

19 ANNUAL 38  
REPORT

EXTENSION DIVISION  
AGRICULTURAL ENGINEERING  
DEPARTMENT  
V.P.I. BLACKSBURG, VA.

ANNUAL REPORT

PROJECT NO. 10

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AGRICULTURAL ENGINEERING DEPARTMENT

EXTENSION DIVISION

VIRGINIA POLYTECHNIC INSTITUTE

.....  
.....

December 1, 1937 to November 30, 1938

Blacksburg, Virginia  
January 13, 1939

Director John R. Hutcheson  
Agricultural Extension Division  
Virginia Polytechnic Institute  
Blacksburg, Virginia

Dear Director Hutcheson:

I am submitting herewith annual report of extension work in agricultural engineering, in accordance with project No. 10, Cooperative Extension Work in Agriculture and Home Economics, Virginia Polytechnic Institute, for the period beginning December 1, 1937 and ending November 30, 1938.

Respectfully submitted,

*Chas. E. Seitz*  
Chas. E. Seitz  
Extension Agricultural Engineer

CES:JRW

ANNUAL REPORT

PROJECT NO. 10

Agricultural Engineering Department  
Extension Division  
Virginia Polytechnic Institute

December 1, 1957 to November 30, 1958

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DEPARTMENT ORGANIZATION

The agricultural engineering department at V.P.I. is organized as three major divisions; namely, Resident Instruction Division, Research Division and Extension Division. The Extension Agricultural Engineer is administrative head of the department and as such is responsible for the supervision and direction of all three divisions of work. Since the resident instruction and research divisions are so closely related to the extension program, the staff personnel of these two divisions is listed in this report along with the extension personnel.

PERSONNEL AND STAFF ASSIGNMENTS:

Extension Division

Chas. E. Seitz, extension agricultural engineer, as administrative head of the department has been responsible for directing the work of all three divisions of the department; namely, extension, resident instruction and research. The time spent in general administrative duties has been more than offset by the time and assistance contributed to the extension program by the resident instruction and research personnel of the department.

In addition to his administrative duties, Mr. Seitz has been responsible for the major extension project in rural electrification and the sub-projects in drainage and irrigation. Considerable of his time for the past year has been devoted to supervising the construction of the new agricultural engineering building which is being constructed as a W.P.A. project. When the building is completed, V.P.I. will have one of the best agricultural engineering buildings in the United States. Mr. Seitz has served as (a member of the State Planning Board) Chairman of the engineering committee on Soil and Water Conservation, collaborator with the Federal Soil Conservation Service, and directed the cooperative soil conservation research program with the Tennessee Valley Authority. *Invent*

Mr. James A. Waller, Jr., associate extension agricultural engineer, is responsible for the extension project in erosion control. He has devoted his full time during the year to this project. Mr. Waller receives three-fourths of his salary from the Soil Conservation Service. He has the title of extension soil conservationist and is the contact or liaison officer between the Extension Division and the Soil Conservation Service. Mr. Waller is now serving as Secretary of the State Soil Conservation Committee.

## Department Organization (Con'd)

Mr. G. D. Kite, assistant extension agricultural engineer, is employed full-time by the Agricultural Extension Division. He has been responsible for the extension project in farm structures. He has also handled the extension work in farm water supply; sewing machine schools; assisted with the drainage and irrigation projects and handled general extension engineering problems for the department.

Mr. E. T. Swink, assistant extension agricultural engineer, is employed half-time by the college and half-time by the Extension Division. All of his extension time is devoted to the extension project in rural electrification. Although the Extension Division pays only one-half of Mr. Swink's salary, he has given considerably more than three-fourths of his time to extension work in rural electrification. He had handled the class in rural electrification for the college and assisted in the laboratory class work in farm power and machinery and directed the graduate fellow in rural electrification research.

Mr. A. G. Foster, extension agricultural engineer, is responsible for the architectural drafting work in the department. Although the college pays two-thirds of his salary, he devotes practically his entire time to the extension farm structures project, handling the actual preparation of farm building plans. Mr. Foster has also assisted in preparing the W.P.A. project proposals for the construction of the agricultural engineering building. He has also assisted in supervising the construction work on the agricultural engineering building.

Mr. W. H. Dickerson, assistant <sup>aggr. engr.</sup> (county agent at large) is employed by the Extension Division on a special allotment from the T.V.A. for runoff and watershed studies and special demonstration in engineering methods of erosion control in the T.V.A. area of Virginia.

Mr. C. Wheary, a former student in agricultural engineering, has been employed since June as an assistant in the drafting department. He is paid on an hourly basis and expects to return to college next session.

Mr. C. F. Wilkinson, Jr. is employed as a student assistant in the drafting office. He is paid on an hourly basis.

### Resident Instruction and Research

Mr. F. B. Potter, associate professor, is employed three-fourths of his time by the agricultural experiment station and one-fourth by the college. He is responsible for the research work in household equipment and resident instruction work in this subject. His contribution to the extension program has been in a consulting capacity to members of the department and other departments on technical phases of their work, and conducting the six-weeks summer course in household electrical equipment. He has handled a number of the radio talks for the department and correspondence related to household equipment. He has also assisted in the supervision of the construction of the agricultural engineering building.

Mr. J. W. Sjogren, assistant professor in agricultural engineering, is employed five-sixths of his time by the college and one-sixth by the Agricultural Experiment Station. He is responsible for the resident instruction and research work in farm power and machinery and related subjects. He has assisted with the extension program to the extent of answering correspondence relating to his speciality, preparing radio talks, and consulting advice.

Mr. J. H. Lillard, Jr., assistant agricultural engineer of the Agricultural Experiment Station, devotes his full time to the research program in Soil and Water Conservation being conducted with Bankhead-Jones Act funds. This research work is fundamental to our extension project in erosion control. The results of this work will give us basic data to use in our extension work. Mr. Lillard has assisted in the extension program in preparing radio talks and answering correspondence in relation to his work.

Mr. H. T. Rogers, soils technologist of the Agricultural Experiment Station, is assisting Mr. Lillard in the soils analysis work connected with the soil and water conservation research project. He has given several radio talks for the Extension Division.

Mr. R. E. Brown, assistant agricultural engineer, was assigned to the Department by the Soil Conservation Service to assist with the cooperative research work in Soil and Water Conservation. He started work in March when the cooperative agreement went into effect.

Mr. D. W. Cardwell, hydraulic engineer, was also assigned to the Department beginning last March by the Soil Conservation Service to assist with the research work in Soil and Water Conservation being conducted here at the college. Mr. Cardwell devotes about 1/4 of his time to the work here at this station and the balance of his time to the hydrological studies being conducted by the S.C.S. in the Danville, Virginia area and the Americus, Georgia areas.

Miss Nell Webb, department secretary, is employed by the college but handles all the extension correspondence. The stenographic work of the department has grown too heavy for one person to handle. (Since September we have had a half-time worker assisting Miss Webb with her work. Miss Katherine Brooks, who is taking college work in Home Economics, has been handling the part-time work for us. She does stenographic work primarily for the research men of the department. It is just a question of a short time, however, before we will require the full time of a second stenographer.

Mr. Melville Price, janitor mechanic, is employed by the college and Experiment Station. In addition to his janitor duties, he assists with general mechanical equipment maintenance.

*(to him)*  
Mr. M. E. Blessing, a graduate in agricultural engineering at Iowa State College, has a teaching fellowship in the department. He is assisting with the Soil and Water Conservation classes.

Mr. R. E. McKnight, a graduate in agricultural engineering at the University of Tennessee, has a combined teaching and research fellowship. He is assisting with the surveying classes and doing research work in Soil and Water Conservation.

Miss Evelyn Neale, a graduate in Home Economics at William and Mary College and for several years Dietician at the Retreat Hospital in Richmond, has a research fellowship. She is doing research work in Household Equipment.

Mr. E. V. Wahlgren, a graduate in agricultural engineering at Rutgers University, has a teaching fellowship and is assisting with the farm power and machinery classes. He is doing research in machinery for his Master thesis.

Mr. C. M. Jones is employed on an hourly basis as field assistant in the Soil and Water Conservation Research project.

Mr. W. N. Linkous is employed on an hourly basis as field assistant in the Soil and Water Conservation Research project.

Mr. M. B. Rainey, an agricultural engineering student, is employed as a student assistant in the Soil and Water Conservation Research project.

PLAN OF WORK - LONG TIME PROGRAM

The long time program of extension in agricultural engineering contemplates work in all phases of agricultural engineering.

The main projects in agricultural engineering are classified as follows:

- 10 A - Soil and Water Conservation
  - A-1 - Erosion Control
  - A-2 - Land Drainage
  - A-3 - Irrigation
  - A-4 - Land Clearing
- 10 B - Rural Architecture
  - B-1 - Farm Structures
  - B-2 - Farmstead Planning
  - B-3 - Rural Community Plans - *Miscellaneous*
- 10 C - Rural Electrification
  - C-1 - Rural Line Extensions
  - C-2 - Farm Water Power
  - C-3 - Individual Light Plants
- 10 D - Household Engineering
  - D-1 - Farm Water Supply
  - D-2 - Farm Home Equipment
  - D-3 - Farm Sanitation
- 10 E - Farm Operating Equipment
  - E-1 - Farm Implements
  - E-2 - Gas Engines and Tractors

PLAN OF WORK FOR 1938

In the plan of work for 1938<sup>9</sup> major emphasis was placed on the following three projects:

1. Rural Electrification
2. Soil Erosion Control
3. Farm Structures



The following are the principal factors which determine the inclusion of these projects for major emphasis in the year's program:

Soil Erosion Control: - Soil erosion is a major problem in a large section of the state. It is the most serious of any agricultural problem in the Southern Piedmont section. The present Federal Administration has recognized the seriousness of the erosion problem and is aggressively pushing an erosion control program in the state with four established soil erosion areas and thirteen CCC camps doing erosion control work under the direction of the Soil Conservation Service. The TVA is also aggressively supporting an erosion control program. This has been a major project in agricultural engineering for years and with all the Federal aid now available this project has received greater emphasis than ever before. Terracing as an aid in erosion control on cultivated slopes has been proven the most practical first step in erosion control and emphasis has been placed on this method.

Farm Structures:- Buildings on farms constitute about one-third the value of all farm property. This project has been developed over a long period of years and the value of the work done under the project amounts to millions of dollars. Through properly designed and constructed buildings on farms by the use of the department's plan service the farmers are able to save thousands of dollars annually in building costs and secure the most efficient and economical type of structures. There is a greatly increased interest in better rural homes and the department has been preparing more farm house plans to meet the demand for simple, inexpensive but well designed farm homes. The service rendered under this project is of untold social and economic value to the farmers of the state.

Rural Electrification: This has been a major extension project of the department for a number of years. The creation of the TVA and the Rural Electrification Administration has greatly stimulated interest of farmers in electric service. All this has resulted in greater demands than ever before from farmers for information and assistance in this field. Rural electrification offers greater possibilities for the improvement of rural life and standards of living than any one thing that could be done for the farmer. The emphasis placed on this project has been well justified by the progress made during the year.

WORK ACCOMPLISHED - 1938

10-A Soil and Water Conservation  
A-1 Erosion Control

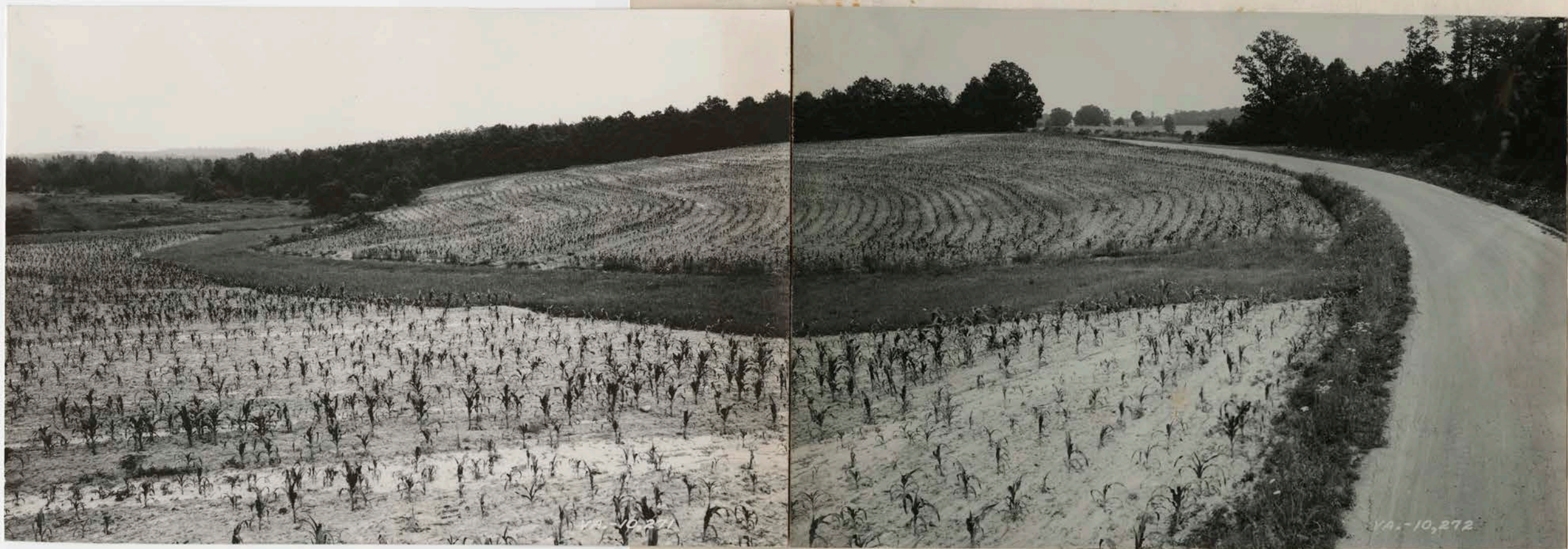
The Virginia Agricultural Extension Service still recognizes Soil Erosion Control as a major problem in the greater portion of this State. Evidences of the tremendous need for accelerated action are always apparent. Faster and faster Virginia farmers are growing in erosion consciousness, largely through the various fronts this problem is being attacked by the different state and federal agencies.

The Agricultural Extension Service has been actively interested in this problem for more than thirty years by recommending definite agronomic and engineering practices. In more recent years by increased interest and activity in the study of soil types, soil binding plants, cultural methods and mechanical structures. Also, by organizing local or county soil conservation associations and supplying trained agricultural engineers to take active charge of the high powered terracing equipment, these associations purchased. Still more recently the Agricultural Extension Service, cooperating with the Soil Conservation Service, has extended soil erosion control work to special demonstration farms outside of SCS demonstration areas and SCS camp areas. These farms are in Albemarle, Amherst, Caroline, Charlotte, Greene, Madison and Rockingham Counties. There are a total of 51 such individual demonstration farms. The cooperating farmers are much pleased with the benefits they have received. They must be members of the county soil conservation association. Agreements with this special group are about the same as with farmers in project and camp areas. They get an individual soils map and a land-use map which are very valuable to them. Beside these, soils men and agronomists, technical men on engineering, forestry and wild life are available.

Beginning with July the new State Soil Conservation Districts' law became operative. The Agricultural Extension Service and the Soil Conservation Service are cooperating in establishing districts in different sections of the State at this time. In the future, it appears that all soil erosion control work will be done through duly constituted soil conservation districts which are legal governmental sub-divisions of the state. A copy of a radio talk describing the establishment of soil conservation districts in Virginia is included in the Exhibit Section of this report.

Soil Conservation demonstration areas are in Albemarle, Appomattox, Pittsylvania, and Rockingham Counties. ECW labor is available for the Appomattox and the Pittsylvania areas, while local labor is used at the Albemarle and Rockingham areas.





Farm of J. A. Hylton near Gladys, Virginia, showing terraces with row crops and contour tillage. Terraces empty into meadow strip. The terraces and meadow strip were constructed by the Campbell Terracing outfit.

10-A Soil and Water Conservation (Con'd)  
A-1 Erosion Control

ECW camps are located as follows: No. 1 - Chatham (Pittsylvania County); No. 3 - Rocky Mount (Franklin County); No. 4 - Ridgeway (Henry County); No. 6 - Clover (Halifax County); No. 7 - South Hill (Mecklenburg County); No. 9 - Lynchburg (Bedford County); No. 10 - Appomattox (Appomattox County); No. 11 - Berea (Stafford County); No. 13 - Crewe (Nottoway County); No. 14 - Danville (Pittsylvania County).

Close cooperation is maintained with these camps and areas through the Extension Soil Conservationist. The camps and the local associations are mutually helpful. The camps need terrace outlets as an outlet for their camp labor and the local associations can get more terracing to do when free camp labor is available.

