

THE NORTHWEST MONTHLY



Published Monthly by the Northwest School of Agriculture of the University of Minnesota, Crookston. Entered as second class matter, December 2, 1916, at the Post Office at Crookston, Minnesota, under the Act of August 24, 1912.

VOLUME XXIV.

CROOKSTON, MINNESOTA, JUNE, 1940.

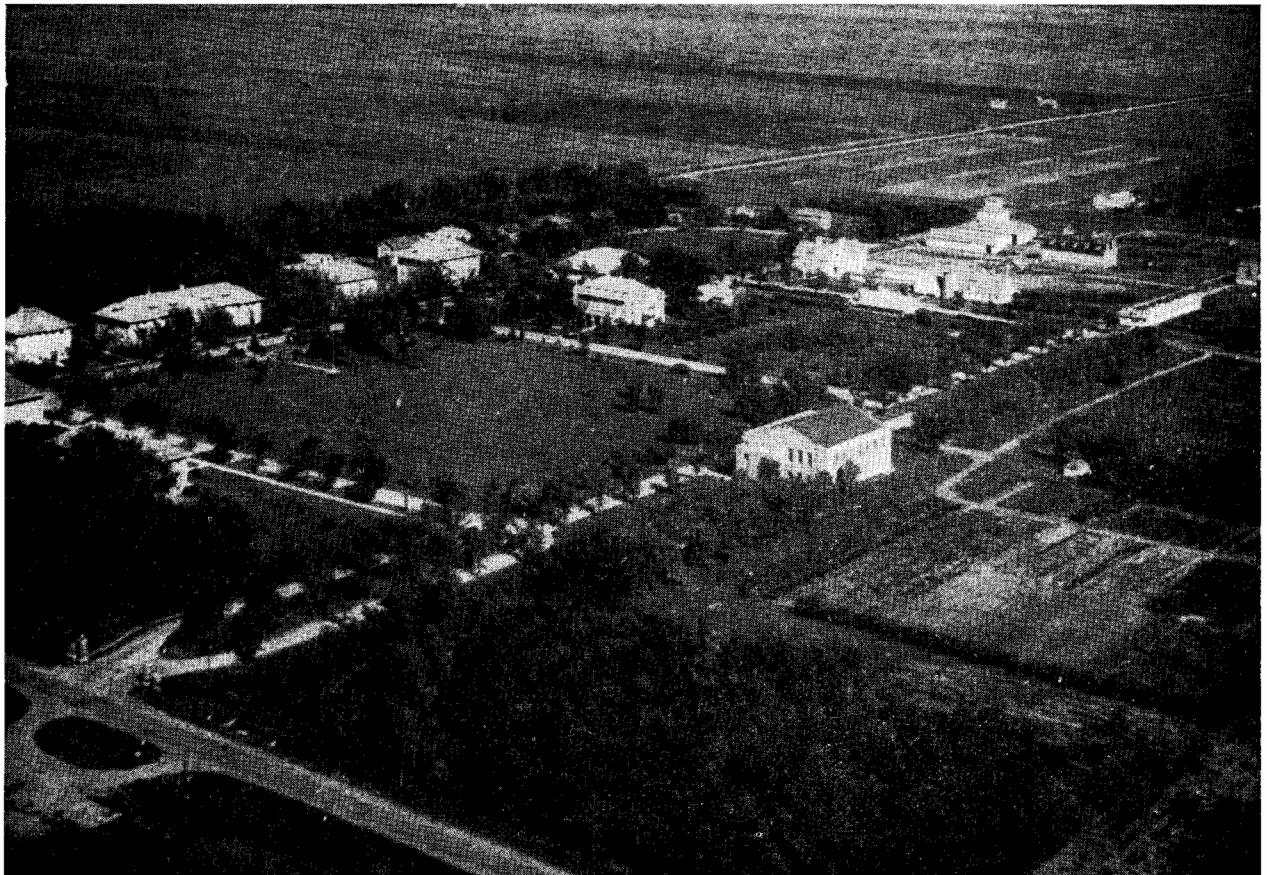
NUMBER 7.

Station to Celebrate 45th Anniversary

Northwest Experiment Station Was Established in 1895.

School of Agriculture Established by Legislature in 1905.

45th Anniversary and Alumni Reunion To Be Held June 29, 1940



AERIAL VIEW OF NORTHWEST SCHOOL AND STATION, CROOKSTON, MINNESOTA

NORTHWEST MONTHLY

Issued Monthly by
THE UNIVERSITY OF MINNESOTA
NORTHWEST SCHOOL OF
AGRICULTURE.

T. M. McCALL, Superintendent
OFFICE
Northwest Experiment Station,
Crookston, Minnesota

A monthly publication in the interest of
agricultural education and home training
for Northwestern Minnesota.

Staff Members Report On Projects

The members of the Experiment Station staff have prepared short summaries and statements of experimental projects carried on by the Station through the years. The statements indicate the scope of experimental work completed and in progress. Data on many of the completed projects is available in printed form. Publication of data on all projects through 1940 as an Experiment Station bulletin is planned for 1941.

AGRONOMY

by R. S. Dunham

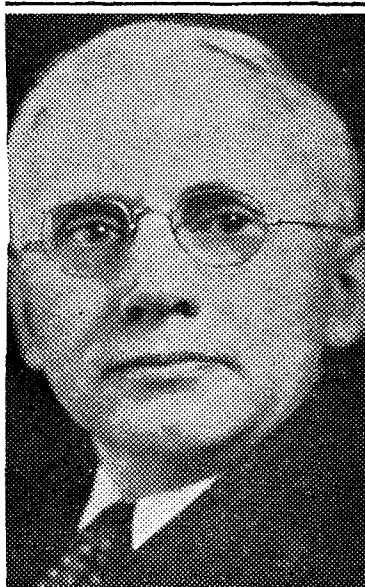
In the experimental work, emphasis has been placed largely on the solution of regional problems relating to the production of field crops and the management of soils. The investigation of such problems is closely coordinated with the work of the central station and other branch institutions so that achievements are cooperative. Some of the projects are principally of current value and are completed shortly. Some increase in value as time passes.

