camps, a few dating back to the time when the primitive Folsom-type hunter roamed the prairie 10,000 years ago.

Dam Would Destroy Sites

Then, in June, 1953, the Smithsonian Institution sent an archaeological field party to the Blue Valley to dig up some of these sites. Dr. L. L. Hodgdon, assistant professor of sociology at K-State, was a field assistant on the project.

The field party would have to work



DR. L. L. HODGDON, assistant professor of sociology, working as a field assistant, puts a plaster cast over fragile artifacts.

fast. Four sites in particular had to be excavated, else they would soon be destroyed by construction equipment preparing the foundation for Tuttle Creek Dam.

These sites consisted of two small camps on hills at the east side of the valley, one burial mound of earth and stone on a hill near the dam, and a village site on the west slope, all within the construction area of the dam.

After several weeks of digging, as the project neared an end, Dr. Hodgdon discovered what remained of a prehistoric earth lodge, typical of the shelters used by Indians who had lived in this area during the period between 1200 and 1500.

Would Not Leave Treasure

It was a big find, but funds had run out and the archaeologists were supposed to leave. They couldn't let such treasures as these be destroyed, though. The party got permission to help Hodgdon excavate his "find" and agreed that all the materials he dug up would be presented to K-State to be put on display in educational exhibits in the College library.

The lodge had been a circular dwelling about 20 feet across. It was typical of the earthen huts constructed before the introduction of horses to this country by the Spanish, while Indians of the Midwest still were content to stay in one place and thus build fairly permanent houses.

Anchors for the lodge had been four large poles, 8 to 10 inches in diameter in the center around a fire

THE FLOOR OF A PREHISTORIC earth lodge during the process of excavation, typical of the shelters used by Indians who lived in this area during the period between 1200 and 1500. Note the many grinding slabs and stones in place. Tools were also found here.



pit. The bases of these poles were charcoaled, indicating the Indians may have burned the trees down rather than chopping them. Horizontal cross-beams were then placed over these center posts and connected to a row of posts around the circumference of the building.

This framework was covered with willow boughs which in turn were

REMOVING ARTIFACTS from the lodge floor are (left to right) Lee Madison from Smithsonian, Hodgdon and Warren Shaw.



plastered with wet clay mixed with dry grass. Finally, the whole top of the structure was covered with earth and sod. The result, a well insulated dwelling with a short tunnel-like entrance.

The lodge floor was about 18 inches below the present ground level and in the silt that covered the floor, Hodgdon found many stone and bone tools, projectile points, knives, grinding slabs and stones, and some fine specimens of pottery.

A refuse pit just outside the lodge yielded two buffalo-scapula hoes, some charred beans, broken pottery, bone needles and more stone tools. The Indians who used these tools had some knowledge of cultivating crops and storing their foods. In addition, bones of bison, deer, elk, and those of many smaller animals as yet unidentified, indicate that hunting also played an important part in the lives of these Indians.

DECLARED

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WEED WARRIOR RETIRES—

Prof. Zahnley

AFTER 39 YEARS of teaching at Kansas State, Prof. James W. Zahnley, Department of Agronomy, will retire next July.

Teaching here, Professor Zahnley said, has provided a variety of experiences. In the field of agronomy he has taught beginning and advanced courses in farm crops, weed identification and control, and grain grading and judging.

Zahnley joined the K-State staff in 1915, but his association with the College goes back to 1905 when he enrolled as an undergraduate. He first entered the 2-year preparatory course for students without high school education. The college year was divided into three terms then: fall, winter and spring. After attending the winter term he spent the re-

By **BOB ECKLUND**

mainder of the year working at his home near Dwight.

He enrolled in a regular college course in 1905 and received his B.S. in Education in 1909. He later majored in agronomy; received a second B.S. in 1918 and an M.S. in agriculture in 1926.

From 1910 to 1915 Professor Zahnley taught physics and botany at El Dorado high school. In 1915 he joined the Kansas State College staff in the School of Agriculture, teaching

courses in crops, soils and farm management.

In 1917 the Smith-Hughes act created vocational agriculture training in high schools and Professor Zahnley was transferred to the Department of Education to instruct courses in methods of agricultural teaching, but in 1923 he moved back to agronomy and has been there since.

Following World War I he helped with the rehabilitation classes for disabled veterans. "That was one of my toughest assignments," he said. "Many of those veterans had no preparatory training for college work, which put them at a big disadvantage. A lot of them were on crutches, an added handicap. Most of the courses dealt with practical farm practices, though, so we managed pretty well."

In addition to teaching, Professor Zahnley has devoted a lot of time to research. His particular field has been chemical control of noxious weeds.

The Hoe Must Go

"I always thought there should be some easier way than a hoe to get rid of weeds," he said.

He first became interested in chemical weed control in 1907 when the American Steel and Wire Company wanted someone to test a by-product of its industry as a weed killer. Professor Zahnley was unable to participate in that experiment, but the idea remained with him until he got a chance to do some research work in 1923.