Organization

The number of counties being organized for soil conservation activities is the same as last year except in connection with the new soil conservation districts act. In addition to the following table showing the work accomplished by the nine county terracing associations, several thousand feet of terraces were constructed by the old Halifax unit working in Buckingham County. Also, many farmers have built their own terraces after having them laid out by the assistant county agent in soil conservation or by the camp engineer. There is no record of these. All organization work is handled by the Extension Soil Conservationist.

Special Cooperative Extension-SCS Work Outside of Project and Camp Areas

Perhaps the newly enacted Soil Conservation Districts Law will mean that no more work similar to the special cooperative demonstration work in Albemarle, Amherst, Caroline, Charlotte, Greene, Madison and Rockingham Counties will be done. A few other counties are organized but as they are in proposed districts, likely further action will be postponed until the question of the establishment of a district is decided.

Charlotte County pioneered this type of work three years ago with eighteen such farms. The success of the plan in this county resulted in its spread to six other counties. But for limited personnel, it, no doubt, would have spread much faster. Statistical report showing results of this project is attached.

Work Accomplished by County Terracing Associations

Due to lack of local interest and excessive cost of parts and repairs, terracing in Dinwiddie County with a large unit was discontinued last December. The Farm Security Administration took it over. The CCC soil conservation camp which made every effort to cooperate with the county terracing association, was moved out last December. The remaining nine associations reported a total of 2,584,948 feet of terraces constructed which will protect 7,200 acres of land. They worked on 662 different farms at a cost of approximately \$2.65 per acre. The Federal Extension Service



- █ Organized counties having ECW Camps but no terracing unit.
  - █ Organized counties having terracing units but no ECW Camps.
  - █ Organized counties having ECW Camps and terracing units.
- Albemarle, Appomattox, Pittsylvania and Rockingham Counties have demonstration areas.  
 Only Appomattox and Pittsylvania Counties have ECW camps in these areas.

10-A Soil and Water Conservation (Con'd)  
A-1 Erosion Control

estimates an increased valuation of about \$9.50 per acre due to terracing. Therefore, the 7,260 acres of land terraced in 1936 represents an enhanced land value of \$61,710.00. Because of better weather conditions last winter and early spring and also because of a more general demand for the services of these machines, considerable improvement was shown over 1937. Thirty-five more farmers were served. An increase of 639,582 feet of terraces was shown and 2,049 additional acres were protected. Besides terracing, 128 miles of road grading was done and 15,575 cu. ft. of earth was moved. 1,321 hours of miscellaneous work was done, consisting of tree and stump pulling, stream channel clearing, gully bank grading, ripping and disking for seed bed, sub-soiling, ditching, building diversion ditches and vegetative terrace outlet channels, straightening streams, yard grading and fence row clearing.

In October the Albemarle Association paid all its indebtedness to the Baltimore Bank for Cooperatives. It now stands clear and the Extension Service and Soil Conservation Service have withdrawn financial support. The former assistant county agent is now acting in the capacity of manager for the association on a basis of two-thirds of the net earnings. So far he has made more money than formerly. This association had an initial equipment outlay of \$5,000.00; a sub-soiler and disc harrow in addition to the tractor and terracer. The Prince Edward outfit has nearly paid its way out. Next spring this should be completed. Campbell County is contemplating the purchase of a new outfit under a new refinancing scheme which should be to its advantage. The County Board of Supervisors is most cooperative in this county. The Brunswick, Halifax, Nottoway and Pittsylvania Associations are in very good financial condition. The Charlotte Association is in fair condition and the Mecklenburg Association in poor financial shape. Financial support from the Soil Conservation Service will be withdrawn February 28. The Extension Service will perhaps continue until July 1. By that time it is hoped that additional associations can be made self-supporting. The attached analysis of operations, receipt and expenditure, and summary will give more detailed accounts.

Tours to Hamister River Soil Conservation Demonstration Area

During July, five organized tours were conducted over the Chatham S.C.S. area and Agricultural Experiment Station.

July 1 - Pittsylvania County.....	54 farmers
July 8 - Halifax & Mecklenburg Counties .....	91 farmers
July 14- Henry, Franklin & Patrick Counties .....	64 farmers
July 15- Brunswick, Lunenburg & Dinwiddie Counties....	64 farmers
July 22- Charlotte, Campbell & Nottoway Counties .....	27 farmers
Total .....	300 farmers

Considerable time and effort were put on these tours. Now that the Federal Government has a considerable investment in this area, it is very much desired to attract as many farmers and others there to see, learn and apply the accepted practices of soil erosion control. These are the dividends the Government expects. While an attendance of 300 was very creditable, much better results will be sought next year.

RECEIPT AND EXPENDITURES

Virginia Terracing Associations

Year Ending November 30, 1938

County	Income			Expense									
	Terracing	Other	Wages	Fuel	Lub.	T. & M.	Depre.	Ins. & So. Sec.	Misc.	Int.	Payments on Prin.		
Albemarle	104.00	4945.00	1383.00	206.75	126.90	545.89	886.44	25.79	174.68	30.09	2349.87		
Brunswick	2616.62	63.04	954.50	99.14	96.86	214.63	594.00		92.10	47.90	787.00		
Campbell	1279.00	1908.75	1427.89	146.48	133.14	1119.19	786.44	99.99	42.23		709.00		
Charlotte	1793.75	1226.75	1147.50	136.37	99.06	855.86	766.30	19.91	153.72	105.58	779.00		
Halifax	3437.59	365.14	1424.13	216.12	142.75	608.57	795.39	112.44	156.84	33.77	1672.70		
Mecklenburg	1920.63	561.75	1012.20	147.29	135.73	785.10	756.00	57.03	172.11	100.58	350.00		
Nettoway	3300.75	875.75	1277.00	231.97	293.13	921.02	657.00	37.07	98.68	57.53	1338.70		
Pittsylvania	2665.10	1585.94	1467.60	170.59	152.21	566.86	780.75	14.29	270.23	42.71	1680.75		
Prince Edward	1376.40	1016.31	1137.25	113.20	95.94	303.73	756.00	52.06	62.44	25.98	703.65		
Total	16656.04	12543.43	11231.12	1436.66	1277.54	4329.60	6758.81	396.61	1042.08	494.14	10220.87		

179375  
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238752



ANALYSIS OF OPERATIONS

Virginia Terracing Associations

Year Ending November 30, 1986

County	Terracing							Other Services			
	Number of Farms	Foot of Terrace	Acres Protected	Cost per Acre	Road Grading		Earth Moving	Other			
					Hours	Miles		Hours	Sq. Yds.		
Albemarle	52	11800	32	3.25	157	8.5	823.5	8553	668		
Brunswick	73	292311	1232	1.96	27.5	11.6					
Campbell	83	231300	506	2.31	226	13.1	94	1850	8		
Charlotte	132	289280	1069.5	1.65	262.5	28	34	2174	74		
Halifax	72	485217	1231	2.85	40	7	29		3		
Mecklenburg	39	247250	484	3.36	70.5	9.75			80		
Northway	91	493400	1289	2.61	219	21.3	103	980			
Pittsylvania	85	372140	650	3.38					460		
Prince Edward	55	161760	567	2.49	126.75	29.10	114.5	2035	28		
Total	662	2584946	7260	2.65	1131	123	1198	15575	1321		

10-A Soil and Water Conservation (Con'd)  
A-1 Erosion Control

County Terracing Associations

The following are the county terracing associations that are in operation at this time:

Albemarle Terracing Association, Inc., Charlottesville, Va. - McNeil Marshall, Assistant County Agent in Soil Conservation (Self-supporting since October 1, 1938) *and operating without asst. Co. agt. in Soil Conservation*

Brunswick Terracing Association, Inc., Lawrenceville, Va. - W. P. Martin Asst. County Agent in Soil Conservation

Campbell Terracing Association, Inc., Rustburg, Va. - C. L. Tume, Asst. County Agent in Soil Conservation

Charlotte Terracing Association, Inc., Charlotte, Va. - P. A. Robinson, Asst. County Agent in Soil Conservation *operating without since July 1, 1939*

Dinwiddie Terracing Association, Inc., Dinwiddie, Va. (Discontinued work December 1937)

Halifax Terracing Association, Inc., Halifax, Va. - H. E. Linkous, Asst. County Agent in Soil Conservation (Resigned Nov. 1. Place not filled) *operating without since Nov. 1, 1938*

Hocklenburg Terracing Association, Inc., Boydton, Va. - R. C. Hines, Asst. County Agent in Soil Conservation

Nottoway Terracing Association, Inc., Blackstone, Va. - J. C. Rosenberger, Asst. County Agent in Soil Conservation *operating without since June 15, 1939*

Pittsylvania Terracing Association, Inc., Chatham, Va. - T. H. Jackson, Asst. County Agent in Soil Conservation

Prince Edward Terracing Association, Inc., Farmville, Va. - T. L. Tyler, Asst. County Agent in Soil Conservation *operating without since March 1, 1939*

Miscellaneous Activities of Soil Conservation Specialist

Mr. J. A. Waller made two irrigation system surveys and three water power project surveys and laid out approximately 1500 feet of terraces during the year.

Outlook

Considering first the work done by the county terracing units, it is believed that each year the demand for terracing, farm road construction and miscellaneous farm jobs will continue to grow. 1938 has been a good year. If it is possible to keep heavy repair costs down, several additional county units will about pay their way out next year, assuming weather conditions are normal. Perhaps the organization of soil conservation districts which include counties where terracing machines are operating will be of considerable help. It is hoped that outside financial help will not be withdrawn too abruptly.



Farm of J. T. Walker near Blackstone, Virginia, showing before and after views of the same field. First view shows newly constructed terraces with old crop rows running up and down hill. Second view shows the terraces worked one season and the field in meadow. Terraces were built by Nottoway Terracing outfit.

10-A Soil and Water Conservation (Con'd)  
A-1 Erosion Control

At this time it is not known just what effect the establishment of soil conservation districts will have on the expansion of the special Extension SCS cooperative demonstration farm program. Likely in counties included in districts this work will be absorbed and in other counties continued. It is popular with the present cooperators. Reports on these farms are required of the Extension Soil Conservationist annually.

The outlook for the success of the soil conservation districts is good. The Tidewater District was voted in by 96% of all voters. It is expected that the Thomas Jefferson district will be approved by the landowners in these counties by about the same vote. Beginning early in January, this work will be accelerated to complete the organization of perhaps five additional districts in 1939. Eventually, most of the agricultural counties will be included in soil conservation districts. It is not desirable to organize more districts than there is personnel for.

The Extension Soil Conservationist is secretary to the State Soil Conservation Committee and will visit all demonstration and camp areas, all individual Extension-SCS demonstration farms, all county terracing associations and do field and secretarial work for the State Soil Conservation Committee in 1939.

The following tabulation is a summary of the extension work in soil conservation for the year ending November 30, 1938:

Days in field .....	161
Days in office .....	122
Different agents visited .....	36
Different counties visited .....	38
Number visits to counties .....	151
Number visits to agents .....	111
Meetings held .....	43
Attendance .....	1455
Letters written .....	724
Bulletins sent out .....	92
Radio talks .....	2
Surveys made .....	23
Miled traveled .....	23121



Making back cut on terrace



Finishing up terrace channel



Finished terrace



Greasing machinery at start



First cuts on terrace



Building terrace channel



Meadow strip showing side ditches for  
protection until established



Terrace outlet - rock lined



Sodded terrace



Diversion ditches protecting meadow strip





Sub-soiling is popular in some sections



Grading makes up a good part of the demand



Leveling ridges and ditch



Stream channel cleaning



Building farm roads



Last cut on terrace channel



Finishing up terrace channel



Terrace nearly completed

10-A Soil and Water Conservation (Con'd)  
A-2 Land Drainage

A-2 Land Drainage

Due to a moderate rainfall throughout the past growing season, requests received for assistance on farm drainage were very few. Assistance was requested on the drainage of two large areas and seventeen smaller areas, two to fifteen acres, and sink holes. Four of these requests were handled by J. A. Waller, Jr. and fifteen by G. D. Kite.

In the spring Mr. H. E. Yoder, Denbigh, Virginia, used his ditching machine to lay tile on a seventy-five acre field on his farm. The survey for this field was made in the fall of 1937.

Outlook

Recently five requests for assistance on drainage of areas totalling approximately 300 acres have been received. These requests will be attended to after January 1. Additional requests will depend largely on the amount of rainfall next year.



A homemade stump pulling outfit for removing the stumps prior to drainage operations on the Yoder farm, Denbigh, Virginia

10-B RURAL ARCHITECTURE  
B-1 Farm Structures

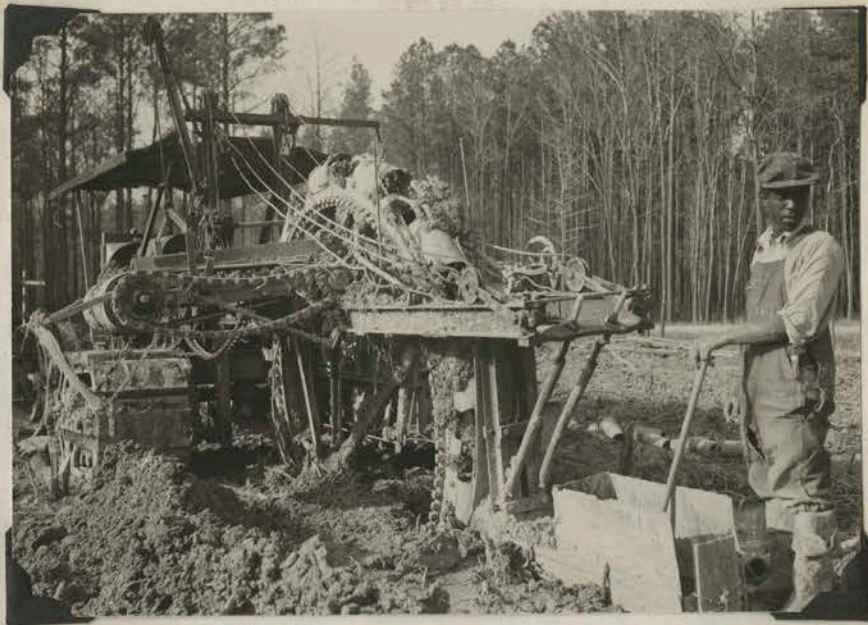
Virginia farmers increased the value of their farm buildings in excess of one million dollars this year by erecting new buildings and remodeling old buildings. This estimation is based on the fact that 2900 plans for farm buildings were furnished to the farmers in ninety-four counties. This number of plans is an increase of twenty percent of the number furnished in 1937.

The farm building specialist made 198 visits to farms in forty-three counties to assist the farmers with their building programs. Such assistance included recommending the most desirable location for the proposed buildings, explaining the building plans and recommending the kind of materials to be used. The assistance of the specialist was requested on the construction of dairy barns, milk houses, horse barns, cattle barns, general purpose barns, storage houses, poultry houses, public recreation buildings, county agricultural office buildings and remodeling dwelling houses. More assistance was given on the construction of dairy barns and milk houses than any other type of farm building. This was because of the state and city regulations on dairy barns for the production of grade "A" milk. Nine-hundred and thirty-four plans for dairy barns and milk houses were furnished.

More dairy barns were built in Rockingham County this year than in any other county in the State. This large amount of building was the result of a program sponsored by the Valley of Virginia Cooperative Milk Producers' Association for a better quality of milk. The farm building specialist assisted in some way with the construction of every barn that was built or remodeled in this program.

The association with approximately 500 farmers selling milk had only a comparatively few farmers who were equipped to produce grade "A" milk. Anticipating the possibility of supplying grade "A" milk to other markets, the cooperative association sponsored this program to get more farmers in a position to produce grade "A" milk. As an incentive to improve the quality of milk the farmers were offered an increase of \$0.40 per 100 pounds of milk.

Much educational work was required to familiarize the interested farmers with the type of barn and milk house and the other conditions that were required for the production of grade "A" milk. During the summer and fall, approximately forty farms were visited in this one county, several being visited two and three times to work out plans for remodeling the old barns, selecting the locations for new barns and milk houses, explaining the building plans and the structural details and laying out the barn floors. While doing this work, the specialist was accompanied by W. T. Wood, Dairy Inspector, Dairy and Food Division, and Mr. Holmes Dice, field representative for the Association. Considering the many problems in such a program in



The ditch digging machine in operation on the Yoder farm.



Digging the ditch and laying the tile for drainage in one operation on the Yoder farm.



The completed job. Note the flow of the water through tile.

10-B Rural Architecture (Con'd)  
B-1 Farm Structures

this county, particularly, it was necessary for the specialist and the dairy inspector to work together and the cooperation was excellent.

This program was started in May. By the end of the year eleven two-row barns having from fourteen to thirty stalls and three sheds having an average of ten stalls each were built and eleven old barns remodeled for ten stalls, each to meet the requirements for the production of grade "A" milk. The results obtained from this program so far are very gratifying to all concerned. The sponsors expect to continue this program in 1939 and 1940.