In the production and distribution of pure seed, the aim has been first, to maintain a source of pure stock of varieties recommended for this area and second, to increase new productions at the station and through farmer cooperators so that they might efficiently be distributed throughout the Valley. More than 46,000 bushels of registered seed of recommended varieties have been produced and distributed since 1921.

VARIETAL TRIALS OF CEREALS, FLAX, AND CORN:

More than 120 varieties of wheat, 90 varieties of oats, 60 varieties of barley, 40 varieties of flax, and 60 varieties of corn have been given comparative tests in the last 30 years. As a result Min-dum and Thatcher wheat; Gopher, Anthony, and Rusota oats, Velvet, Wisconsin 38, and Peatland barley; Bison and Redwing flax; and Northwestern dent corn have been increased and distributed to farmers by the Station and are now commonly grown in northwestern Minnesota. The variety trials have also served as a proving ground for exploited varieties. Ruby wheat introduced at \$10.00 a bushel, Kota wheat at \$6.75 a bushel, Burbank quality wheat at \$1.00 an ounce, and Enoch Swenson oats at \$10.00 a bushel are a few among many that were demonstrated to be of considerably less

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DR. C. H. BAILEY

Dr. Bailey, Vice-director of the Minnesota Agricultural Experiment Station, will speak on the anniversary program, June 29.

COMING EVENTS

- June 17-20—Women's Camp
- June 20—Minn. Creamery Operators Meeting
- June 22—W. Polk County Farm Bureau picnic
- June 23—Farm Managers' Tour
- June 29—Alumni Reunion and 45th Anniversary Celebration
- June 23-July 7—Y.W.C.A. Camp
- July 15—County Agents and Agricultural Instructors Visitation Day
- July 16—Crops and Soils Day



DEAN WALTER C. COFFEY

W. C. Coffey, Dean and Director of the Minnesota Agricultural Experiment Station, will be one of the chief speakers on the anniversary program.

STAFF MEMBERS REPORT ON PROJECTS

(Continued from Column 1)

value than recommended varieties more reasonably priced. Corn trials have shown the importance of adapted strains in open pollinated varieties and the present lack of a commercial hybrid well suited for ripe corn in the central and northern parts of the Valley.

FORAGE CROP INVESTIGATIONS:

Sweet clover was first sown at the Northwest Station in 1896. However, due to reported weedy nature of the plant, sweet clover was discontinued as a crop until 1912 when it was planted as a soil improvement crop on unproductive spots in the Station orchard. Since that date, sweet clover has been extensively grown for pasture, hay, seed and green manuring purposes. Comprehensive investigations have been made realting to varieties, culture, soil improvement, weed control, pasture and hay, life history, and seed scarification. The common white biennial (Bokhara) has proved most satisfactory for general use. The Alphas have yielded less than Bokhara but more than alfalfa. No other pasture crop or mixture has proved so dependable and high in carrying capacity. Hay cut in the early bloom stage and properly cured has proved nearly equal to alfalfa for wintering cattle and sheep.

The introduction of Grimm alfalfa in the Valley was made in 1914 when 40,000 pounds of seed were distributed to 629 farmers by the Station. Grasses that have combined most successfully with alfalfa for pasture are smooth brome grass and northern-grown meadow fescue. Best stands have been obtained when sown early. Sown a month later, grasses have not done well. Oats and millet have been more generally satisfactory and dependable than Sudan grass, sorgho, or soy beans for annual hay crops.

CROP ROTATION AND SOIL MANAGEMENT STUDIES

Wheat and corn have been grown continuously without fertilizer of manure since 1911. The resulting low yields of wheat are mainly due to weeds and disease. A year of fallow in 1931 increased the yield nearly 20 bushels. Improvement in varieties has almost maintained the yield of continuous corn. Rotating wheat, oats, and barley did not increase the yield when compared to growing each crop continuously. In a comparison of a rotation of wheat, oats, and sweet clover with wheat, oats, barley, and sugar beets the wheat has yielded four bushels better in the first rotation. The first crop of sweet clover has been plowed under and the land fallowed subsequently.

In a separate study, it has been apparent that the growing of sweet clover preceding wheat, oats, barley, or flax does not increase their yield on the type of soil prevailing at the Northwest Station. When sweet clover is combined with a partial fallow, yields of succeeding crops in seasons of moisture deficiency are increased because of the fallow. Plowing under the crop was no better than removing the hay and

(Continued on Page 6, Col. 1)



T. M. McCALL
Superintendent 1937 to date

Superintendents Of The Experiment Station 1905-1940

TORGER A. HOVERSTAD—1895-1905:

T. A. Hoverstad inaugurated the experimental work at the Northwest Station in 1895. Mr. Hoverstad soon saw that trees were a necessity for prairie farms and planted the windbreaks in 1896-97 which now shelter the campus area. He grew in comparative plots all new and recommended varieties of crops deemed suitable for the Red River Valley. Mr. Hoverstad did a great deal of agricultural extension work in the district, organized the Red River Valley Dairymen's Association and worked for the establishment of a School of Agriculture.

Mr. Hoverstad, now retired, makes his home in St. Paul, Minnesota, and Portland, Oregon.