That year, with the assistance of Prof. W. L. Latshaw, Department of Chemistry, he began extensive tests with a number of chemicals. By 1925 they had agreed on sodium chlorate as the most effective among the many chemicals tested. "It has been a long time since we found out about sodium

PROFESSOR ZAHNLEY will retire in July. He says he's not going to loaf though, but will continue his major weed control work.



chlorate, but it is still the most effective method of getting rid of small patches of field bindweed," he said.

Numerous chemicals and combinations of chemicals have been developed since and Zahnley has helped with many of them. One of his latest achievements has been the use of a chemical compound, TCA, for killing objectionable grasses. On this project he worked in collaboration with Dr. L. G. McCall of the DuPont Chemical Company.

Weed Control Honors

This spring, Zahnley received special honors at the annual Weed Control Conference, which he helped to establish 16 years ago. He has been a speaker on all 16 conference programs.

Professor Zahnley was director of the Kansas seed laboratory from its origin in 1923 until 1949. He was an agent of the hay, feed and seed division of the U.S. Department of Agriculture from 1923 to 1925. It was during that period that the federal standards of hay grading were developed.

An outstanding contribution to activities at Kansas State is the time Professor Zahnley has devoted to coaching the crops judging teams. In the 19 years he coached the teams, 1923 to 1942, they won five firsts at the national contest held in conjunction with the International Live Stock Show at Chicago. A Zahnley coached team never rated lower than eighth in that contest.

He has been on the board of directors of the North Central Weed Control Conference since it was organized in 1944. In 1950 he was awarded a scroll and honorary membership by the Conference for his distinguished service in weed control research.

In response to a question on future plans, Professor Zahnley said, "I have about 20 years of unfinished business to catch up on."

He is interested in small fruits and plans on raising plenty of strawberries along with a vegetable garden. Stamp collecting is one of his hobbies and he has what he calls a modest collection. Now he hopes to have time to put this collection in order.

An ardent hunter and fisherman, he said, "I like to be outdoors. I'm going to do a lot of fishing."



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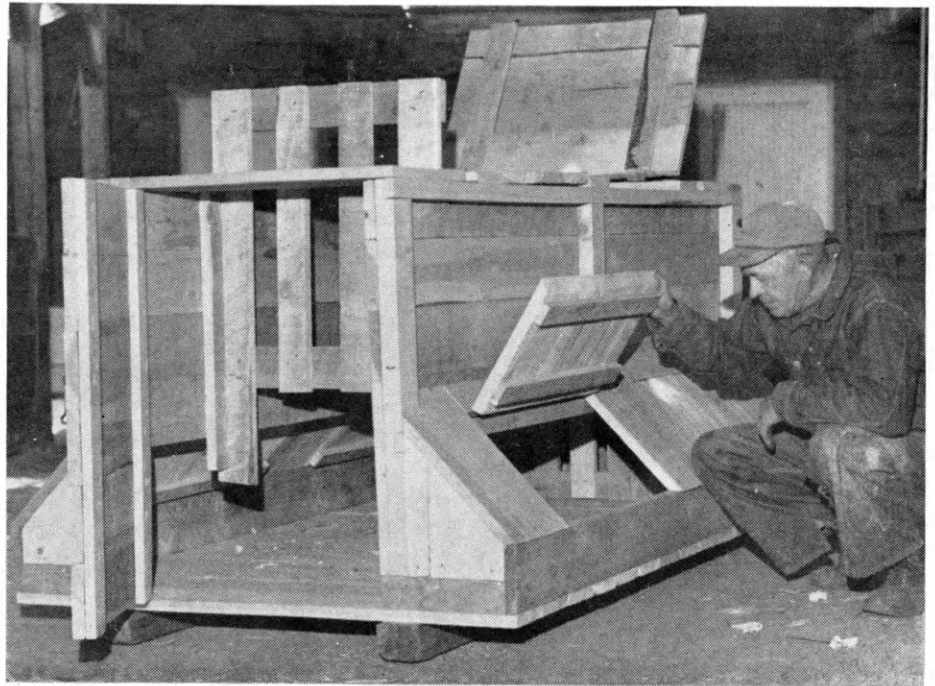
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Pigs Safer in a Crate



A NEW FARROWING CRATE in the College hog barn will be used in pig raising studies and to save larger litters for other research. Alvin Wendland, acting herdsman at the hog barn, holds open one of several doors and gates which give access to the pigs and sow.

A farrowing crate is not a new invention to the hog raiser, but the one recently constructed at the K-State hog barn has some modern improvements.

This 8 foot long, all-wood crate is mounted on skids for easy moving and has panel gates as well as doors in each end. It is 48 inches wide at the base and 36 inches high, allowing plenty of room for even a large sow to be comfortable as well as shelter for the pigs along the sides and ends.