Close cooperation was maintained with the three Dairy and Food Division Milk Inspectors, the Richmond and Washington Health Department Inspectors and the Virginia field man for the Maryland-Virginia Milk Producers' Association. This department furnishes dairy barn and milk house plans to those organizations upon request.

The large number of poultry house plans furnished to farmers seems to indicate that the number of poultrymen are increasing or that they are providing better houses for their birds. One thousand and six poultry house plans were furnished this year.

Assistance was given on the construction and insulation details for four apple cold storage houses in Smyth, Albemarle, Carroll and Madison Counties. Special plans and assistance were furnished for recreation buildings in Carroll and Roanoke Counties. Some visits were made to give recommendations for repairing dwellings to prevent the entrance of termites.

The following are quotations from farmers' letters to this department:

"Let me thank you very much indeed for five batches of plans of barns and other farm buildings received today from your office. These plans appear to be very well arranged and suitable for my use, and I am sure they should help me immensely in laying out my farm." Signed - S. W. Britton.

"This barn had five box stalls on either side, with a lane in the center, and has been very much admired and copied by many friends in that section." Signed - M. K. Kendrick.

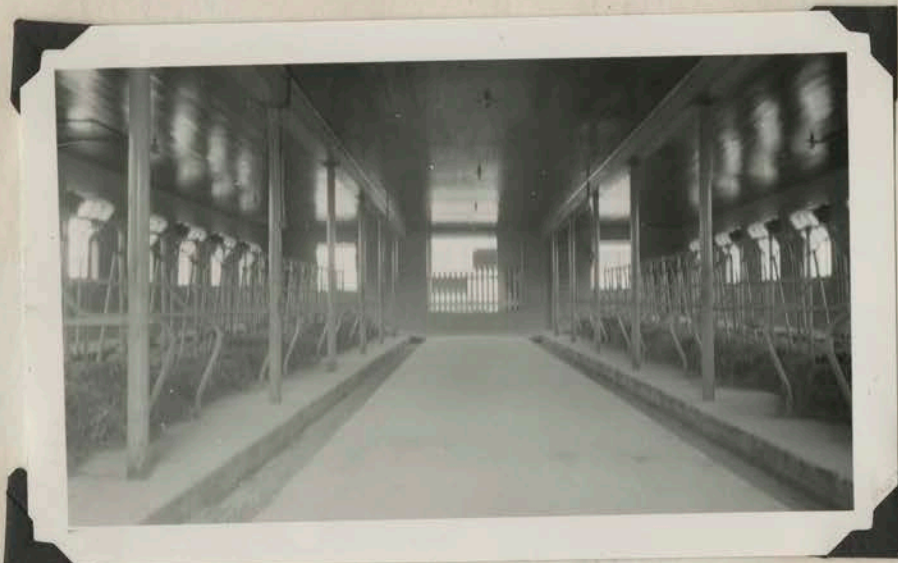
Farm Building Plan Service

The rural architectural service maintained by this department supplies the farmers and rural agencies with building plans that they need, for the construction of rural and farm buildings. An architect who is assisted by a draftsman and student draftsmen is in charge of the files and supervises the drawing of plans. About four hundred standard plans for farm buildings, forty plans for farm houses, and three hundred special plans which have been prepared over a period of years are on file in the office. Any of these plans are available to farmers and rural agencies in the State without cost.





An attractive barn with  
solid concrete walls,  
Norfolk area.



An inside view of a  
modern dairy barn.  
Note the reflection of  
the sunlight on the  
varnished ceiling.

A conveniently arranged  
sheep and cattle barn in  
Wythe County.



10-B Rural Architecture (Con'd)  
B-1 Farm Structures

During the year there were 2,500 plans sent out to farmers in ninety-four counties. Eighty-eight special plans were prepared. These included plans for rural recreation centers, county agent offices, remodeling of community churches and social centers, homes, and miscellaneous farm buildings. There were eleven new standard plans and thirty plans revised and retraced. A great deal of drafting assistance and blue print work was given to practically every department in the extension.

This rural architectural service has saved the rural people of the state a great deal of money each year. Where there is no local architect to turn to for advice, which is the case in the majority of communities, this department offers the services an architect would perform.

The following is a list of new plans, revised and retraced plans, and special plans worked up by this department during the past year:

New Plans in File

	<u>Prepared by</u>
B-5.24 Portable dairy	R.C.H.
N-6.33 Hay rack	K.R.C.
N-6.34 Flat bottom hay rack	K.R.C.
C-5.17 Cattle guard	C.F.W.
N-6.13 Farm gates	A.G.F.
J-1.18 20' x 40' corn crib	A.G.F.
F-2.12 Homemade electric brooder	A.G.F.
N-5.14 Garage	C.D.W.
H-5.15 Outdoor fireplace	C.F.W.
S-11-38-2 Dairy test barn	C.F.W.
A-7118 Log farm house	C.F.W.

New U.S.D.A. Plans in File

B-1.29 U.S.D.A. - 5119 - Barn framing details, $1\frac{1}{2}$ story gable roof
B-4.54 U.S.D.A. - 5170 - Barn window details
B-4.56 U.S.D.A. - 5172 - Gothic roof details
B-4.57 U.S.D.A. - 5097 - Shaver truss details
D-5.10 U.S.D.A. - 5175 - Horse stall details
G-2.14 U.S.D.A. - 5273 - Straw loft farrowing house
H-1.28 U.S.D.A. - 5187 - General barn
H-1.30 U.S.D.A. - 5138 - Isolation barn
J-1.28 U.S.D.A. - 5139 - Corn crib (300 bushel)
J-3.20 U.S.D.A. - 5413 - Farm potato storage house
J-3.21 U.S.D.A. - 5182 - Potato cellar
K-3.10 U.S.D.A. - 5146 - Farm shop
N-4.16 U.S.D.A. - 5187 - Summer camp
N-4.30 U.S.D.A. - 5198 - Incinerator
N-7.10 U.S.D.A. - 5189 - Sash greenhouse

10-B Rural Architecture (Con'd)  
B-1 Farm Structures

Plans Revised and Retraced

Prepared by

B-1.24	Virginia standard masonry dairy barn	C.F.W.
B-1.13	Six-cow barn	J.H.E.
B-4.12	Bull pen	K.R.C.
B-1.16	Dairy barn	K.R.C.
B-4.13	Double unit bull pen	C.F.W.
B-1.15	Dairy barn	A.G.F.
B-1.17	Dairy barn	C.D.W.
B-1.21	Dairy barn	C.F.W.
B-1.54	Ten-cow dairy barn	A.G.F.
B-1.11	Two-cow dairy barn	C.F.W.
B-1.12	Four-cow dairy barn	C.F.W.
B-3.16	Standard milk house	A.G.F.
B-1.14	Eight-cow dairy barn	C.F.W.
B-1.18A	Dairy barn	C.D.W.
B-1.20	Twenty-cow dairy barn	C.D.W.
B-1.21	Thirty-cow dairy barn	C.F.W.
F-2.16	Specifications for poultry house	A.G.F.
F-1.15	Poultry house	C.D.W.
F-1.16	500-bird poultry house	C.D.W.
G-1.11	Hog house	C.F.W.
H-1.19	Bill of materials for general purpose barn	C.F.W.
H-1.14	General purpose barn	C.F.W.
H-1.12	General purpose barn	C.F.W.
H-1.18	General purpose barn	C.F.W.
H-1.14	General purpose barn	C.D.W.
J-2.32	Apple packing house	C.D.W.
M-3.51	4-H bunk house	C.F.W.
M-3.12	Community center	C.F.W.
M-3.15	Community club house	C.F.W.
M-3.54	Community house	C.F.W.

Special Plans

Office plan (J. E. Stone, Chatham, Va.)	J.H.E. & A.G.F.
Office plan (W. O. Strong, Accomac, Va.)	R.C.H. & A.G.F.
Feed manger (Dr. Pratt, Blacksburg, Va.)	T.G.D.
Rural electrification map (E. T. Swink)	R.C.H. & J.H.E.
Charts for annual report	R.C.H.
Annual report covers	R.C.H. & A.G.F.
Log house (Mrs. Miller, Charlottesville, Va.)	A.G.F.
Office floor plan (Charlotte Court House, Va.)	R.C.H. & A.G.F.
Cattle barn - 30' x 100'	R.C.H.
Office plan (T. T. Curtis, Orange, Va.)	R.C.H. & A.G.F.
Suggested photo file (Office files)	R.C.H.
Log cabin (Mrs. Miller, Charlottesville, Va.)	J.H.E.
Community center	G.W.H. & A.G.F.
Three-horse evener (J. W. Sjogren)	R.C.H.
Combination auditorium & office (Warsaw, Va.)	G.W.H.
County agricultural building (Cowington, Va.)	A.G.F.

10-B Rural Architecture (Con'd)  
B-1 Farm Structures

Special Plans (Con'd)

Prepared by

Clinic building (Chesterfield, Va.)	A.G.F.
Office and recreation hall	G.W.H.
Drawing of sweet potato units (E. T. Swink)	A.G.F.
Sketches for office (Rixey Jones, Chesterfield, Va.)	A.G.F.
Dairy house (K. G. Palmore, Blackstone, Va.)	R.C.H.
Sketch of general purpose barn (R. C. Hines)	R.C.H.
Three-story poultry house and grain storage (L. Moore)	A.G.F.
Residence remodeled	A.G.F.
Remodeled home (B. D. Miller, Free Union, Va.)	A.G.F.
Drainage map (Mr. Burkholder, Denbigh, Va.)	A.G.F.
Cow stanchion (Dairy Dept., V.P.I.)	A.G.F.
General purpose barn with 21' x 30' calf pen & driveway	C.F.W.
General purpose barn (Mr. Dickinson, Woodstock, Va.)	C.F.W. & J.H.E.
Remodeling farm house (W. E. Parks, Broadway, Va.)	A.G.F.
Recreation club house (Carroll County)	A.G.F.
Remodeling dairy barn (V.P.I.)	A.G.F.
Remodeling feed barn (V.P.I.)	A.G.F.
Storage house (Cinder block and brick)	A.G.F.
Addition to Norge Service Center	A.G.F.
Cold storage plant (H. L. Bonham, Chilhowie, Va.)	A.G.F.
Rural community center	A.G.F.
Refreshment stand (Rixey Jones, Chesterfield, Va.)	A.G.F.
Grandstand (Rixey Jones, Chesterfield, Va.)	A.G.F.
Revised electric brooder plan (A. E. P. Company)	A.G.F.
Plan of dairy barn - 24 cow	C.F.W.
Plan of dairy barn - 10 cow	C.F.W.
Sketch of remodeled Besley Home, Burke, Va.	A.G.F.
Caretaker's house (Wild Life Dept., Mt. Lake)	A.G.F.
Plan of 28' x 48' barn and bill of materials	C.F.W.
Window details for Dr. C. F. Davis, Lexington, Va.	C.F.W.
Drawing of milk house (T. E. Jamerson)	C.F.W.
Sketch for County Agent Office	A.G.F.
Spring house (T. T. Curtis, Orange, Va.)	A.G.F.
Remodeled house (Mrs. Tom Williams, Flecton, Va.)	A.G.F.
Remodeled farm home (W. B. Coggins)	A.G.F.
Three drawings for lecture use in Dairy Dept.	A.G.F.
Lettered charts (E. T. Swink)	A.G.F. & C.D.W.
Plans for cinder block home (Office Files)	A.G.F.
Plans for rose plots (A. G. Smith, Horticulture Dept.)	C.D.W.
Plans for general purpose barn	C.D.W.
Farm fence	C.F.W.
Extension office building (King William County)	A.G.F.
Farm residence	A.G.F.
Dairy barn - 12 cow	C.F.W.
General purpose barn	G.D.K.
General purpose barn - 36' x 80'	A.G.F.
Dairy test barn - 32' x 68'	C.F.W.
Woman's club house (Charlotte Court House, Va.)	A.G.F.

10-B Rural Architecture (Con'd)  
B-1 Farm Structures

Plans Sent out by the Department According to Divisions

Farm house plans . . . . .	55
Dairy barns and equipment . . . . .	934
Beef cattle barns and equipment . . . . .	95
Horse barns and equipment . . . . .	25
Sheep barns and equipment . . . . .	12
Poultry houses and equipment . . . . .	1006
Hog houses and equipment . . . . .	206
General purpose barns . . . . .	93
Storage buildings and equipment . . . . .	120
Machine sheds and shop buildings . . . . .	23
Tobacco barns and equipment . . . . .	9
Public and camp buildings and equipment. . . . .	97
Special plans . . . . .	88
Miscellaneous buildings and equipment . . . . .	139
Total.....	2900

Outlook:

The building program on Virginia farms for 1939 is expected to continue on or exceed the high level it reached in 1938. The value of farm crops may drop slightly but not enough to affect the farmers' building programs. There are several government agencies that have cheap money to loan to farmers for building new buildings and repairing the old buildings. Most of the local banks are in a position to aid reliable farmers in their building programs.

Considering the large amount of surplus grade "A" milk in the milk producing areas, the construction of dairy barns in these areas is expected to be less active in 1939 than in 1938. The construction of other farm buildings is expected to be very active, especially fruit storage houses, poultry houses and recreation buildings.

A considerable amount of educational work is needed on repairing dwellings, both farm and city, to prevent further damage by termites.

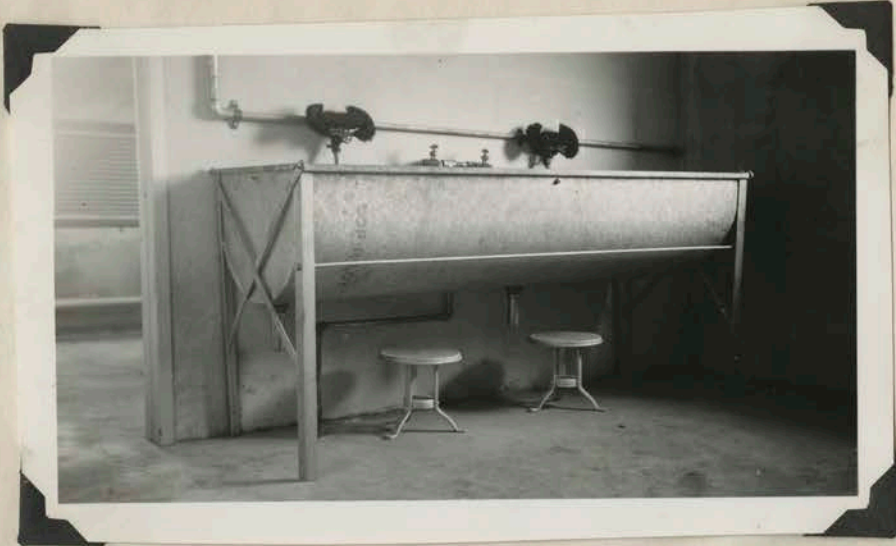


This combination apple packing and common storage house was built by the Warrick Orchard, Crozet, Virginia.

This 30,000 bushel apple cold storage house was built by Graves Bros., Syria, Madison County. Note compressor house in foreground.

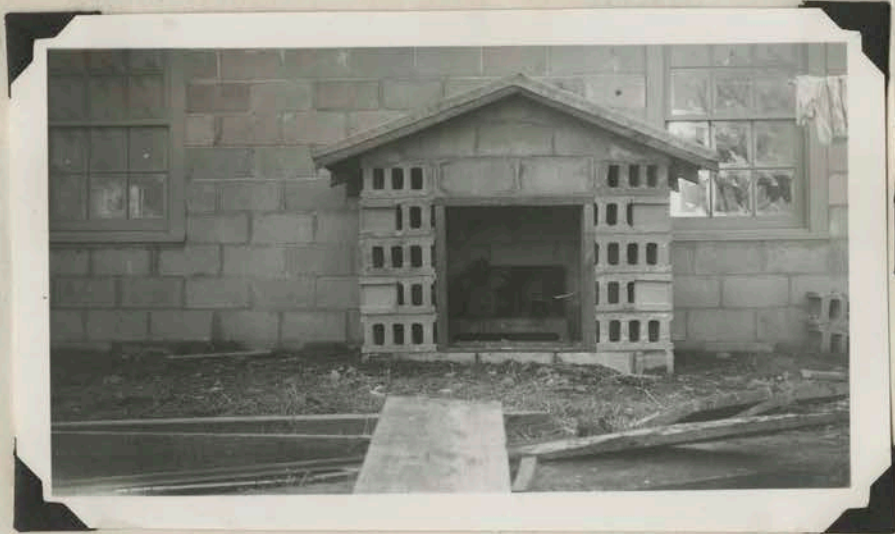


A portion of this combination apple packing and common storage house was converted this summer to a cold storage room. Carroll County.



Dairy equipment required for the Washington market.

A typical and conveniently arranged milk cooling equipment in the Washington area.



An economical and satisfactory shed to protect the milk box compressor.



This 1300 bird poultry house is one of five similar buildings on the Sunrise Cooperative Farm, Amos, Va.



This two-story commercial poultry house at the V.P.I. plant was built at a cost of \$1,430.00. Plan F-1.16.