WILLIAM ROBERTSON
(deceased), 1905-1910:

Professor William Robertson came as the first superintendent of the combined Experiment Station and School of Agriculture. The five buildings constructed during Professor Robertson's administration include Home Economics, Stephens Hall, Owen Hall, Kiehle building, and a girls' dormitory later named in his honor. Professor Robertson secured a complete network of surface drainage ditches for the farm which, together with some till drainage, removed the water hazard to field experimental work.

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The Northwest Experiment Station Today

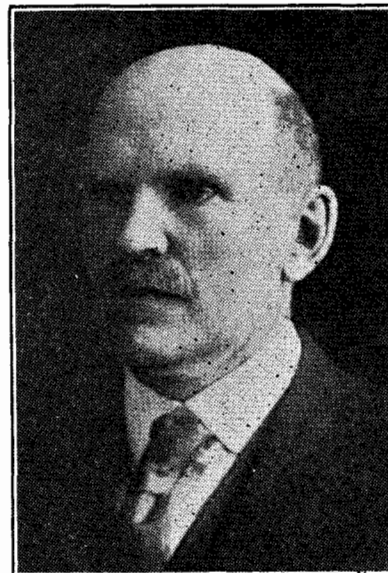
The program featuring the forty-fifth anniversary of the founding of the Northwest Experiment Station at Crookston will depict the growth and development of the Experiment Station since its founding on July 1, 1895. The program will be unique in the fact that three of the former superintendents, including the first Superintendent T. A. Hoverstad, will be present and take part on the program.

Pioneers of the Red River Valley familiar with farming problems of the late nineties will be present to note the changes taken place during the forty-five year period. Many changes have taken place on the area occupied by the present School and Station. The land, which was donated to the University of Minnesota in 1895 by the Great Northern Railway Company as an undrained, treeless prairie farm, is now producing alfalfa hay where duck ponds once attracted local hunters.

Windbreaks planted in 1896-97 in undrained land at the northwest corner of the farm now make a dense shelter for the School and Station buildings. Supplemental plantings of trees and shrubs on the campus have transformed the prairie landscape into a place of beauty.

The growth in physical equipment from the early years to date is well illustrated by accompanying pictures. From the first horse barn, the livestock buildings have increased in number until now separate commodious barns house horses, dairy and beef cattle, sheep and swine. The poultry buildings have increased in size and number and modern incubator and brooder equipment has been installed for both chickens and turkeys.

A commodious greenhouse gives ample space for the propagation of vegetable and flowering plants used in the horticultural experimental and ornamental planting. The lighter and
(Continued on Page 8, Col. 2)



WM. ROBERTSON
Superintendent 1905-10

Superintendents Of The Experiment Station 1905-1940

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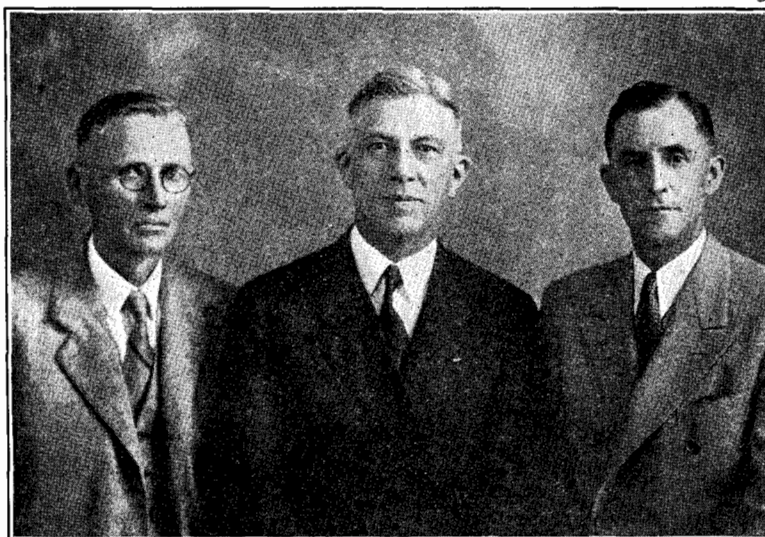
CONRAD G. SELVIG—1910-1927:

Under the leadership of C. G. Selvig, the School made its most rapid growth in both enrollment and expansion of physical equipment. Accomplishments under the administration of C. G. Selvig include: adoption of a permanent plan of landscape development for school campus, construction of Hill building, Senior Hall, Dining Hall, Health Service, Animal Products, elevator and seed storage, beef cattle barn, a sheep barn, cattle feeding shed, cottages and apartments for full-time staff members and employees. Mr. Selvig furnished the leadership for the founding of the Red River Valley Winter Shows and North-

west School Farmers' Week and organized the Red River Valley Development and Livestock Associations and served as president of both organizations and the Dairymen's Association as well. Mr. Selvig left the Northwest School and Station to serve as congressman from his district. His winter address is Santa Monica, California. The Selvigs spend their summers at their cottage at Cass Lake, Minnesota.

AUSTIN A. DOWELL
—1927-1937:

Dr. A. A. Dowell, a capable and efficient administrator, teacher, and research worker successfully guided the
(Cont. on Page 8, Col. 3)



Former Superintendents of Experiment Station
(left to right) T. A. Hoverstad, 1895-1905; C. G. Selvig, 1910-27;
A. A. Dowell, 1927-37.