Sows will be placed in the crate the day before they are due to farrow, according to Dr. C. E. Aubel, hog specialist at the College, and will

remain there for three to four days after the pigs are born. The crate prevents the sow from turning around and provides a safe retreat for the pigs. Sows require less attention and do not seem as nervous in a crate as they do in pens, and fewer pigs are crushed.

Doors in the top and along each side over the pig hovers provide access to the sow and pigs. Electric light bulbs have been installed on each side for heat. For most Kansas weather conditions, 150 watt bulbs will supply enough heat, Aubel said. The cost of the crate is about \$30 plus labor.

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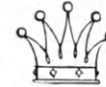
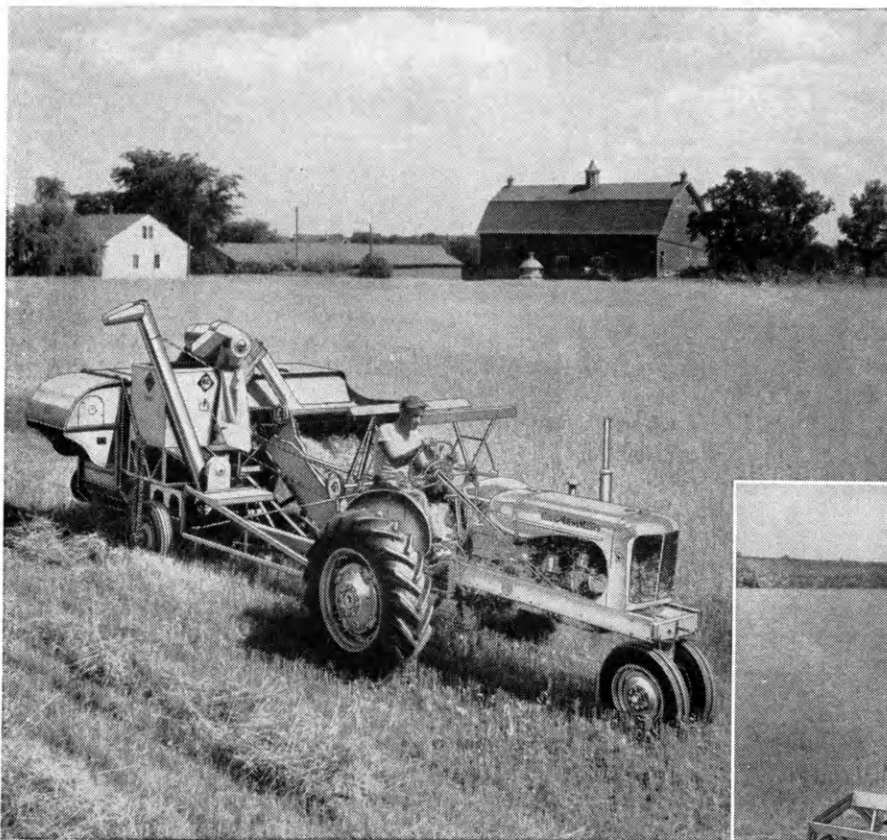
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Wheat

(Continued from page 18)

ment of the milling chemist. Turned by a one-eighth horsepower electric motor, the tester grinds a small sample of grain between two burrs. The resistance created by the wheat kernels is recorded by the Farinograph on a curve graph from which hardness can be measured and compared with other varieties.

"Dr. Brabender requested that the machine be returned to his laboratories before extensive testing was possible," Palmer said. "With a few modifications and more tests, however, this machine could be a big development for the breeders and millers of new varieties of wheat."

The police had been swamped with calls from women reporting they had been frightened by a man, wearing absolutely nothing, who jumped from dark doorways yelling at them. He never molested his victims and would disappear before police could get there.

Finally the culprit was caught and police asked several women to identify him. One lady protested, "I'm very sorry, I'm not going to look at him nude again—and I didn't see his face before."

A bachelor is a college graduate who didn't have a car in his youth.

Salesman to coed trying on a sweater: "How's this one, miss? Too small enough?"

Of course, you know what the little dog said that walked through the tobacco patch. "Do your cigarettes taste different lately?"

Coed—"I wonder how many men will be unhappy when I marry?"

Aggie—"That's depends."

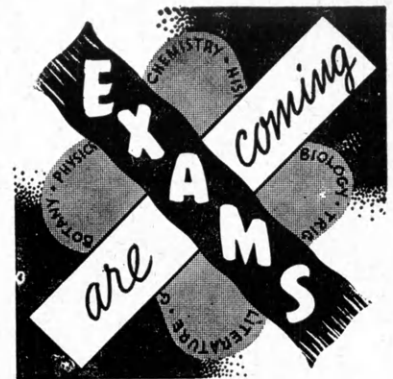
Coed—"On what?"

Aggie—"On how many men you marry."

Everyone always claims that it is better to be first, but did you ever stop to think that it is the last suitor that wins the girl?

A kiss—A mouthful of nothing that tastes like heaven and sounds like an old cow pulling her foot out of the mud.

Tact is making a blind date feel it's she you're sorry for.



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