A 300 chick movable brooder house. Henrico County.





This 30-cow one and one-half story frame barn cost the farmer approximately \$2,000.00. Rockingham Co.



This 16-cow two-story barn and a two-room milk house was built for \$1,625. Rockingham County.



A typical one and one-half story tile barn to meet Grade "A" milk requirements.



A modern tile barn with Gothic type roof at the Shenandoah Valley Academy farm near New Market.



This 16-cow milking barn was built of native stone at a cost of \$1,000.00. Rockingham County.



An economically built 16-cow frame milking shed. Rockingham County.



A one and one-half story dairy barn, a five-room milk house, two concrete stave silos and feed rooms conveniently arranged.

Concrete stave silos painted white and conveniently arranged add to the appearance of the dairy barn. Note the 50-foot concrete walk for cows entering and leaving the barn, as required by the Washington regulations.

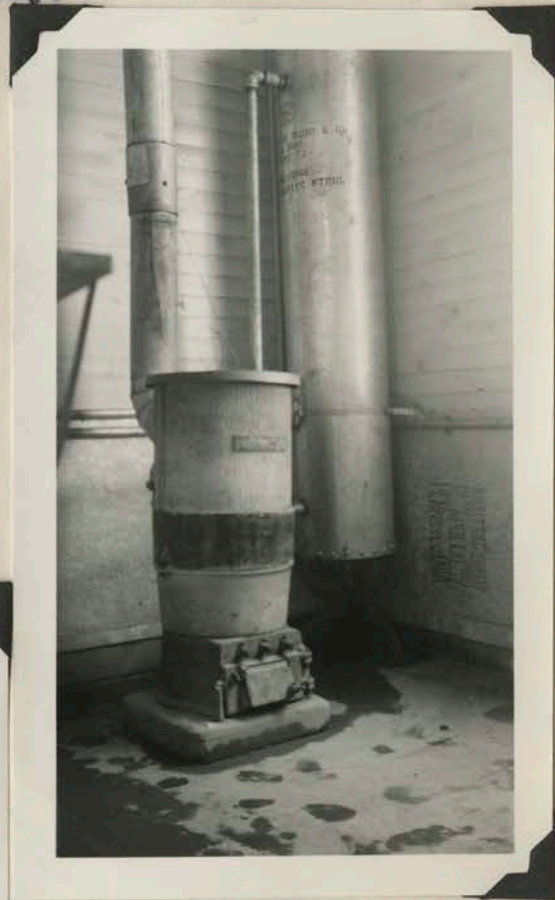


A modern one and one-half story cinder block dairy barn and a three-room milk house painted white. Note relation of milk house and barn.



A one-row ten-cow milking shed in Rockingham County.

A typical water heating outfit used in the Harrisonburg area.



One of the remodeled barns for the production of Grade "A" milk in Rockingham County.

10-C RURAL ELECTRIFICATION  
C-1 Rural Line Extensions

The Project and Personnel

The extension project in rural electrification has been conducted by E. T. Swink of the Agricultural Engineering Department under the supervision of the department head, Professor Seitz. The specialist is employed half time by the college and half time by the Extension Division. His duties consist of teaching courses relating to rural electrification, doing a limited amount of research work to supplement the extension project, and handling the extension project on rural electrification in the field.

The extension project in rural electrification for 1938 has been practically a continuation of the program inaugurated in 1937 with still more time given to an educational program on wiring. The extension of rural electric lines in the state has continued at a rapid rate both by the public utilities and the Rural Electrification Administration through farmer cooperatives. In order, therefore, that people receiving service for the first time will be so guided and informed that the use of the service will be economically sound, the educational extension program for 1938 was planned to:

1. Cooperate with the various agencies in getting electric service into new rural areas on a sound basis.
2. Conduct an educational program to assist new consumers in securing safe, economical and adequate farm wiring.
3. Disseminate information on the selection and use of electrical equipment to an economical advantage through lectures, demonstrations and literature.

The extension specialist has cooperated closely with the various other agencies in carrying out this program as will be shown later in this report. These groups included the extension farm and home agents, public utilities, the Rural Electrification Administration, State Corporation Commission, Electric Cooperatives, manufacturers of electrical materials and equipment and their distributors. In a few instances, time was given to individual problems and installations, these usually involving water supply, farm power development or something of special community interest.

The following statistical report shows the activity of the specialist whose time was divided half for extension and half for the college in 1938:

10-C Rural Electrification (Con'd)  
C-1 Rural Line Extensions

Days in office .....	147 $\frac{1}{2}$
Days in field .....	140 $\frac{3}{4}$
Miles traveled .....	22761
Extension farm agents visited .....	36
Extension home agents visited .....	21
Counties visited .....	51
Visits to counties .....	123
Bulletins distributed by specialist .....	1420
Individual letters written .....	608
Radio talks given .....	2
Conferences held in field .....	58
Extension organization committee meetings attended .....	14
Leader training meetings held in field .....	
Adult .....	15
Attendance .....	387
4-H .....	3
Attendance .....	54
Demonstrations conducted .....	24
Attendance .....	1660
Meetings at result demonstrations .....	28
Attendance .....	2253
Other meetings attended at which the specialist took part .....	9
Attendance .....	1532
Total meetings in the field .....	79
Total attendance .....	5886
Special demonstration exhibits .....	3
Number persons reached through exhibits .....	8300
Total number of persons reached directly through the project .....	14186

Status and Development of Rural Electrification in Virginia in 1938

The extension of rural electric distribution lines throughout the state has exceeded the record number of miles of lines built in 1937. The statistical progress report shown at the end of the report reveals, however, that fewer people were connected to lines than last year. The main reason for this condition is the fact that the density of prospective customers on new lines continues to become lower as more lines are built. This means as a rule that the minimum guarantees must be higher on such lines. As guarantees become higher, the need of educational work on wiring and utilization of the minimum guaranteed bill to an economical advantage becomes more urgent and important if the service is to mean what it should to those receiving it. In fact, if this is not done, the monthly electric bill will be just another expense making it even more difficult for the farm customer to make ends meet financially. In order to meet the problem just mentioned, three of the electric cooperatives have employed agricultural engineers who will eventually develop that part of the cooperatives' activity and cooperate with other agencies to that end.

10-C Rural Electrification (Con'd)  
C-1 Rural Line Extensions

Due to the low density of prospective customers on new proposed lines, it is becoming more difficult for the utilities to secure sufficient revenue to construct lines on the present plan. Since the revenue requirements of the R.E.A. are considerably lower than those of the utilities, a larger portion of the new lines built in 1937 has been constructed with Federal loans through cooperatives and the R.E.A. There are now seven electric cooperatives operating in 33 counties in the state and the organization of several more is now underway. Unless some change is made in the present law under which the utilities make rural extensions, it is evident that the majority of new lines in the future will be built by R.E.A. cooperatives.

There has been slight rate reductions by several companies during the year, two of which were rather significant. The Edmonson Electric Company serving Abingdon and vicinity and the Cranberry Manufacturing Company serving Hillsville and vicinity both reduced rates matching the rates of the Appalachian Electric Power Company. In both cases the reduction meant a saving of approximately 50% to consumers of electricity in the communities served.

The Program of the Public Utilities

For reasons just stated, the line building program of the public utilities is in most cases slowing down. Most companies, especially the Appalachian Electric Power Company and the Virginia Electric Power Company, are turning their attention to developing the load and use of current on the rural lines of their systems. Both of these companies have well organized rural service departments under the direction of agricultural engineers. These men are agricultural engineering graduates of V.P.I. and the companies organized their departments at the suggestion and under the direction of the agricultural engineering department at V.P.I. Because of this fortunate situation, the rural areas being served by these companies will have the benefit of a well planned educational program and will not require as much of the specialist's time as will other areas. The programs of the rural service departments are planned in cooperation with the extension specialist and cooperative activities are carried on between the two agencies.

Efforts will be continued to get other utilities to organize special rural service departments with agricultural engineers available to assist their rural customers to get the most from their electric service. The experience of utilities following this procedure has proven it to be a sound practice and the condition under which service is given to rural residents in most cases makes it very desirable from the standpoint of the customer.

Coordination of Educational Work with the Program of the Rural Electrification Administration

Near the end of 1937 the Rural Electrification Administration set up its utilization division. This department has as its duties the carrying

10-C Rural Electrification (Con'd)  
 C-1 Rural Line Extensions

on of educational and load building work among the customers of the R.E.A. financed cooperatives. There is a headquarters staff in Washington, D. C. and regional staffs consisting of an agricultural engineer and a home economist. A large portion of the activity of the specialist has been carried on in cooperation with the R.E.A. regional staff for this area. Since the beginning of the R.E.A. in 1935 there had been so many differences of opinion and the R.E.A. took so little interest in an educational program that it was difficult to coordinate the efforts of the two agencies. The organization of the Utilization Division relieved this situation because it established an interest in Washington that was mutual with aims of the extension service program.

Practically all of the field demonstrations conducted by the specialist has been in cooperation with the R.E.A. utilization representatives. Usually the county farm and home agents cooperate with the cooperative manager and plan the demonstration meetings. The R.E.A. home economist usually demonstrates household electric equipment or home wiring, while the Extension specialist demonstrates electric farm equipment, discusses wiring or some other topic relative to electric service and of timely interest to those in attendance. The cooperative spirit between this division of the R.E.A. and the extension service has been very cordial and is resulting in a very effective program. The relationship with the entire R.E.A. organization has also greatly improved during the year and closer cooperation is, therefore, now possible.

Cooperation with the State Corporation Commission

Although there has been no change in the policies of the public utilities in the extension of rural lines, the State Corporation Commission has continued to render a valuable service in seeing that the plan is carried out where feasible, settling territorial disputes, etc. The extension specialist has worked with members of the Commission on these problems on certain occasions during the year. Members of the Commission are very much interested in seeing as many rural lines built as are economically feasible and the responsibility of approving only feasible lines is a big one. The Commission is, therefore, an important part of the rural electrification program and cooperation between the two state agencies is necessary if the most good is to be accomplished.

Manufacturers and Distributors of Equipment Increase Interest and Cooperation

The nation-wide interest and activity in rural electrification has aroused the interest of manufacturers affected by the movement. Last December one of the largest manufacturers of electrical equipment sponsored a three-day all expense school at its factory, giving first-hand, up-to-date information on the newest developments in equipment. Another purpose of the school was to secure first-hand suggestions from the college and extension workers in attendance. The extension specialist attended this school and



10-C Rural Electrification (Con'd)  
C-1 Rural Line Extensions

gained much by the experience. Manufacturers are very much interested in the development of low-cost, yet reliable equipment, especially adaptable to farm and rural conditions.

Through local distributors, much better cooperation is being secured with the manufacturers in the loan of equipment for demonstrations. It is not uncommon to have four or five different makes of refrigerators, for example, at a single demonstration. Through the efforts of specialists and the R.E.A., several manufacturers have developed special lighting equipment for rural homes and changed methods of distribution so that good lighting equipment can now be secured at very low cost. The interest in lighting equipment is typical of other uses for electricity on the farm, and the result is measured in terms of better equipment at a lower cost for a larger number of people.

Some Main Activities of the Specialist in Carrying out the 1938 Project

1. Leader Training Schools

Because of the wide-spread interest in, and development of rural electrification throughout the State, and the social and economic importance of electricity in the home, a series of training schools for county and community leaders was sponsored by the rural electrification specialist in 1938. These schools were conducted in cooperation with the extension service, R.E.A., power companies and local dealers. A series of six two-day schools was held at Petersburg, Lynchburg, Roanoke, Marion, Harrisonburg, and Fredericksburg. The total registered attendance at the schools was 123, consisting of 50 home demonstration agents, 33 Farm Security Supervisors, 8 home economics teachers, 15 home-maker leaders, 10 extension specialists, and 1 county agent. A number of additional persons attended certain sessions of the schools.

The purpose of the schools was to train leaders in order that certain approved practices in the use of electricity on the farm would be introduced into the communities represented. The schools were considered very helpful and, therefore, successful. A large number of counties are now interested in conducting similar training schools in the counties.

(a.) A special summer course of six weeks in Household Electrical Equipment was offered for the first time during the summer. This course was given as a part of our Extension program in rural electrification to train leaders. Fifteen home demonstration agents, home economics teachers and home service workers attended this six-weeks course for which they received regular college credit.

The "Prospectus" of this course is included in the Exhibit Section of this report.

2. Farm Wiring Program

The planned program for securing both better wiring and lower wiring costs which was started in 1937 by the extension specialist and the Utilization Division of the R.E.A. really produced results in 1938. A

10-C Rural Electrification (Con'd)  
C-1 Rural Line Extensions

conservative estimate of the savings made by farmers who wired their premises under this plan is 25% or in the average case, enough to pay for a good set of lighting fixtures for his home.

The plan is called a "Group Wiring Plan" and briefly operates as follows: All contractors interested in doing wiring within a given territory are asked to meet with the specialist and project manager. Each contractor is asked to submit competitive unit prices for doing certain specific types and parts of the wiring system on the basis of his having a "protected" territory with a large quantity of work to do within a comparatively small concentrated area. The lowest prices submitted are agreed to and each contractor is then allotted a certain territory in which to work. Following this meeting, a series of meetings is then held throughout the territory where sheets showing the prices agreed upon are distributed and explained to the prospective customers. The group plan of wiring is explained and an illustrated lecture is usually given on adequate wiring and the selection of lighting fixtures. All wiring must meet code specifications and be approved by an inspector who has been assigned to the area. This also is explained and thereby warns the prospective customers that a qualified wiring contractor must do the work; otherwise, they are taking a chance on getting wiring that will not be approved.

This plan has been well received in most localities by both the customers and the contractors. The contractors are sure of a definite amount of business without having to solicit it or fight out-throat competition and can, therefore, work on a closer margin of profit. (10% estimated). The customers are sure of a good, safe wiring job at a price they know is saving them money; therefore, they are usually willing to wire their premises without delay. The cooperative is glad of the program because one of its biggest difficulties is to get enough houses wired to justify energizing the lines when the construction has been completed. It can be conservatively estimated that Virginia farmers who wired under this plan this year saved at least \$20,000 on their wiring and in addition, they have a more satisfactory wiring system than they otherwise would have obtained.

### 5. Special Demonstration Exhibits

The unusual local interest of community leaders made it possible for the specialist to conduct several demonstrations at special events. These are briefly described as follows:

#### (a) Blackstone Courier-Record Fair

This fair is now considered one of the leading agricultural fairs in the state and was attended by thousands from Nottoway, Lunenburg, Dinwiddie, Amelia and other counties. The specialist assisted the Southside Electric Cooperative in planning and setting up a large detailed exhibit of farm electric equipment for the occasion. The specialist did not conduct demonstrations at the fair but the exhibit was in the charge of the Cooperative's agricultural engineer.

10-C Rural Electrification (Con'd)  
C-1 Rural Line Extensions

(b) Lynchburg F.F.A. Farm Show

For the first time a rural electric exhibit was shown at the annual F.F.A. Farm Show in Lynchburg sponsored by the local Chamber of Commerce. The Show is supported by F.F.A. chapters from counties surrounding the city. The rural electric exhibit featured planning the farm wiring and the selection of lighting fixtures. An estimated crowd of 7000 farm boys and girls viewed the exhibit.

(c) McKenney Electric Show

The "Southside News" of Petersburg sponsored an educational demonstration and electric show at McKenney and requested the services of the specialist in planning and supervising the show and program. The R.E.A. utilization representatives, Virginia Electric and Power Company, and local dealers all cooperated to make the event a success. It was estimated that 1000 people from Nottoway, Dinwiddie and Brunswick Counties attended the day and night programs at McKenney School. A large part of the program was broadcast over radio station WRNL.

Summary of State-Wide Progress in Rural Electrification

In addition to the special activities of the specialist already explained, the real progress made in the extension of new lines and connection of new customers is shown in the following tabulation showing statistics for several years:

	<u>1936</u>	<u>1937</u>	<u>1938</u>
Miles of new lines built	725	1755.34	2977
Total miles of rural lines	6724.37	8479.71	11457
Number rural customers connected to new lines	5128	7289	9619
Number customers connected to old lines during the year for first time	1460	3688	3973
Total rural customers connected for first time during the year	4888	10972	13492
Total rural customers being served on December 1	45307	56279	69771

Research Work in Rural Electrification

It is generally agreed by all thinking people interested in rural electrification that the success of an extensive program of line building depends on the use farmers and rural people can make of the electricity when it becomes available to them. Although there are already over 200 uses for electricity on the farm, much of the present day equipment needs to be further perfected so that lower operating costs and wider usage can be had. New ideas for electrical applications are continually being born and need to be tried, tested and developed.