ALUMNI REUNION

June 29, 1940

Alumni Reunion Program

- 10:00 A. M.—Registration—Library, Kiehle Bldg.
- 10:00-11:00 A. M.—SEE pictorial history of Northwest School and Station in school library
- 10:00-11:15 A. M.—Visitation of Buildings and Grounds
- 11:15 A. M.—Parade—campus square
- 12:00 noon—Picnic dinner—campus
- 1:30 P. M.—Anniversary Program—Auditorium
- 4:30 P. M.—Kittenball or baseball, Alumni vs. Students
- 5:30 P. M.—Class Reunions and Pictures
- 6:30 P. M.—Kittenball (Alumni vs. Faculty)
- 7:30 P. M.—Sound pictures—Auditorium
Annual Alumni Business Meeting
- 8:30 P. M.—Grand March by Classes
Alumni Dance—Gymnasium

NOTICE

There will be limited opportunity for alumni to get tickets for the honor guest dinner at 12:00 noon on June 29. The dinner will be held in the dining hall and reservations must be in the superintendent's office not later than Thursday morning, June 27.

Anniversary Program

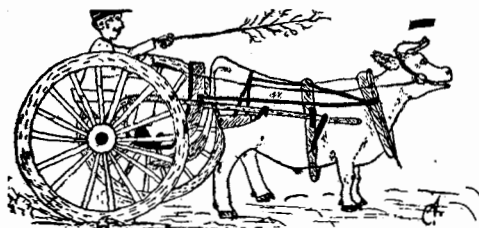
- 10:00 A. M.—Visiting Farm Fields and Buildings
- 11:15 A. M.—Parade "Evolution of Farm Power"
- 12:00 noon—Picnic Dinners—school campus
Concert—Crookston Municipal Band
- 1:30 P. M.—ANNIVERSARY PROGRAM—Auditorium
Superintendent T. M. McCall, presiding
- Greetings—Dr. F. J. Rogstad, Member of University Board of Regents
- Introduction of Pioneers
- "How the Agricultural Experiment Station May Serve the State"—Dr. C. H. Bailey
- "What a Regional Experiment Station Means to the Red River Valley"—Ole A. Flaot, '16
- SYMPOSIUM: Northwest Experiment Station—THEN and NOW
- T. A. Hoverstad, 1895-1905; C. G. Selvig, 1910-27; A. A. Dowell, 1927-37; T. M. McCall, 1937-
- "The Outlook for Agriculture in a Changing World"—Dean Walter C. Coffey
- Special Music
- Motion pictures of the Northwest School and Station—Then—1920, Now—1940.

ALUMNI ASSOCIATION OFFICERS

- Howard E. Balk, '24 - - - - - President
- George Berggren, '29 - - - - - Vice President
- Melvin Soderberg, '30 - - - - - Secretary
- Rishton Bedard, '31 - - - - - Treasurer

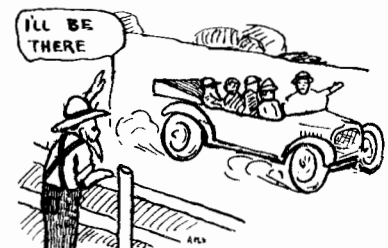
SPECIAL CLASS REUNIONS

1910 — 1915 — 1920 — 1925 — 1930 — 1935
 BRING YOURSELF...bring your family...renew old acquaintances...revisit old scenes...bring your picnic supper... FREE COFFEE ...games...contests...program...parade.

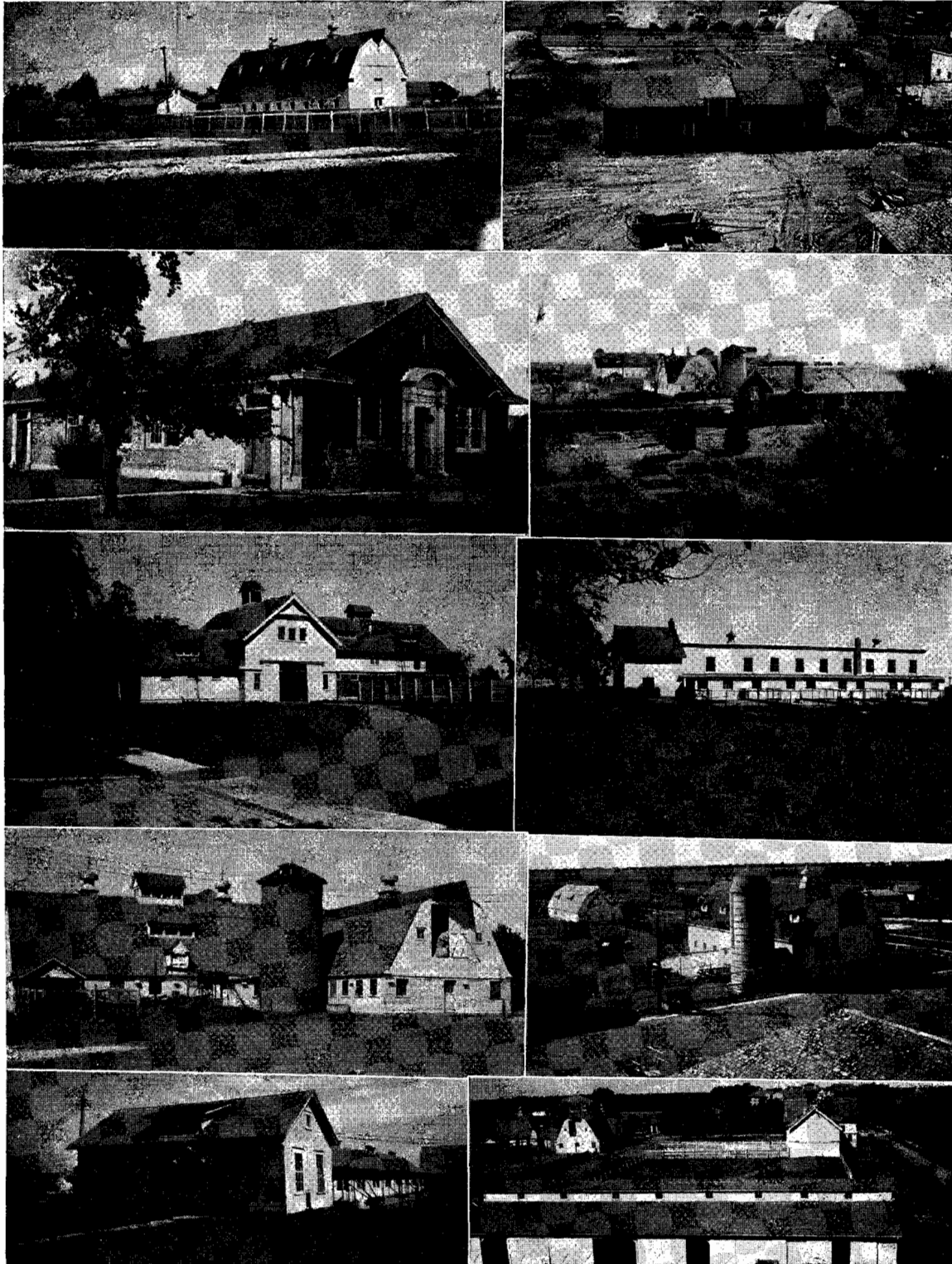


**PLAN TO SEE THE
PARADE "EVOLUTION
OF FARM POWER"**

Campus, 11:00 A. M.
June 29



Station Celebrates 45th Anniversary June 29, 1940



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STAFF MEMBERS REPORT ON PROJECTS

(Continued from Page 2, Col. 3)

Agronomy

plowing the stubble. Nitrogen in the form of fertilizers, sweet clover, or manure has not increased yields except in perennial grasses. Sweet clover, alfalfa and flax have been very exhaustive of soil moisture. Phosphate fertilizer has increased the yields of alfalfa when applied by either broadcasting or drilling. Phosphate fertilizers have increased the yields of wheat, barley, and oats when placed close to the seed.

WEED ERADICATION AND CONTROL:

Trials in control and eradication of perennial sow thistle through tillage, rotations, and the application of chemicals have demonstrated the practicability of tillage control and the impracticability of chemical eradication except on small areas. Control has been affected by early plowing, use of sweet clover with partial fallow, and the bare fallow. Sodium chlorate, potassium chlorate, and Atlacide were effective in killing sow thistle but were too costly for field use.

CROP-WEATHER RECORDS AND RESEARCH:

Weather records have been kept at the Station since 1900. Annual weather has varied from 9.27 inches to 29.6 inches of precipitation, from 78 to 171 frost free days, and from a maximum of 108 degrees to a minimum of -51 degrees.

As an average, the last spring frost occurs on May 20 and the first fall frost on September 24, a period of 127 days. There is so much variation that it would require a range of 26 days to include one-half of the seasons since 1900.

The average annual precipitation for thirty-six years, 1900-1935, has been 19.76 inches.

Growth curves of wheat, oats, flax, and corn for five years together with a record of environmental factors have been completed.

PUBLICATIONS:

"Crops and Soils Handbook for the Red River Valley," "Forage Crops for the Red River Valley," "Effect of Method of Sowing on the Yield and Root and Top," "Development of Sweet Clover in the Red River Valley," "Thirty-six Years of Weather in the Red River Valley," and "Growth and Yield in Wheat, Oats, Flax, and Corn as Related to Environment."

HORTICULTURE

by R. E. Nylund

POTATO PROJECTS

Variety Testing—This project includes not only the testing of standard varieties of potatoes but also large number of seedling selections obtained in the breeding program of the University of Minnesota horticultural department and the United States Department of Agriculture. Of the commercial varieties, Triumph, Cobbler and Early Ohio remain the most desirable, with Warba being a desirable

(Continued in Column 2)

early market variety being the earliest and highest yielding variety tested.

Tuber and Leaf Diseases—This work includes the planting of treated and untreated seed at different depths in order to compare these methods of planting as to rhizoctonia injury and yield and spraying and dusting trials. Results thus far obtained, over a five-year period, indicate that: seed treatment increases the percentage of stems clean and free from rhizoctonia from 40% to 60%; the number of stems girdled and cut off by rhizoctonia lesions increases as the depth of cover is increased; two inches of cover in the 2" and 4" planting depths have produced the highest average net yields.

In the spraying and dusting tests, a number of new insecticides and fungicides are tested each year in comparison with standard Bordeaux mixture. Over a ten-year period, Bordeaux mixture when combined with an insecticide has increased average yields approximately 20 bushels per acre. Indications are that "dry Bordeaux" is just as effective as liquid Bordeaux in increasing yields.

This year, in addition, work is being carried on in the study of methods of transmission and control of bacterial ring rot of potatoes.

Methods of Planting—Results of this project indicate that under drought conditions, planting potatoes at greater distances apart produce the greatest yield per bushel of seed planted and that larger seed pieces have during the recent dry years given greater net yields at the wider spacings.

Fertilization Trials and Soil Preparation—In the fertilizer tests, phosphate alone has consistently increased yields of potatoes. In the last two years, attention has been turned to the effect of various trace elements on potato yields and quality. As yet, no definite results can be given.

Over a period of six years (1934 through 1939) deep tillage of potato land has been ineffective in increasing yields. A further comparison of methods of fall preparation of the soil carried in 1939 indicated that, in that year, the use of a Wheatland plow, basin lister, or deep tiller were ineffective in increasing yields over that obtained on land prepared with a moldboard plow.

Seed Selection—This work has been carried on for several years in cooperation with the Division of Horticulture and the United States Department of Agriculture. Several hundred selections have been tested for their adaptability to conditions in the Red River Valley. These tests have resulted in the introduction of such new varieties as Warba and Mesaba.