The lack of personnel and facilities has limited the amount of research work in rural electrification accomplished at V.P.I. during 1938. The following outline briefly states the status of projects already started:



10-C Rural Electrification (Con'd)  
C-1 Rural Line Extensions

(1) Electric Soil Heating and Sterilization for the Control of Blue Mold. (Cooperation Plant Pathology Department)

This project was concluded in the local laboratory this year and it is believed that valuable information was secured. A trial installation of equipment in the field will be made in Southwest Virginia this winter in cooperation with the Appalachian Electric Power Company.

(2) A Study of the Efficiency of Electric Dairy Utensil Sterilizers

This project was not completed because of the lack of facilities for making bacteria counts. Plans are to complete it in the spring of 1939.

(3) Farm Cold Storage

Preliminary data on this study is still being secured and it is hoped that a thorough research study of the subject will be started soon.

It is hoped that a research man will soon be employed to conduct studies in the new laboratory now under construction and to publish data already available so that it can be used in the field.

Publications

No new publications on rural electrification were printed by the specialist during the year. The wiring circular was reprinted when the supply was exhausted during the year. This bulletin is being revised and will be reprinted as soon as possible. Numerous data sheets were prepared for use during the special short courses and classes. The material on the soil heating and sterilization will be summarized and published early next year.

Summary of Results

The results of the extension program in rural electrification in cooperation with other agencies either connected with or interested in the work may be summarized as follows:

1. A more definite line has been drawn between the activities of the Rural Electrification Administration and the public utilities operating in the state. In most cases, the areas being developed by the R.E.A. are not considered feasible by the local utility and, therefore, the fight for territory and spite line construction has about ceased. The majority of the utilities appear satisfied to see R.E.A. finance the lines and they in turn supply the energy at wholesale rates.

2. The leading utilities are continuing to develop their facilities for educational work with farm customers through the employment of agricultural engineers and the establishment of rural service departments.



10-C Rural Electrification (Con'd)  
C-1 Rural Line Extensions

3. Rate reductions continued to be made and rate structures are continually being simplified so that they are more easily understood by the customer. This desirable change is more apparent with the smaller utilities this year and is one of the goals for which the extension service has been striving.

4. The cooperative educational program with the R.E.A. definitely took shape during the year and very effective results are in evidence from this work. A survey recently conducted among customers of the cooperatives in operation as long as eight months showed that approximately 48% of the rural customers on R.E.A. lines in Virginia had installed electric refrigerators as compared with a national average of 26% on projects of a similar status. This degree of saturation can be attributed largely to the educational program of the two agencies.

5. The private utilities and the R.E.A. cooperatives combined have constructed approximately 2977 miles of lines and connected approximately 13492 rural customers during the year. This is an all-time high for any one year's activity in Virginia.

The extension specialist in rural electrification has accomplished the following results during the year directly through the extension project:

- a. Assisted and cooperated with the R.E.A. Utilization Division in devising and carrying out a wiring program to assure safe and adequate farm wiring at a low cost. This program probably saved new farm customers on electric cooperatives this year more than \$20,000 on wiring costs.
- b. A total of 79 meetings with an attendance of 5,886 people were either held by the specialist or conducted with his assistance in the field, approximately half of which were demonstrations.
- c. A total of 18 leader training schools were conducted and attended by 441 leaders in the field, including both adult and 4-H leaders.
- d. Work has been done to lay the basis for a broader research program in rural electrification and one project was completed by graduate students under the supervision of the specialist.
- e. Three special exhibit demonstrations were sponsored by the specialist reaching over 8,300 persons.
- f. The extension project reached directly a total of 14,186 persons during the year.

#### Outlook

A study of the statistics showing miles of line constructed, customers connected and the activities of both the R.E.A. and the public utilities in accomplishing this result as compared with 1936 and 1937, gives a clear indi-

10-C Rural Electrification (Con'd)  
C-1 Rural Line Extensions

cation of what to expect in the way of continued development of rural areas with respect to the extension of electric service. The statistics show that more lines were constructed in 1938 than in any preceding year and that the number of customers connected per mile of line continues to decrease. In the face of this condition, plans and developments for coming years should, therefore, be considered on the basis of the following facts:

1. The line construction program must slow down as the customer density on new lines reach a low that will make the lines economically unfeasible, even by R.E.A. standards of feasibility.
2. A larger percent than ever before of the new customers receiving service are of the low income group.
3. New lines of low customer density and especially those serving low income farms will have to be justified either by subsidy or through an intensive educational program based on thorough research in the economics of the use of electricity on the farm, or both.

A change in the general setup of the utility business might, of course, change this entire situation, however, for the time being plans should be made with these facts in mind. It is believed that in view of the fact that comparatively low electric rates are available in practically all parts of Virginia and that our farm enterprises are generally diversified with the trend toward still further diversification, that the broad program in rural electrification will mean a new era for rural people in Virginia. This, of course, will be possible only through a continued concerted effort to assist farm people in using electricity to an economical advantage. The extension program for next year will have this for its aim and will be supported by a planned research program here in the State.



General view of rural electrification exhibit at Courier-Record Fair, Blackstone, Va.



10-C Rural Electrification (con'd)  
 C-2 Farm Water Power

The interest in farm water power development continued to decrease for obvious reasons. More and more people are securing electric service from central stations and this naturally reduces the number interested in the development of local small power sites. The specialist has continued to handle all requests for preliminary surveys, however, and five such surveys were made during this year.

C-3 Farm Light Plants

The same general condition exists regarding farm light plants as that of the development of farm water power. The rapid development of rural line extensions is gradually decreasing the number of farms interested in installing individual plants. This project has not been actively sponsored in the field but all requests for information have been handled by correspondence.

C-4 Miscellaneous Activities of the Rural Electric Specialist

(a) Out-of-State Meetings

The specialist attended the annual meeting of the American Society of Agricultural Engineers at Pacific Grove, California, in June and took an active part in the program. On the trip to and from the meeting, the agricultural engineering departments at Texas A & M College, University of California, Oregon State College, Washington State College, and the University of Nebraska were visited. Several valuable ideas and suggestions were obtained for equipping the rural electrification laboratory in the new agricultural engineering building. The contacts made with other men throughout the country who are engaged in rural electrification extension work were both interesting and helpful.

The Westinghouse Electric and Manufacturing Company sponsored a three-day training school for college and extension specialists in rural electrification at their Mansfield plant in Ohio last December. The specialist attended this very interesting and instructive meeting with about 30 representatives from eight other state colleges.

(b) Water Supply Work

Although this project is handled largely by another subject matter specialist, in doing field work it is often convenient and economical for the rural electrification specialist to do a limited amount of water supply work. During this year nine surveys were made for electric water systems installations and an equal number for hydraulic ram installations and gravity systems. The water supply project is one of the most valuable to and popular with rural people and interest in it is continually increasing.

(c) Special Projects

1. Rural Service Centers

## 10-C Rural Electrification (Con'd)

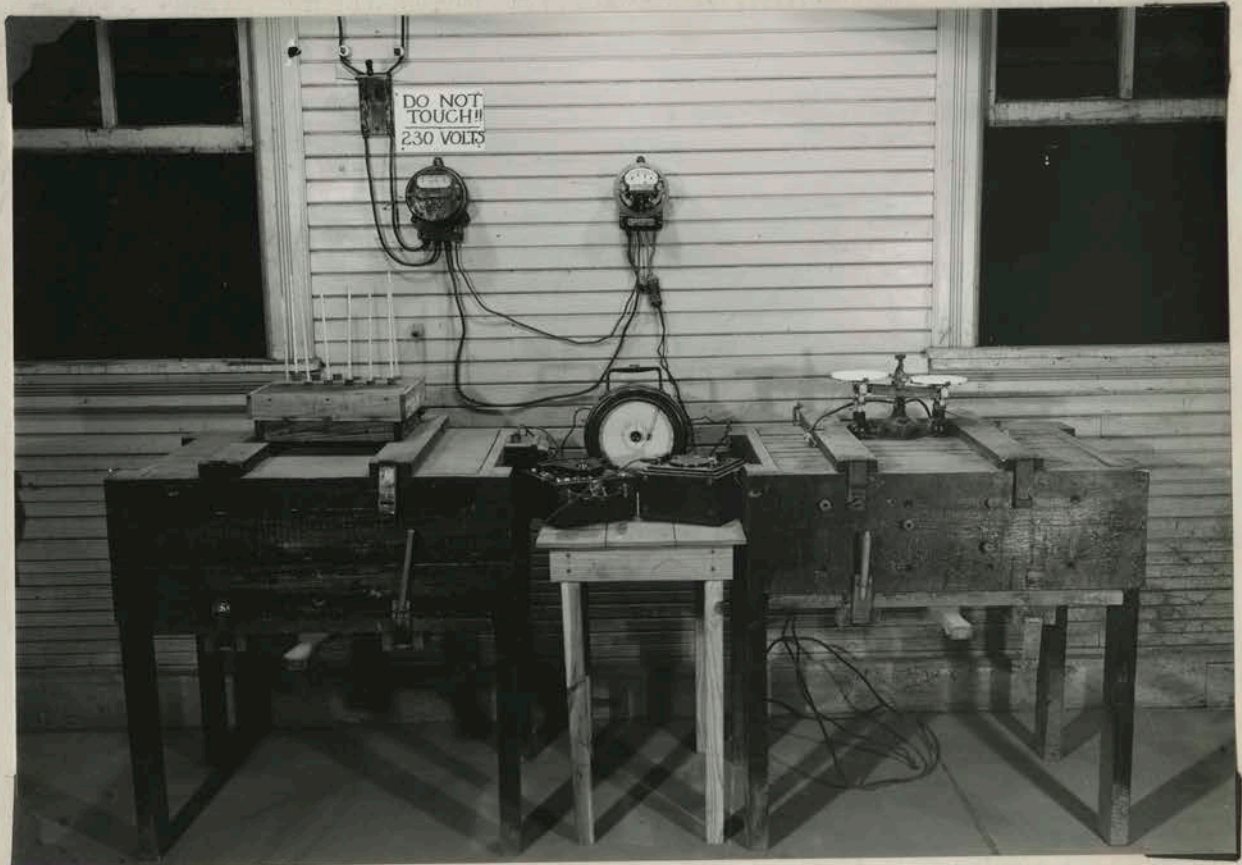
## C-4 Miscellaneous Activities of the Rural Electric Specialist

The Resettlement Administration has sponsored the development of several rural service centers in the state which provide a place in the community where farmers can get certain services and rent operating equipment for their farms. The specialist has given considerable assistance in planning building arrangements, supplying information on the selection of equipment, etc. for the service centers at Norge in James City County, Ottoman in Lancaster County, and at Wicomico Church in Northumberland County.

## 2. Electric Sweet potato Curing Houses

The pioneer work done in Virginia on the use of electricity for heating sweet potato curing and storage houses several years ago has created much interest throughout the sweetpotato producing areas of the country. Many requests have been received for the circular "Electricity for Heating Sweet Potato Curing and Storage Houses" during the year. A number of houses have been built and equipped in Tennessee, Mississippi, Georgia, North and South Carolina, using Virginia's experiences and recommendations. A delegation from utilities and agricultural colleges in North and South Carolina visited the state and with the specialist inspected several installations.

Probably the most modern sweet potato curing house in the country was built at Ottoman, Lancaster County, this year. The building is of cinder block construction, insulated with mineral wool and is equipped with automatically controlled electric heaters. The capacity is approximately 4000 bushels for the three-room house. The installation was made from plans and specifications supplied by the agricultural engineering department.



Laboratory tests being made of two electric soil sterilizers

10-D HOUSEHOLD ENGINEERING  
 D-1 Farm Water Supply

Farm folks in Virginia made a big step forward this year in adding to the comforts of their homes by getting running water into their homes. The assistance given by members of the extension agricultural engineers was very little in comparison to the work of the commercial firms. However, the farmers are depending on the extension division for sound technical information on the many types of water systems and the methods of installation.

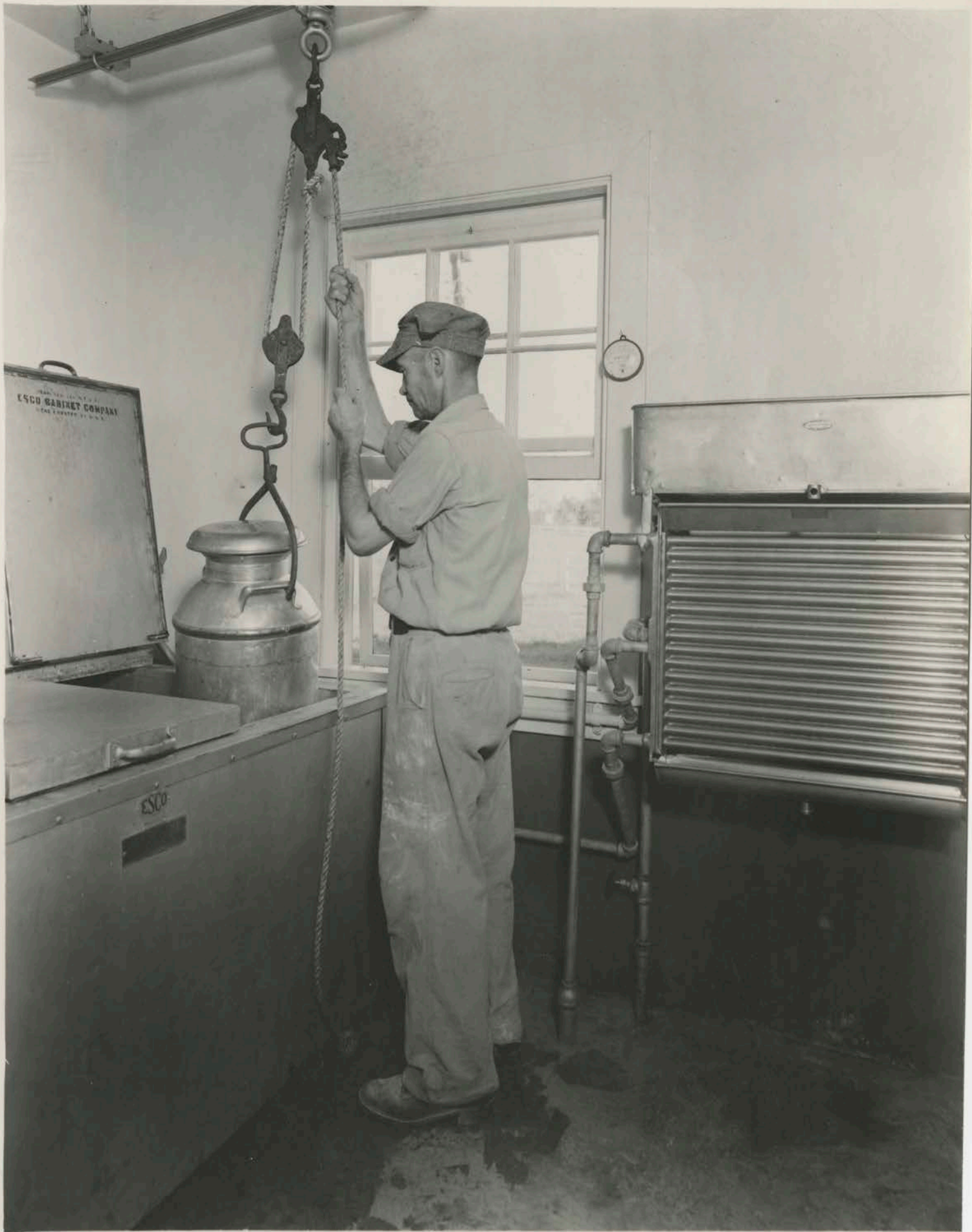
Work on farm water systems included surveys and recommendations for hydraulic rams, gasoline engines and pumps, automatic electric pumps and windmills.

The following table gives the number of water system surveys made by the extension agricultural engineers:

<u>Name</u>	<u>Type of Survey</u>					<u>Total</u>
	<u>Ram</u>	<u>Electric</u>	<u>Gasoline</u>	<u>Gravity</u>	<u>Windmill</u>	
Jas. A. Walker	9	1	2		1	13
E. T. Swink	5	9		4		18
G. D. Kite	28	17	5	5		55
Total	42	27	7	9	1	86

Outlook

There is an unknown amount of work that could be done on farm water systems. Due to the lack of personnel, only that work is done that is requested. This phase of extension work, if extensively planned, would require a large part of one man's time.



A well equipped refrigerating room for milk on the J. D. Blair dairy farm, Goochland Co.



The well-planned wiring system and building arrangement of J. D. Blair's dairy, Goochland County, Virginia.



Electric storage water heater, refrigerator compressor  
and milking machine on J. D. Blair Farm, Goochland,  
Virginia.



Energizing ceremony of Mecklenburg Electric Cooperative at South Hill, Va. Standing on platform left to right are: B. T. Swink, Ext. Div.; J. T. Walker, Pres.; Southside Elect. Coop.; G. D. Hinger, R.E.A.; Hon. Thos. W. Ozling, Major Beane of South Hill; J. M. Carndy, Adm., R.E.A.; and Walter Moulton, R.E.A.