TREE, SHRUB AND FLOWER

INVESTIGATIONS:

The Horticulture Department plants and maintains a large variety of trees, shrubs, and flowers on the campus of the Northwest School besides propagating and growing a large number of ornamental shrubs and trees and wind-break trees in demonstrational nurseries. In this way, the growth characteristics, hardiness, and drought resistance

(Continued in Column 3)

are tested. Hundreds of varieties of annual flowers and perennials are grown in order to test their adaptability under our conditions. The results of these observations are published in the form of lists of recommended varieties and kinds of trees, shrubs and flowers for the Red River Valley.

ROOT CROP INVESTIGATIONS:

This project includes the variety testing of mangels and sugar beets and fertilizer tests of sugar beets. The sugar beet variety testing is carried on in cooperation with the United States Department of Agriculture, Office of Sugar Plant Investigations. Results of these trial indicate that some of the new selections of the United States Department of Agriculture are more desirable than foreign varieties.

The fertilizer trials on sugar beets indicate that phosphate is most effective in increasing yields of roots.

FRUIT INVESTIGATIONS:

This project includes variety and hardiness studies of trees and small fruits. A large number of small fruits including raspberries, strawberries, currants, gooseberries and grapes are grown to test their adaptability in the Valley.

A large new orchard of tree fruits is being established at the Station to replace the old orchard which was severely injured in the winter of 1935-36. This new orchard now includes over one hundred and fifty varieties and numbered seedling selections of apples, crab apples, plums, cherries, pears, and apricots.

The results of the fruit work at this Station are published in the form of recommended lists of fruits for the Red River Valley.

Animal Husbandry

by O. M. Kiser

CROSS-BREEDING SWINE:

For several years cross-breeding of swine was carried on at the Station. The following breeds were used in the project: Duroc-Jersey, Chester-White, Poland China and Yorkshire. Reciprocal crosses of the breeds were made. Litters of back cross pigs were produced. Pigs from Yorkshire-Poland China sows by a Duroc Jersey boar were also produced, such pigs are commonly referred to as the three-breed-cross.

This project demonstrated that cross bred pigs were all superior to comparable purebreds; that cross-bred sows can be successfully used to produce market pigs; that cross-bred litters average larger in number of pigs at weaning with a larger average weaning weight per pig. The crossbred pigs reached a market weight of 220 pounds from 17 to 22 days earlier than comparable purebreds, and they reached that weight on from 27 to 36 fewer pounds of grain.

DAIRY COW PASTURE TRIALS:

Three year results have been secured with dairy cows pasturing sweet clover. Records cover milk production of the cows, the pasture yields, the carrying capacity of pasture, the number of

(Continued on Page 7, Col. 1)

STAFF MEMBERS REPORT ON PROJECTS

(Continued from Page 6, Col. 3)

Animal Husbandry

days sweet clover will furnish pasture, and the amount of nutrients furnished by the pasture for the milk produced.

MOLASSES SWEET CLOVER

SILAGE:

In July 1938, twenty-five tons of sweet clover was put in one of the station silos. To each ton of sweet clover, seven gallons of beet molasses was added as the sweet clover was run through a silage cutter. The undiluted molasses was added just in front of the silage rollers.

Six Holsteins were fed through four 28-day periods in a comparison with corn silage. In addition to the silage, cows were fed alfalfa hay and a grain mixture in proportion to their milk production. The milk and butterfat produced, the feed eaten, and the body weight of cows were compared.

The sweet clover silage was equal in palatability to the corn silage. The cows were fed more sweet clover silage to get the same amount of dry matter as they did in corn silage. The average amount of sweet clover eaten was 33.4 pounds compared to 26.6 pounds of corn silage. The sweet clover silage formed 24% of the nutrients of the ration, whereas the corn silage made up 25% of the ration. The average daily milk production was 27.3 pounds for the cows when they were on sweet clover silage ration and 27.1 pounds when on the corn silage ration. The milk and butterfat produced and the body weight of the cows were practically the same on both rations.

TYPE IN MARKET LAMB

PRODUCTION:

A sheep project dealing with the question of size in market lamb production was initiated at this Station in the fall of 1933 and covered a period of four years. Two groups of grade ewes were purchased for this project, one group possessing large size with evidence of characteristic rapid growth, and the other group was composed of fine boned ewes of medium size. The group of large ewes was mated each year to purebred Shropshire rams of large type, while the group of medium ewes was mated to purebred Shropshire rams of compact form and medium type.

The group of large type ewes produced heavier lambs that made larger average daily gains than lambs from the small type ewes. Large type ewes sheared a heavier fleece than the small type ewes, although the fleeces of the small type were graded somewhat higher. The small compact type lamb produced more choice carcasses and had higher dressing percentages than the large type lamb. The large type lamb because of its more rapid gain and greater market weight was more profitable than the small type lambs.

MARKETING FEEDER VERSUS

FAT LAMBS:

A feeding trial and demonstration with native lambs was inaugurated in the fall of 1929. One hundred and thir-

(Continued in Column 2)

ty feeder lambs, which had been sent to market by Red River Valley farmers, were purchased at West Fargo. A comparison between barley and wheat screenings for the grain ration was made, with the barley fed lambs reaching marketing weights in advance of the screening fed lot. One load of the fat lambs was sold November 17; the other December 22. The average time between the first marketing date as feeders and the second marketing date as fat lambs was 99 days.

The results from the 1939 feeding trial show that if the farmers who raised the lambs had kept them they would have received \$370.46 more net money even though six lambs died during the fattening period. This amounted to a gross of \$2.85 per lamb and deducting the cost of fattening, leaves a net of \$1.20 per lamb or a gain from fattening before marketing compared to marketing as feeders.

Crediting all profit to the barley, the lambs returned a price of 84 cents per bushel for the 320 bushels of barley fed to them.

A STUDY OF THE INHERITANCE AND THE RELATIVE ECONOMIC ADVANTAGE OF SINGLE AND TWIN LAMB PRODUCTION:

This study has been conducted for the past seven years with the purebred flock of Shropshires at this Station. The original flock was divided in two groups, singles and twins, on the basis of their ancestral disposition toward the production of single and twin lambs and on the basis of their own breeding performance. Each group of ewes was mated to a ram selected on the basis of his ancestral disposition toward twinning. As the ewes in each group demonstrated a performance ill suited to the group they were placed in, they were culled from the flock. They were replaced with young ewes produced in their phase of the project. Seven crops of lambs have been produced with from 18 to 27 ewes in each group yearly.

The two groups have differed consistently with respect to lambing percentage. A portion of this, however, must be attributed to the weeding out of ewes that do not perform according to the group they were placed or bred in. The effectiveness of the separation on a genetic basis is revealed by the first year's breeding performance of the ewe lambs dropped in the project.

It is clear, therefore, that a ewe lamb born as a twin is more likely to drop twins than is a ewe born as a single.

SWINE BREEDING:

The Northwest Experiment Station is one of several experiment Stations that is cooperating with the U.S.D.A. in the Regional Research Laboratory for the Improvement of Swine through Breeding. The first crop of pigs in this project was raised in 1937 by the Northwest Experiment Station. The first two years' work on the project were devoted chiefly toward establishing a satisfactory foundation of breeding stock. Two lines have been started one called the Market Lady line, and the other the Black Star line.

In 1939, 26 litters were farrowed, 17

(Continued in Column 3)

of which were fed out as litters. Five of the test litters were in the Black Star line and twelve in the Market Lady line. The percent of inbreeding was raised from 0.163 to 0.2656 in the Black Star line and from 0.098 to 0.1980 in the Market Lady line. The 1940 litters of the Black Star line have been advanced to only 0.2962 and that of the Market Lady line has dropped slightly to 0.1864. Twenty-eight sows farrowed litters in the spring of 1940, 18 of which will be fed out as litters. Fall litters were produced for the first line in 1939. Gilts from the 1939 fall litters as well as sows that produced 1940 spring litters have been bred for 1940 fall litters.

Due to shortage of space some of the fall pigs were badly chilled and as a result did poorly. Six promising gilts are now in the breeding herd and bred for fall 1940 litters.

FATTENING BEEF CATTLE:

A total of 336 beef cattle were used in feeding trials at this Station during a period of eleven years. Of this number, there were 24 two-year old steers, 56 yearlings, and 256 baby beef calves. All groups of beef cattle were fed in the dry lot with the exception of one group used in a pasture trial. Emphasis was placed in the comparative feeding value of roughage and concentrates common to the Red River Valley region.

As a roughage for wintering yearling steers, sweet clover hay was found to be equal to alfalfa, when the roughages were fed with corn silage and oat straw. In another trial of 196 days, a group of yearling steers receiving sweet clover hay and oat straw made an average daily gain of 0.89 pounds compared with 0.64 lbs. for a similar group receiving prairie hay and oat straw.

Two year old steers receiving sweet clover hay with a fattening ration of ground barley, linseed meal and corn silage made an average daily gain of 2.86 pounds during a 112 day feeding period compared with an average daily gain of 3.08 pounds in a lot receiving alfalfa hay with the same fattening ration.

Baby beef calves fed ground barley, alfalfa hay and linseed meal made an average daily gain of 2.2 lbs. per head compared with an average daily gain of 2.3 pounds where shelled corn replaced the ground barley. From the standpoint of the amount of feed required to produce a unit of grain, the barley was equal to shelled corn. Ground barley was thus found to be satisfactory as fattening grain and can be used to replace corn in regions where the latter cannot be grown to advantage.

POULTRY

by A. M. Pilkey

The first poultry shelter built at the Northwest Station consisted of poles and boards packed with marsh hay and flax straw with a thatched roof of rye straw and marsh grass. This was a warm, dry shelter but not a model of convenience or appearance.

"Poultry Culture in Minnesota" was

(Continued on Page 8, Col. 1)

STAFF MEMBERS REPORT ON PROJECTS

(Continued from Page 7, Col. 3)

Poultry

published in October 1904. This appears to be the first bulletin from the Northwest Experiment Station and the ninety-first from the University of Minnesota.

C. E. Brown, the first instructor in poultry after the establishment of the School of Agriculture, took charge of the poultry work in 1907. The equipment at that time consisted of a log laying house housing the White Leghorns and Barred Plymouth Rock flocks of fowl, and there were also a few Pekin ducks and African geese at the Station. Four Cyphers, lamp heated, hand operated incubators were added to the equipment. All market poultry and eggs for a time were sold directly to the Royal Alexandria Hotel at Winnipeg, Canada.

The importance of fresh air for the poultry was demonstrated in 1911. Wet and dry mash feeding trials were conducted in 1912 and the preservation of eggs in 1913. Natural versus artificial hatching, concrete versus wood poultry houses, and straw loft poultry houses were later considered.

The present main laying house was first located north and east of the present Hill building. It was 150 feet long and 16 feet wide with a low shanty roof. In 1911 it was moved to its present location and the shanty roof was replaced by the present gable style roof which provided abundant space for straw storage. The steel fences were built in 1915 and the first coal burning brooder stove was used that same spring. By 1917 it was concluded that B. W. D. (now called pullorum) could be controlled by reverting to natural incubation.