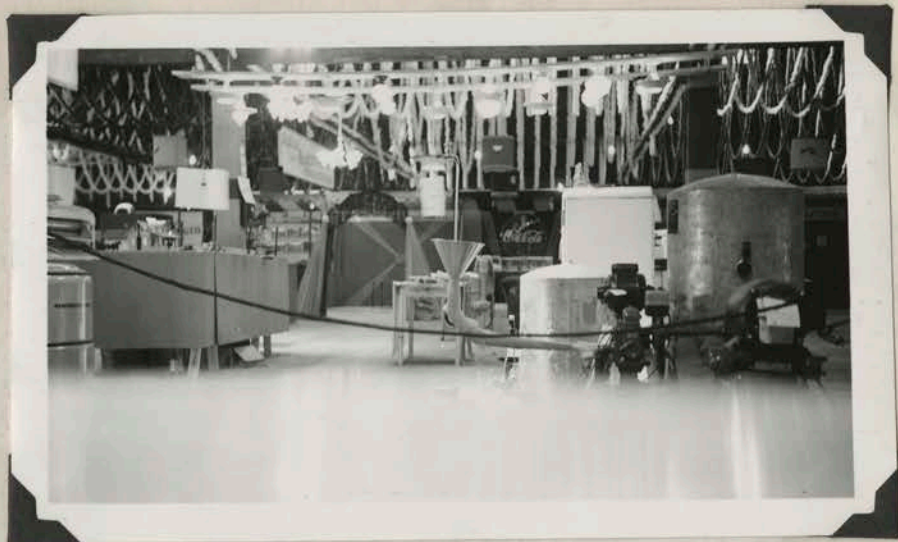


Part of crowd assembled for energizing ceremony, Mecklenburg Electric Cooperative, South Hill, Va.





Electric brooder demonstration at Courier-Record Fair,  
Blackstone, Va.



View of rural electrification exhibit at Courier-  
Record Fair, Blackstone, Va.



Miniature electrified farm at Courier-Record Fair.

10-D Household Engineering (Con'd)  
D-2 Farm Home Equipment

Close cooperation is maintained between this department and the Home Economics Department in helping the agents with their programs on farm home equipment. One specialist devoted about three months to the sewing machine schools.

Sewing Machine Schools

At the annual agents conference which was held in December 1937, Miss Iva Byrd Johnson, Clothing Specialist, explained to the home agents the value of sewing machine schools and how to organize them. In reply to a form letter mailed to every home agent, requests for forty-five schools were received from twenty-nine agents. Later six requests were received which could not be handled.

In each county the schools were held in cooperation with the home agent who arranged for a meeting place and enrolled the ladies for the school. One county did not have a home agent so the farm agent requested a school for a group of interested ladies in his county.

Object:

The object of the schools was to teach the ladies how to clean, adjust and care for their machines. The majority of machine owners knew very little about the mechanism of their machines and thus they could not make the necessary adjustments. The presence of an excess amount of dust, lint and oil residue, the use of improper size thread and needles and the improper adjustment of the tensions accounted for almost all of the troubles.

Procedure:

Each school required from five to eight hours, depending on the number of machines and their condition. The specialist furnished each lady with a screw driver, an oil can, a pie pan and a small brush which were used in cleaning the machine. The morning period was devoted to dismantling the machine, cleaning all the parts and then assembling the parts. The afternoon period was devoted to a lecture on the many adjustments and to each machine owner in making the many adjustments on her machine. Every machine was thoroughly checked by the specialist before the owner left the school.

Results:

The results as evidenced by the facial and verbal expressions of each machine owner when the machine was properly adjusted were very gratifying. The machines varied in age from two to one hundred years, the average being from fifteen to thirty-five years. Some of the machines had been stored in the woodshed or the attic because the owners thought they were no good. After being cleaned and adjusted they sewed just as good as those that were being used every week. Many women stated that their machines were cleaned and adjusted better in the school than they were by men who charged from \$3.00 to \$5.00. All the results of these schools cannot be stated in this report nor can the actual value be stated in dollars and cents. One

10-D Household Engineering (Con'd)  
D-2 Farm Home Equipment

must have contact with the machine owners who have been to one of these schools to realize the benefits derived from them.

The sewing machine school project was handled by G. D. Kite, Assistant Agricultural Engineer who devoted one-third of his time to these schools and the remainder to farm buildings, farm water supply and drainage work.

Interesting Happenings: - In one school in Mecklenburg County three generations in one family were represented.

One lady in Mecklenburg County who depends on sewing for the larger part of her family income, with the assistance of her daughter, brought her machine a distance of one and one-half miles in a two-wheel push cart.

Only ten ladies had control over their husbands to the extent of having them come to the school and do the dirty work.

A lady in Highland County bought a second-hand machine five years ago and had never used it because it was out of adjustment. She brought it to the school, cleaned and adjusted it and took it home rejoicing that the old useless machine was now in perfect condition.

A lady in Carroll County purchased a new machine twelve years ago to replace an old machine which had gotten in such bad condition that the shaft would not turn. The old machine was stored in the woodshed. Hearing about the school, she thought she would have one machine in the school that the specialist could not fix. The lady took a machine home that was better than the newer one which she had been using.

The following is a quotation taken from a letter from Miss Helen Ricks, District Home Demonstration Agent: "Reports from several counties in my district show that the sewing machine clinics which have recently been held by Mr. Kite were most beneficial. Both the agents and the women of the counties were most complimentary in their remarks. I want to thank both you and Mr. Kite for this excellent piece of work".



Home Economics seniors of V.P.I. who observed at one school in Giles County

These ladies gathered  
from the many so-called  
mountain hollows in a  
remote section of Franklin  
County.



A mountain home in  
Franklin County. One  
of the many places for  
holding the schools.

A typical group of in-  
terested club women  
in Franklin County.



10-D Household Engineering (Con'd)  
D-2 Farm Home Equipment

The following table shows the agent, the number of schools, the number of machines and the attendance in each county:

COUNTY	AGENT	SCHOOLS	MACHINES	ATTENDANCE
Allegheny	Miss Margaret Vaden	2	13	16
Appomattox	Miss Ella Smith	1	9	12
Buckingham	Miss Mattie Downing	2	19	27
Carroll	Miss Juanita Maupin	2	16	30
Charlotte	Mr. H. E. McSwain	1	6	8
Chesterfield	Miss Margaret Rawlinson	2	23	33
Essex	Miss Belva Dudley	1	13	50
Fairfax	Miss Lucy Blake	1	13	20
Franklin	Miss Martha Cook	2	21	34
Giles	Miss Catherine Peery	2	20	65
Greene	Miss Virginia Swank	1	9	9
Halifax	Miss Ruth Sisson	1	7	12
Highland	Miss Hazel Propst	1	8	12
King & Queen	Miss Jeannette Clifton	1	14	19
King William	Miss Jeannette Clifton	1	12	20
Lee	Miss Ruth Lake	2	17	66
Loudoun	Miss Karle Bundy	2	18	27
Louisa	Miss Rowena Briel	1	10	15
Madison	Miss Agnes Mason	1	9	12
Mecklenburg	Miss Elephare Hood	4	39	55
Nansemond	Miss Eva Minix	1	15	20
Nelson	Mrs. Louise Cooley	1	10	14
Norfolk	Miss Exie Lassetter	3	35	43
Nottoway	Miss Katherine Lambert	2	21	28
Orange	Miss Louise Morriss	2	18	24
Prince Wm.	Miss Alice Webb	2	5	20
Rockbridge	Miss Elizabeth Farrar	1	13	25
Rockingham	Miss Regenia Matlock	1	21	27
Wythe	Miss Chilton Ryburn	1	11	13
<b>Total</b>		<b>45</b>	<b>445</b>	<b>755</b>

Summary of Sewing Machine Schools:

45 schools in 29 counties

445 machines cleaned, adjusted and put in proper sewing condition

755 women and high school students in home economics were instructed in these schools

Outlook:

The sewing machine schools are very popular in every section of the state. Each year the number of requests for these schools increase over



10-D Household Engineering (Con'd)  
D-2 Farm Home Equipment

the previous year. With some publicity there would be a sufficient number of requests to keep one man busy for six months or longer. This year the specialist held all but six schools that were requested and because of this fact other phases of his work were delayed and neglected during the months of February, March and April.

Many ladies who attended these schools expressed their opinion that the sewing machine school was one of the most valuable services rendered by the Extension Service.



A club member and her daughter pushed this cart a distance of  $1\frac{1}{2}$  miles to the school. Note sewing machine upside-down in cart.



A club member in Norfolk County brought her neighbor's machines to the school on her husband's wrecking truck.



This family garage in Norfolk County has been used for sewing machine schools for three consecutive years.



A school being held in a rural school building in Mecklenburg County.



10-D Household Engineering  
 D-3 Miscellaneous Activities of Farm Building Specialist

Surveys were made for two earth dams, one for an orchard reservoir in Clark County which is under construction at this time, and one for a twenty-acre fish pond in Bedford County which is expected to be built by the CCC. Seven visits were made regarding stationary spray systems for orchards. One system in an eighty-seven acre orchard in Nelson County is expected to be installed in the early spring. One survey was made in Nelson County for a pump and gravity system for irrigating a large orchard. A gravity water system survey was made for the Doe Hill community in Highland County. Other visits were made for recommending sanitary methods of enclosing springs, for advising as to the construction details and location of septic tanks and purification fields, for selecting locations and making recommendations for fish ponds and for many other engineering problems that confront the farmers.

Letters of Appreciation

"I am so much obliged for your letter of the 11 instant in regard to the bridge at "Greenwood Farm", and I thank you for your kindness in making the inspection for me. The service which your organization has rendered has been most helpful and I deeply appreciate what you have done." Signed - O. H. Funsten, Richmond, Virginia.

"I am asking a great deal but you wrote me such clear and detailed directions in your last letter I cannot help appealing to you again. It is wonderful that the government, through you, does give us such service." Signed - Mrs. Ellen D. McBryde, Fairfax, Virginia.

The following tabulation is a summary of the various activities and visits by G. D. Kite, full-time extension specialist:

Days in field	180½
Days in office	114½
Different agents visited	95
Different counties visited	65
Number visits to counties	194
Number visits to agents	152
Number farms visited	521
Other visits	26
Radio talks	5
Letters written	941
Meetings attended	7
Meetings held (sewing machine)	45
Attendance at these meetings	755
Bulletins distributed	1351
Miles traveled	24282

10-D Household Engineering (Con'd)  
 D-3 Miscellaneous Activities of Farm Building Specialist

Number of visits according to type of work:\*\*

Farm buildings	198
Farm water systems	56
Drainage	15
Spray systems for orchards	7
Reservoirs	3
Orchard irrigation - gravity	1
Termites	10
Recreation projects	12
County office building plans	4
Farm Efficiency studies	5
Business visits in towns	26
Miscellaneous	11
Total	<u>347</u>

\*Visits to county agents' offices not included

Outlook

Miscellaneous engineering is expected to occupy much of the specialist's time in 1939. Many new problems are confronting the present-day farmer and his better judgment tells him to secure the services of the extension specialists. For instance, the office has recently received requests for assistance on planning three stationary spray systems for orchards, one irrigation system for small berries and a water system for a small rural community.

10-B FARM OPERATING EQUIPMENT  
 E-1 Farm Implements

The time devoted to extension work in farm implements consisted of answering numerous inquiries from farmers seeking information on types of farm implements to use, installation of lime grinding and burning equipment, and on harvesting equipment.

Data obtained from manufacturers of combines indicate a considerable increase in the use of combines in the state since the introduction of the small five and six foot machines.

The following figures show the trend on the use of combines in the state:

Approximate number in Virginia in 1936	526
Number of 5 and 6 foot combines sold in 1937	87
Number of 5 and 6 foot combines sold in 1938	127
Number of 8 foot combines and larger sold in 1937	21
Number of 8 foot combines and larger sold in 1938	4

Two radio talks have been given during 1938. The topics of these are:

Harvesting Machinery  
 Winter Care of Farm Tractor

Outlook

Farm machinery is an important phase of agricultural engineering extension work that needs development in this state. Lack of personnel, however, prevents much work being done on this project. With the completion of the new agricultural engineering building, however, we expect to develop short courses in this subject that will partly meet the demand for more extension instruction in farm machinery.



Twin lime kilns. The burnt limestone is run through a crusher, operated with a 20 h.p. electric motor. This plant supplies lime to a large portion of farms in Montgomery County, Virginia.

## EMERGENCY AND RELATED PROJECTS

### Works Progress Administration Project - Erection of Agricultural Engineering Building

Work has progressed satisfactorily on the agricultural engineering building which has been under construction as a W.P.A. project. This building was planned by the Agricultural Engineering Department in cooperation with the Architectural Engineering Department. The construction work on this building is under the direct supervision of the agricultural engineering department. Work is well along on the last unit of the building. It is expected that the building will be completed by the first of April.

When this building is completed and equipped, V.P.I. will have an agricultural engineering building unexcelled in the nation. The department will then be in a position to greatly enlarge its various services to the farmers of the state. The office part of the building has been completed and occupied for some time.

### W.P.A. Labor Camp

The agricultural engineering department has continued to supervise the W.P.A. work camp which has been maintained by the college for the feeding and housing of relief workers employed on the construction of the agricultural engineering building.

### Virginia State Planning Board

Professor Seitz served on the Board until mid year. Dr. Young of the Agricultural Economics Department was appointed at that time to take the place of Mr. Seitz.

### V.P.I. Land Use Committee

Professor Seitz has served as a member of the Land Use Committee. This Committee has cooperated with federal agencies in land use activities.

### National Youth Administration, N.Y.A.

The department has employed some dozen students in various activities during the year on N.Y.A. funds.

## MISCELLANEOUS PROJECTS AND ACTIVITIES

### Assistance to Other Departments

Considerable assistance in the form of consulting engineering advice, blue printing, drafting, etc. has been rendered other departments of the college, Experiment Station and Extension Division.

### Correspondence

During the year 5243 individual letters were written and 1000 circular letters mailed out in furtherance of the agricultural engineering projects.

### Articles for Press

Two articles for publication were prepared which will reach farmers.

### Radio Talks

The following radio talks were prepared and delivered by staff members in furtherance of the extension work in agricultural engineering.

- "Soil Conservation Must Pay Dividends"
- "Home Storage for Vegetables and Fruits"
- "Harvesting Machinery"
- "A Costly Corn Crop on Steep Land"
- "Some Physical Factors in Erosion Control"
- "Grain Storage Building"
- "Planning a Dairy Barn"
- "Winter Care of Farm Machinery"
- "The Construction and Use of Contour Furrows"
- "The Brooder House Goes Modern"
- "Horse Barn"

### Publications

One or two circulars were revised and mimeographed during the year.

### Bulletins Mailed

The department mailed out 3271 bulletins pertaining to agricultural engineering subjects.

### T.V.A. Run-off Project Studies

A study of the effects of Tennessee Valley Authority phosphate on Soil and Water Conservation is being made on three different soil types in

## Miscellaneous Projects and Activities (Con'd)

Southwest Virginia. Thirty-six runoff plots are being maintained on the project. These studies are being made by W. H. Dickerson, Assistant County Agent of T.V.A. under the direction of the department.

A Progress Report of this project is attached to the Exhibit Section of this report.

### Research in Soil and Water Conservation

This is a research project in erosion control financed by Bankhead-Jones Act funds. The project is in its third year and is now getting organized on a basis where results should be forthcoming. The results secured from this study will be of great aid to the extension and S.C.S. Erosion Control programs. This investigation is being developed through the following three definite and supplementary steps:

1. Permanent control plot runoff measurements
2. Physical and chemical studies of the soils under investigation
3. General field experiments on plots and small watersheds

Progress reports of each year's work on this project are available in the department office.

### Cooperative Project in Soil and Water Conservation

An agreement was approved March 9 of this year for cooperative research work in Soil and Water Conservation between this department and the Soil Conservation Service. The S.C.S. has assigned two engineers to our department to work on erosion control and related research.

The title of this study is "Research in Soil and Water Conservation for Agricultural Purposes in Virginia".

The objectives are:

1. To determine the fundamental laws and principles governing the reactions and properties of soils involved in erosion as a basis for the testing and developing of different corrective measures and practices, effective in the conservation, development and use of land and water resources for agricultural purposes.
2. To conduct agricultural hydrologic studies necessary for erosion and flood control in Operations projects and in other critical areas in Virginia.

A copy of this Cooperative Project Agreement is attached to the Exhibit Section of this report.

### Engineering Sub-Committee in Soil Conservation

Professor Seitz has served as Chairman of the Engineering Sub-Committee of the State Advisory Committee on Soil Conservation. This Committee, which

## Miscellaneous Projects and Activities (Con'd)

is responsible for the engineering work plan and recommended practices in all S.C.S. areas, has held several meetings during the year and visited S.C.S. demonstration areas. The work plan has been revised and brought up-to-date.

### Cooperative Research Project in Rural Electrification

Several conferences were held with representatives of the U.S.D.A. in reference to a cooperative research program in rural electrification. Plans were made for such a program to start January 1 of next year. Studies will be made at the beginning to determine practical and economical uses of electricity on the farm, to the lower income groups. Material developed in the study will be of great aid in the extension program in rural electrification, especially for educational work with farm cooperative companies.

### Congressional Committee Hearings on Rural Electrification

Professor Seitz appeared before House and Senate Appropriation Committees in behalf of the U.S.D.A. request for \$50,000 to finance rural electrification studies in the Bureau of Agricultural Engineering. This appropriation was made and the Bureau was able to make a start on their research studies in rural electrification.

### Rural Electrification Tour

A group of extension specialists, county agents and rural representatives of Power Companies from North Carolina and South Carolina spent two days in the Eastern section of the state where they were shown over a number of electrified farms and special rural uses of electricity.

### A.S.A.E. Meeting - Chicago, Illinois

Professor Seitz attended part of the A.S.A.E. Meeting at Chicago where he met with the Committee of Awards which selected Professor H. B. Walker of California for the McCormick Award and Phil S. Rose, Editor of the Country Gentlemen, for the John Deere Award.

### Paint Study for Southern States Cooperative

At the request of the Southern States Cooperative, Professor Seitz made a special study of the soybean oil paint which this Cooperative is now handling. An inspection was made of the soybean oil factory at Chicago, the Federal Soybean Laboratory at the University of Illinois, and the factory of the Glidden Company at Cleveland where this paint is made. A number of houses painted over varying periods of years with Soya paint were inspected.

GENERAL OUTLOOK IN AGRICULTURAL ENGINEERING

<sup>out</sup>  
 (The year has been one of the most satisfactory from the standpoint of results secured in agricultural engineering extension work.) Real progress has been made in the three main projects which were stressed during the year, namely, soil and water conservation, rural electrification and farm structures. These three projects continue to demand attention and major emphasis will be placed on these projects during the coming year.

The nation-wide attention being given to rural electrification and soil and water conservation by the federal government has tremendously increased the demands upon the agricultural engineering department for advice and assistance in these fields. The department is meeting these demands as far as possible with its limited personnel. The rapid extension of rural electric lines by farmer cooperatives is creating a situation that will require more and more educational work in rural electrification if these farmer cooperatives are to be made self-supporting. With only <sup>(half time of)</sup> one extension engineer available for this extension educational work, the department cannot begin to meet the demands for aid. A partial solution to this problem would be the employment of assistant county agents at large in areas served by farmer cooperatives. These agents should be trained in rural electrification and be required to devote their time to educational work in rural electrification.

The rural electrification movement is also creating a demand from the farm women for more educational work in household equipment. One of the most pressing needs for the coming year is for a full-time specialist to handle extension work in household engineering, such as farm water supply, home remodeling, sewing machine schools and general household equipment.

<sup>now here</sup>  
 With the completion of the new agricultural engineering building (early next spring,) the department (will have) the physical plant and equipment adequate to render greater all-around service than during the past year. If additional extension personnel is provided, the results in the coming year should be the greatest ever in extension work in agricultural engineering.

Respectfully submitted,

*Chas. E. Seitz*  
 Chas. E. Seitz  
 Extension Agricultural Engineer



EXHIBIT SECTION

## EXHIBIT SECTION

(Some of supplementary material, etc. used in Extension Projects)

### Erosion Control Project

1. Suggested Annual Statistical Report of Extension Soil Conservationist
2. Personnel - County Soil Conservation Association
3. Officers - County Soil Conservation Association
4. Table - Statistical Status of Soil Conservation Districts
5. Radio Talk - Establishment of Soil Conservation Districts in Virginia
6. Cooperative Agreement between Virginia Agricultural Experiment Station and Soil Conservation Service for Research in Soil and Water Conservation
7. Progress Report - A Study of the Effects of Tennessee Valley Authority Phosphate on Soil and Water Conservation

### Rural Electrification Project

1. Circular letter regarding Rural Electrification Schools
2. Program - Rural Electrification Schools
3. Circular letter regarding Electrical Household Equipment Summer School
4. Standard Unit Price List - Mecklenburg Electric Cooperative
5. Notice - Electric Wiring Meeting
12. Newspaper clippings - Rural Electric Schools
13. Program - Jamestown Adult Camp
14. Newspaper Clipping - McKenney Rural Electric Exhibit
15. Newspaper clipping - McKenney Rural Electric Exhibit
16. Poster advertising Rural Electric Exhibit Truck and Sound Film

**SUGGESTED ANNUAL STATISTICAL REPORT OF EXTENSION SOIL CONSERVATIONIST**

For Year Ending Dec. 31 1938  
 Month Day

State of Virginia Number of Assistants None

Sections A and B should include work on all demonstration farms selected by the Extension Service and planned by Soil Conservation Service technicians outside of Project, Camp, and District areas. As a supplement to this report, it is suggested that there be attached summaries of page 25, column b and page 27 of the combined statistical annual report of county extension workers, if available.

Types of Work	This Year		To Date	
	Number of Farms	Units of Work Completed	Number of Farms	Units of Work Completed
<b>A. Surveys and Plans</b>				
1. Conservation Surveys	<b>27</b>	<b>7273</b> A	<b>50</b>	<b>10546</b> A
2. Conservation Plans	<b>27</b>	<b>7273</b> A	<b>50</b>	<b>10546</b> A
<b>B. Application of Plans (progress)</b>				
1. Permanent pasture	<b>27</b> ✓	<b>2449</b> ✓ A	<b>50</b> ✓	<b>3938</b> ✓ A
2. Rotation of crops	<b>25</b> ✓	<b>2077</b> ✓ A	<b>47</b> ✓	<b>3695</b> ✓ A
3. Soil Treatments	<b>27</b> ✓	<b>4519</b> ✓ A	<b>50</b> ✓	<b>6524</b> ✓ A
4. Strip cropping	<b>19</b> ✓	<b>881</b> ✓ A	<b>21</b> ✓	<b>1167</b> ✓ A
5. Contour tillage	<b>23</b> ✓	<b>1353</b> ✓ A	<b>37</b> ✓	<b>1955</b> ✓ A
6. Grassed waterways (meadow strips)	<b>13</b> ✓	<b>33</b> ✓ A	<b>14</b> ✓	<b>34</b> ✓ A
7. Cover crops	<b>3</b> ✓	<b>69</b> ✓ A	<b>26</b> ✓	<b>1276</b> ✓ A
8. Terracing (terrace outlets)	<b>3</b> ✓	<b>27650</b> Ft. No.	<b>14</b> ✓	<b>96350</b> Ft. No.
9. Gully structures			<b>4</b>	<b>47</b> No.
a. Temporary	<b>4</b>	<b>59</b> No.	<b>8</b>	<b>102</b> No.
b. Permanent	<b>2</b>	<b>10</b> No.	<b>2</b>	<b>10</b> No.
10. Contour furrow	<b>5</b>	<b>203</b> A	<b>5</b>	<b>293</b> A
11. Woodland	<b>24</b>	<b>2375</b> A	<b>25</b>	<b>2423</b> A
12. Gully plantings	<b>5</b>	<b>16</b> A	<b>7</b>	<b>20</b> A
13. Other plantings	<b>3</b>	<b>4</b> A	<b>4</b>	<b>8</b> A
<b>C. Organized Educational Activities (Outside of Districts)</b>			<b>Number</b>	<b>1. Number Meetings (or) 2. Attendance</b>
1. Active S.C. Assns. in Project and Camp Areas			<b>10</b>	1.
2. Active Assns. not in Proj., Camp or Dist. Areas			<b>8</b>	1.
*3. Counties with active S.C. Committees				1.
**4. 4-H Soil Conservation Clubs				1.
**5. 4-H Soil Conservation Club Members Completing				XXXXXXXXXXXXXXXXXXXXXXXXXXXX
6. Educational meetings			<b>14</b>	1.
7. Training schools for County Agents				2.
8. Training schools for personnel of other agencies				2.
9. Training schools for leader farmers				2.
10. Tours to Project and Camp areas			<b>9</b>	<b>2.460</b>
11. Tours to cooperative demonstration farms			<b>3</b>	<b>2. 90</b>
12.				
13.				
14.				
15.				

\*Excluding 1 and 2 under C.  
 \*\*Including those in districts.

FRANKLIN COUNTY SOIL CONSERVATION ASSOCIATIONS - 1938

COUNTY	1	2	3	4	5	6
Albemarle	Oliver E. Graham	A. W. Talcott	Geo. T. Carr, R. 2	G. M. Barnett, R. 2	W. H. Stoneburner	J. R. Wingfield, R. 2
Adams	W. G. Radley	W. B. Sandidge	W. B. Ross	Rowland Lee	W. B. Woods	Dr. Mrs. Sandidge
Amherst	Amherst, Va.	Amherst, Va.	Amherst, Va.	Amherst, Va.	Amherst, Va.	Amherst, Va.
Appomattox	W. G. Anderson	J. P. Fawcette	J. C. Radford	A. R. Harwood	J. T. Nash	D. A. Conner
Bedford	Appomattox, Va.	Appomattox, Va.	Appomattox, Va.	Appomattox, Va.	Appomattox, Va.	Appomattox, Va.
Brunswick	W. P. Wilking	G. H. White	Bedford, Va.	Bedford, Va.	J. B. Hodges	F. C. Fortins
Cambridge	Bedford, Va.	Bedford, Va.	Bedford, Va.	Bedford, Va.	Bedford, Va.	Bedford, Va.
Carroll	A. R. Meredith	J. T. Bishop	D. A. Jackson	W. F. Martin	J. G. Luyke	L. F. Kinore
Chatham	Laurieville, Va.	Bedford, Va.	Laurieville, Va.	Laurieville, Va.	Laurieville, Va.	Albion, Va.
Clarke	Chas. Ellis	J. B. Connelly	Chas. Ellis	J. A. Hilton	J. L. Brooks	J. L. Brooks
Craig	Rantburn, Va.	Clayton, Va.	Rantburn, Va.	P. O. 573, Lynchburg, Va.	Clayton, Va.	Clayton, Va.
Curry	W. A. Vaughan	J. B. Filipe	H. G. Braddins, Jr.	J. F. Davis	Doyle, Va.	D. G. Smith
Danville	Doyle, Va.	Woodford, Va.	Doyle, Va.	Doyle, Va.	Doyle, Va.	Woodford, Va.
Fluvanna	H. N. McSwain	D. C. Jackson	D. B. Robertson, Jr.	D. Adams	G. H. Watt	E. V. Pettit
Fredricksburg	Charlottesville, Va.	Wellington, Va.	Chase City, Va.	Bedford, Va.	Kearney, Va.	Kearney, Va.
Giles	H. P. Clarke	H. S. Reese	H. S. Spain	H. B. Barter	J. W. Myers, R. 2	A. H. Fortinson
King George	Church Road, Va.	Church Road, Va.	Church Road, Va.	Marionville, Va.	Marionville, Va.	Church Road, Va.
King William	G. B. Hopkins	G. C. Flora	J. L. Webster	L. H. Bussey	Dr. S. S. Guarrant	Dr. S. S. Guarrant
Lancaster	Calloway, Va.	Rocky Mt., Va.	Boone Hill, Va.	Boone Hill, Va.	Calloway, Va.	Calloway, Va.
Lee	W. S. Adkins, Jr.	Dr. J. D. Hargood	G. L. Hall	Jake Pace	G. H. Salmon	F. H. New
Lynchburg	Glover, Va.	Glover, Va.	Hallfax, Va.	Alton, Va.	Hallfax, Va.	Glover, Va.
Madison	H. L. Seville	R. B. Stanley	W. B. Carr	1000 W. Postway	Jim. R. Pace	R. B. Stanley
Mathews	Arden, Va.	Stonewall, Va.	Martinsville, Va.	Hidaway, Va.	Hidaway, Va.	Stanleytown, Va.

County	1	2	3	4	5	6
King William	Special Activity	Hard Working	No Competitions			
Lancaster	L. B. Kent	H. B. Wilkinson	H. S. Powers	S. A. Collins	G. W. Clark	J. B. Mason, Jr.
Lynchburg	Victoria, Va.	Kearney, Va.	South Hill, Va.	Kearney, Va.	Lynchburg, Va.	Lynchburg, Va.
Madison	M. Y. Hobbs	W. H. Gentry	H. H. Wilkins	W. L. Allgood	B. K. Hight	W. Jeter III
Mathews	So. Hill, Va.	South Hill, Va.	Chase City, Va.	Bedford, Va.	Lynchburg, R. 1	Bedford, Va.
Northampton	Miss Ellis, Smith	Frank White	G. A. Mathews	G. G. Admore	F. L. Dean	W. L. Kirby
Orange	Orange, Va.	Blackstone, Va.	Blackstone, Va.	Orange, Va.	Orange, Va.	Blackstone, Va.
Stafford	J. P. Pullen	L. A. Bryant	H. H. Mathews	W. T. Green	G. B. Yeatts	Henry Cousins
Stafford	Stafford, Va.	Stafford, Va.	Stafford, Va.	Stafford, Va.	Stafford, Va.	Stafford, Va.
Stafford	H. H. Hubbard	J. W. Hedd	H. R. Howell	H. K. Taylor	F. D. Dillon	G. M. Reid
Stafford	Stafford, Va.	Stafford, Va.	Stafford, Va.	Stafford, Va.	Stafford, Va.	Stafford, Va.
Stafford	W. B. Gayle	H. H. Berry	W. L. Arnsing	L. P. Graves	W. H. Schuler	Wobb Hight
Stafford	Fredricksburg	Stafford, Va.	Stafford, Va.	Stafford, Va.	Stafford G. H.	Fredricksburg

1. Information and Publicity
2. Promotion of Membership, Contracts and Coop.
3. Farm Management
4. Business
5. Forestry
6. Recreation and Wild Life

OFFICERS OF COUNTY SOIL CONSERVATION ASSOCIATIONS  
AND  
DATE OF ANNUAL MEETINGS - 1938

County	President	Secretary	Treasurer	Annual Meeting Date
Albemarle	G. H. Garnett, Rt. 2, Charlottesville, Va.	McNeil Marshall Charlottesville, Va.	McNeil Marshall Charlottesville, Va.	15 days of Feb. 1
Amherst	Rowland Lee Agricola, Va.	O. B. Boss Amherst, Va.	B. F. Gauden Lovesville, Va.	1st Saturday in Nov.
Annandale	A. R. Harwood Annandale, Va.	R. B. Hudgins Annandale, Va.	R. B. Hudgins Annandale, Va.	15 days of Feb. 1
Bedford	J. B. Hoell Goode, Va.	Thomas Stark, Jr. Bedford, Va.	Thomas Stark, Jr. Bedford, Va.	15 days of March 1
Brunswick	J. G. Harrison Warfield, Va.	W. F. Martin Lawrenceville, Va.	J. B. Browder Lawrenceville, Va.	10 days of March 1
Cassell	J. A. Hilton, P.O. Box 751, Lynchburg, Va.	J. J. Riesel Lynchburg, Va.	G. L. Tuno Lynchburg, Va.	15 days of March 1
Caroline	J. F. Davis, Wentons, Va.	G. B. Lanford Bowling Green, Va.	C. B. Lanford Bowling Green, Va.	15 days of Feb. 15th
Charlotte	R. B. Jackson Baker Branch, Va.	P. A. Robinson Charlotte, Va.	P. A. Robinson Charlotte, Va.	15 days of March 1
Blair	R. A. Baxter Blairsville, Va.	R. E. Ritchie Blairsville, Va.	R. E. Ritchie Blairsville, Va.	15 days of March 1
Franklin	W. H. Hoff Stone Hill, Va.	W. S. Flora Wirtz, Va.	W. S. Flora Wirtz, Va.	15 days of Feb. 1
Halifax	C. H. Stevens Queen, Va.	H. R. Linkous Halifax, Va.	H. R. Linkous Halifax, Va.	15 days of March 1
Henry	Geo. W. DeShazo Edgarville, Va.	J. E. Pace Hickory, Va.	J. E. Pace Hickory, Va.	15 days of Aug. 1
King William	S. S. Robinson Falls, Va.	R. John Sweet West Hill, Va.	R. John Sweet West Hill, Va.	Special
Lincoln	S. A. Collins Kenbridge, Va.	S. C. Stokes Kenbridge, Va.	T. H. Ragdale Kenbridge, Va.	January
Madison	A. P. Johnson Clarksville, Va.	R. C. Hines Burdton, Va.	W. L. Allgood Burdton, Va.	15 days of March 1
Montgomery	C. G. Asmore Greene, Va.	J. A. Hardy, Jr. Blackstone, Va.	J. A. Hardy, Jr. Blackstone, Va.	15 days of Feb. 1
Pittsylvania	W. I. Green Chatham, Va.	T. M. Jackson Chatham, Va.	T. M. Jackson Chatham, Va.	15 days of Feb. 1
Prince Edward	H. H. Glenn Froemont, Va.	E. F. Striplin Farmsville, Va.	B. Z. Taylor Froemont, Va.	15 days of March 1
Stafford	Grafton Greenlaw Fredericksburg, Va.	L. P. Graves Sealston, Va.	L. P. Graves Sealston, Va.	15 days of March 1