Beginning in 1913, the poultry flocks were increased and the equipment enlarged. Emphasis was placed on pedigree breeding and trap nesting. The first six three-hundred egg White Leghorn hens were produced in 1937. The all-time egg record at the Northwest Station was made by the White Leghorn hen number 28-115 in 1929 when she produced 321 eggs in 365 days. Cockerels and pullets from the high egg strains have been widely distributed as foundation stock.

Since 1929 the work with chickens has included a continuation of the selection and breeding project, testing of grain and feed rations and fish oils, and a comprehensive cooperative breeding project with the United States Department of Agriculture, Bureau of Animal Industry and the Minnesota Station on Record of Performance and Genetic Reactions in the Fowl.

Sub-projects in the feeding trials include: (1) Greenmilk feeding, (2) "Ito" brandchick feeding, (3) use of Proso millet as a substitute for yellow corn, (4) and testing of the common kinds of fish oils. Subprojects in the breeding studies include: (1) continuous brother-sister matings, (2) continuous half-brother and half-sister matings (3) a closed flock (4) Inbred outcross breeding.

(Continued in Column 3)

THE NORTHWEST EXPERIMENT STATION TODAY

(Continued from Page 3, Col. 2)

less alkaline soils on the West Farm, acquired late in 1937, are being used to extend the plantings of tree fruits and windbreak trees.

An elevator with metal lined bins of 14,000 bushel capacity, well equipped with modern grain cleaning machinery is used for the storage, cleaning and handling of the foundation stocks of seed grains produced annually on the Station fields. With the increase in size of breeding herds and flocks, the feed storage space in the present elevator has proved inadequate for Station needs.

Increase in Land Acreage

The original grant of land from the Great Northern Railway to the University for the establishment of the Northwest Experiment Station consisted of approximately 570 acres. The railroad right-of-way now takes approximately fifty acres of land from the section. The sixty-eight acre tract in the southwest quarter of the section held by the Red River Valley Livestock Association was sold to the University in the year 1939-40, at which time the Great Northern Railway Company gave clear title to whole acreage in Section 18 now held by the University.

The West Farm of 297 acres was purchased by the University during the fall of 1937. The farm house and barns on the West Farm have been improved and the land is being used for large field demonstrations and the growing of alfalfa hay and feed crops, thus releasing the large fields on the original Station farm for the increase of foundation seed stocks and experimental fields in which sweet clover and alfalfa are grown in rotation.

Fifty to seventy acres of corn are grown annually to provide ensilage for the dairy and beef herds. The acreage of alfalfa annually used for pasture and hay varies from seventy-five to one hundred acres. Three-year rotation pastures are provided for each of the swine and dairy herds in which alfalfa and meadow fescue in combination are used as pasture crops.

The purebred flock of Shropshire sheep and the purebred herd of Short-horn cattle are pastured annually on sweet clover grown in a four-year rotation. A purebred herd of Holstein cattle of 65 head is maintained to furnish milk and cream to the School and foundation stock for dairy farmers in the district. Twenty-three head of purebred Percheron horses and colts are kept on the farm for farm work. A purebred herd of Poland China swine is used in the Cooperative Swine Breeding projects.

Tractors of the wheel and crawler type are used to supplement the horse labor in plowing and field preparation.

Highway Improvement

The township, county, and state highway departments have cooperated in highway improvement around the Experiment Station. The township and county have, during the years 1938-40, graded highways on the north and east sides of the Experiment Station and

(Continued in Column 3)

SUPERINTENDENTS OF THE EXPERIMENT STATION 1905-1940

(Continued from Page 3, Col. 3)

Northwest School and Station through the depression years and saw the School enrollment climb to the four hundred mark. He served as president of the Red River Valley Livestock and Dairymen's Associations and the Winter Shows Board of Managers. Dr. Dowell, while on leave in 1933-34, did special research for the United States Department of Agriculture in the field of livestock marketing.

Improvement to the physical plant under Dr. Dowell's administration include: a new sheep barn, gymnasium and swimming pool, remodeling of auditorium, library, Stephens and Robertson Halls and Home Economics building.

Dr. Dowell is now a professor in the Department of Agricultural Economics, University Farm, St. Paul.

THOMAS M. McCALL—1937-

T. M. McCall, appointed superintendent in 1937, has been a member of the School and Experiment Station staff since 1911. Superintendent McCall, as horticulturist until 1937, was responsible for landscape plantings on the School and Station grounds and experimental work with potatoes, sugar beets, vegetable and fruit crops. In addition to other duties, Mr. McCall served as field manager at the Station from 1919 to 1926, and acting superintendent during Dr. Dowell's absence in 1933-34.

STAFF MEMBERS REPORT ON PROJECTS

(Continued from Column 1)

Studies are being made of the value of treating fowl for internal parasites and the use of Manganese sulphate as a control for perosis.

A new turkey project consists of a comparative study of Western versus native strain of the Bronze breed.

The first Mammoth incubator in the Northwest was installed at the Station in 1924 with a capacity of 2500 eggs, and an all-electric battery brooder in 1926. Modern equipment added to the Department includes an 8200 egg all electric incubator in 1938, 1,000 chick all-electric battery, new turkey houses and model sunporch shelters, and an addition of eight acres to the poultry range in 1939.

THE NORTHWEST EXPERIMENT STATION TODAY

(Continued from Column 2)

the State Highway Department, through the purchase of additional right-of-way, improved the approach to the main entrance to the School and Station grounds.

Threshermen's Day, July 25

Thursday, July 25, has been set aside as a school for threshermen of the Red River Valley. Professor A. J. Schwantes, chief of the Division of Agricultural Engineering and N. C. Ives, extension specialist in agricultural engineering, are cooperating with the Northwest School and implement dealers in arranging for this school.