STATISTICAL STATUS OF SOIL CONSERVATION DISTRICTS - 1938  
(As of November 30th)

COUNTY	Co. Agts' Meeting		Co. Agr. Board		Petition		Hearing No. 1		Education Meetings				
	Date	Reaction	Date	Attend.	Reaction	Date	No. Signers	Date	Attend.	Reaction	Date	No. Attend.	Reaction
Essex	7-23	Yes	8-12	26	Yes	9-8	31	10-6	50	Good	10-15	5	Good
King & Queen	"	"	"	22	"	8-20	25	10-4	30	"	"	3	"
King William	"	"	"	26	"	8-19	67	10-3	38	"	"	3	"
New Kent	"	"	8-10	7	"	8-30	29	10-6	4	Poor			
Necklenburg	8-8	Yes	9-8	28	Yes	10-29	24	11-19	Rain				
Lunenburg	"	"	9-9	31	"	10-27	73	11-19	20				
Charlotte	"	"	9-6	15	"	9-22	36	11-18	25				
Halifax	"	"	9-7	27	"	11-4	63	11-18	40				
Albemarle	8-25	Yes	9-13	33	Yes	9-28	14	10-25	15	Good	11-3 10-31	6	Good
Louisa	"	"	9-10	25	"	9-17	41	10-25	35	"	11-3 11-5	9	"
Fluvanna	"	"	9-12	25	No								
Gochland	"	"	9-14	8	Yes	10-10	14	10-26	7	Good	11-3 11-5	4	Good

STATISTICAL STATUS OF SOIL CONSERVATION DISTRICTS - 1936 (CON'D)  
 (As of November 30th)

COUNTY	Hearing No. 2			Referendum			Remarks
	Date	Attend.	Reaction	Date	No. Ballots Mailed	No. Votes Cast For      Against	
Essex	10-27)		Good	11-3-17)		181      7	This group of counties
King & Queen	" )	25	Good	3 )	5350	206      8	will comprise the
King William	" )		Acquintance and Rest	)		146      11	Tidewater Soil Con-
			Point Dist.				servation District
Mecklenburg			Good				
Lunenburg							
Charlotte							
Halifax							
Albemarle	11-7)		Good				This group of
Louisa	" )	60	Part of District good				counties will com-
Fluvanna	" )		Good				prise the Times. Jef-
Goochland							erson Soil Conser-
							vation District

#### ESTABLISHMENT OF SOIL CONSERVATION DISTRICTS IN VIRGINIA

Before 1934 interest in soil conservation and the knowledge of suitable soil erosion control practices was definitely limited. Community, district and county terracing demonstrations were held each fall in most of the Southside Virginia counties. These demonstrations were conducted by the Extension Agricultural Engineer. Frequently, the farm equipment dealers would lend tractors or terracers. Obviously, rather slow progress was made. The Agronomist suggested suitable crop rotations which included small grains, clovers and other close growing crops, but the emphasis was not on erosion control in the same sense it is today.

1935 was a very active and interesting year. It was during this year that ten county terracing associations were organized and a large terracing unit started in each of these counties. These machines build modern terraces and do other farm work on a cooperative non-profit basis to the members. They have operated about four years and during this year have constructed over 49 miles of terraces which will protect about 7260 acres from erosion.

It was during this year that the Soil Conservation Service began effective work in demonstration areas, starting with the Hannister River area in Pittsylvania County and enlarging its service to include areas in Appomattox, Albemarle and Rockingham Counties. In these areas hundreds of farmers have cooperated with the Soil Conservation Service in entering into agreements to have practical soil erosion control practices established on their farms. These are field laboratories and demonstrations to show other farmers the benefits of these methods. It is satisfying to know that many non-cooperating farmers have adopted proved practices of their own accord.

During this year fourteen C.C.C. Camps were established with smaller demonstration areas around each camp. Work similar to that in the larger demonstration areas is being done. At present there are ten of these C.C.C. Camps assigned to the Soil Conservation Service and they are located in Bedford, Appomattox, Franklin, Halifax, Henry, Mecklenburg, Nottoway, Pittsylvania, and Stafford Counties. Their work is so effective and so much appreciated that any effort to move one is vigorously opposed.

Agricultural extension work, together with the Soil Conservation Service through their camp and demonstration areas, have had a telling effect in making Virginia people erosion control conscious. Broader opportunities and greater challenges have been made during the past year.

The last legislature enacted a bill known as the "Soil Conservation Districts Act", which is state-wide in its application and gives promise of enabling the various state agencies to assist farmers with their erosion problems on a much larger scale.



This act provides for "creating governmental subdivisions of the State; to engage in conserving soil resources and preventing and controlling soil erosion; to establish the State Soil Conservation Committee, and to define its powers and duties; to provide for the creation of soil conservation districts; to define the powers and duties of soil conservation districts, and to provide for the exercise of such powers, including the right to acquire property by purchase, gift, and otherwise; to empower such districts to adopt programs and regulations for the discontinuance of land-use practices contributing to soil wastage and soil erosion, and the adoption and carrying out of soil-conserving land-use practices; and to provide for establishing Boards of Adjustment in connection with land-use regulations, and to define their functions and powers; to provide for the discontinuance of such soil conservation districts; to provide for financial assistance to such soil conservation districts; to appropriate funds for the purpose of effectuating the provisions of this Act; and for other purposes."

The need for this legislation is shown in the present condition of much of Virginia's agricultural lands and which condition is known to most farmers. It is agreed that the farm and grazing lands of Virginia are among the basic assets of the State and that the preservation of these lands is necessary to "protect and promote the health, safety, and general welfare of its people." Improper land-use practices, breaking of natural grass, plant, and forest cover, washing of top soil out of fields and pastures and erosion deposited sand on fertile bottom lands are common handicaps confronted by Virginia farmers. The new Act proposes to eliminate practices which lead to these conditions.

Among the common consequences of misuse of land and the failure to apply appropriate erosion control measures are the silting and filling up of stream channels, reservoirs, dams, etc., the piling up by over-wash of poor subsoil material on lower slopes and plains, definitely lower acre income, destruction of wild life food and cover, intensifying periods of drought, increasing flood damage to highways, roads and farm buildings, and losses in water supply, hydro-electric power and navigation.

The soil conservation districts law provides for the correction of many bad land-use practices by recommending appropriate soil-conserving land-use practices; engineering operations such as the construction of terraces; terracer outlets, check dams, and the like; utilization of strip cropping, contour furrowing and cultivation; seeding and planting of waste and eroded lands to suitable trees, plants and grasses; reforestation; rotation of crops and other practices to increase the water holding capacity of the soil and prevent heavy runoff due to water concentration.

In July, 1938 this soil conservation law became effective. A State Soil Conservation Committee was set up consisting of the director of the agricultural extension service, the director of the agricultural experiment station located at Blacksburg, the Commissioner of Agriculture and Emigration, one member appointed by the Governor - Mr. J. R. Horsley of Appomattox, and one member appointed by the Secretary of Agriculture - Mr. Lyman Carrier, the State Coordinator of the Soil Conservation Service.

In addition to these five members, an administrative officer and a secretary were employed. Mr. J. R. Hershey of Appomattox is Chairman of this State Committee.

In short order petitions were received from King William, King and Queen, New Kent, and Essex Counties asking that a soil conservation district be organized to function in the territory described in the petition. After hearings, educational meetings and a referendum were held in this section, a district was established by a favorable vote of 96% and this district is known as the Tidewater Soil Conservation District. It includes lands lying within the boundaries of Essex County, King and Queen County and Aquinton and West Point Magisterial Districts in King William County, excluding the incorporated towns of West Point and Tappahannock.

The law provides for two of the five local supervisors being appointed by the state committee. D. S. Crosby, County Agent in Essex County, was appointed for one year and S. S. Robinson of King William County was appointed for two years. The other three supervisors will be elected in a special election held in the near future. These local supervisors will have made application for and received a certificate from the secretary of the Commonwealth. The district is then a governmental subdivision of the State and is in position, with the assistance of other state agencies, to write a plan or program of work for the betterment of agricultural conditions in that district. The entire control of the district's activities is local. The program for this district will likely be completed early next year.

Petitions have been received from Albemarle, Goochland and Louisa Counties asking for the establishment of a Soil Conservation District in this section. The State Committee acted favorably on these petitions and at this time a referendum is being held to determine whether or not it is the will of all the people to have a district. The hearings and educational meetings were completed in November. If the vote is favorable, procedure similar to that taken in the Tidewater district will be followed and the district named the Thomas Jefferson Soil Conservation District. If the vote is unfavorable, the matter will be dropped and new petitions may be filed after a period of six months.

Recently petitions have been filed from Charlotte, Halifax, Lunenburg and Mecklenburg Counties requesting a Soil Conservation District there. The first hearings have been held but educational meetings and further work has been postponed until January.

A number of other counties have shown definite interest in this new way of conducting soil erosion control work but official action has not been asked. During 1939 it is contemplated that accelerated action will be taken in establishing these Soil Conservation Districts over the State. The following tabulation shows detailed activities to date.

COOPERATIVE PROJECT AGREEMENT

between

THE VIRGINIA AGRICULTURAL EXPERIMENT STATION

and

THE SOIL CONSERVATION SERVICE  
UNITED STATES DEPARTMENT OF AGRICULTURE

1. TITLE:

Research in soil and water conservation for agricultural purposes in Virginia.

2. OBJECTIVES:

- (a) To determine the fundamental laws and principles governing the reactions and properties of soils involved in erosion as a basis for the testing and developing of different corrective measures and practices, effective in the conservation, development and use of land and water resources for agricultural purposes.
- (b) To conduct agricultural hydrologic studies necessary for erosion and flood control on Operations projects and on other critical areas in Virginia.

3. THE PROBLEM:

The reconnaissance soil conservation survey of 1935 showed that destructive sheet erosion, with appreciable gullying, had occurred on large areas of the State of Virginia, especially towards the center and westerly portions. Virginia is one of the earliest settled agricultural areas in the United States and all accounts indicate that erosion started soon after the land was first brought under cultivation. Hall's study entitled "Early Erosion Control Practices in Virginia" indicates clearly that almost all the modern methods recommended for reducing soil losses have been applied on a small scale at some time during the history of the State. There is, however, still no definite agreement as to what procedure is best suited to the various soil types and crops grown in Virginia in order to prevent soil loss and maintain the land in a proper state of fertility.

Where terracing is employed there are also many hydrologic problems to be solved in connection with handling runoff water in order to make sure that precipitation will be allowed to enter into the soil profile as far as the permeability of the soil will permit. Where excess water is to be conducted out of the fields, there is need for the design of proper erosion control structures which will handle this runoff without danger of gully formation or excessive loss of surface soil.

4. REASONS FOR MAKING STUDY:

The length of time during which erosion has taken place in Virginia clearly indicates that the individual farmer is unlikely to be able to develop adequate methods of control which will stabilize the fields for continued cultivation. The past excellent productivity of many of the Virginia soils would warrant appreciable expenditure in order to reduce further soil loss and develop information essential to the restoration of part of the original fertility.

5. PREVIOUS WORK:

A large literature dealing with erosion control and related problems has been recorded by Hall and his co-workers in their studies of erosion history. In the conclusions drawn by Hall in his excellent review of early erosion control practices he notes the great number and variety of control measures which have been employed. Such experimentation, however, has lacked continuity and the results of it have not been sufficiently well known where encouraging progress was made so that there could be a general adoption of the most promising techniques. The Virginia Agricultural Experiment Station already has a number of experiments under way dealing with the value of various mechanical materials and vegetative covers upon erosion control. It is believed that the Soil Conservation Service can aid in this work by assigning some additional personnel and cooperating in the development of improved procedures for reducing soil loss.

6. PLAN OF PROCEDURE:

The research to be carried out under this project will fall under two principal heads:

(a) Soil and Water Conservation Studies:

1. The Virginia Agricultural Experiment Station has already installed a series of control plots on representative slopes having different vegetative covers, cropping and tillage treatments. It is planned to continue this work and expand the program to more adequately meet the need of the State as set forth under the objective, by
2. Conducting field experiments where loss of soil and water and crop yield resulting from various soil management and engineering practices can be measured and various corrective measures developed.

3. Conduct farm experiments to determine the practicability and profitableness of corrective practices in the farming program of the State.

(b) Agricultural Hydrologic Studies: These investigations will be by field tests and runoff measurements in the various portions of the regions described, and by supplemental laboratory tests

1. Provide for the evaluation of land use practices in relation to runoff, soil loss and flood flow as affected by topography, shape and size of drainage area, vegetative cover, surface and underground storage, tillage methods, and various erosion control practices, and

2. Furnish information for the economic design of more effective erosion and flood control structures.

7. LOCATION OF HEADQUARTERS:

The headquarters of this project will be at the Virginia Agricultural Experiment Station, Blacksburg, Virginia, while the experimental work will be either located at the Virginia Agricultural Experiment Station or at suitable sites throughout the State chosen by the cooperators.

8. COOPERATION:

This will be a joint cooperative project between the Virginia Agricultural Experiment Station and the Soil Conservation Service.

9. ORGANIZATION AND LEADERS OF THE WORK:

(a) Supervisors: A. W. Drinkard, Agricultural Experiment Station  
W. C. Lowdermilk, Division of Research, Soil Conservation Service.  
C. E. Seitz, Virginia Agricultural Experiment Station  
M. L. Nichols, Division of Research, Soil Conservation Service.

(b) Project Leaders:

To be jointly selected

\_\_\_\_\_, Virginia Agricultural Experiment Station

\_\_\_\_\_, Soil Conservation Service

(c) Advisors:

G. W. Musgrave, Soil Conservation Service  
C. E. Ramser, Soil Conservation Service

10. ANTICIPATED DURATION OF THE PROJECT:

For the fiscal year 1938, with renewal for one or more years as may be mutually agreed by the cooperators, provided such renewal does not extend beyond the overall memorandum of understanding between the Virginia Agricultural Experiment Station and the Soil Conservation Service.

11. DATE EFFECTIVE:

January 1, 1938.

12. LEGAL AUTHORITY:

Soil Conservation Act Public No. 46, 74th Congress, H. R. 7054, and item in the Appropriation Act, United States Department of Agriculture for the fiscal year 1938.

Acts and Regulations of the State of Virginia applying to the agricultural experiment station.

13. PROPOSED EXPENDITURE AND ALLOTMENT OF FUNDS:

Virginia Agricultural Experiment Station	\$9500.00
Soil Conservation Service	\$4000.00

14. INTEREST OF MEMBERS OF CONGRESS:

No member or delegate to Congress or resident commissioner after his election or appointment, and either before or after he has qualified and during his continuance in office, and no officer, agent or employee of the Government shall be admitted to any share or part of this agreement or to any benefit to arise therefrom, and no convict labor shall be employed to carry out the terms of this agreement, in accordance with the Executive Order signed May 16, 1905. The provision herein with respect to interest of members or of delegates to Congress and resident Commissioners in this agreement shall not be construed to extend to any incorporated company where such agreement is made for the benefit of such incorporation or company (Section 3741 Revised Statutes, and Sections 114-116, Act of March 4, 1909).

15. AGREEMENTS:

- (a) The Virginia Agricultural Experiment Station will furnish office space, stenographic service, laboratory facilities and field equipment as may be available. The Virginia Agricultural Experiment Station has at present two full time specialists engaged in this research work. These men will cooperate in conducting and carrying out the general research program. All property purchased by the Virginia Agricultural Experiment Station funds shall remain the property of the Virginia Station.

(b) The Soil Conservation Service

1. Will assign one trained worker or join in the employment of a cooperative agent, and supply such equipment as may be available for the prosecution of the soil and water conservation study. All property purchased by Soil Conservation Service funds shall remain the property of the Federal government.
2. The Soil Conservation Service will also furnish a research agricultural engineer to cooperate in the conduct of the hydrologic studies indicated under the procedure. The Soil Conservation Service will furnish the travel expenses of this employee and such water measuring equipment as may be available for the purpose of the work.

(c) It is mutually agreed:

1. Conferences will be held at least annually, and at more frequent intervals if in the opinion of the cooperating agencies circumstances warrant, to review and revise plans of procedure with the provision that other parties may be invited to such conferences for advisory purposes, as agreed upon by both cooperating parties.
2. That at the close of each fiscal year, (June 30), during the time this agreement is in force, each party will report to the other party of this agreement, financial and operating statements, that may involve the possession of property, so as to have any business occurring during the year fully accounted for and approved by the heads of the cooperating organizations as soon as possible after the close of each fiscal year.

16. LIMITATION OF EXPENDITURES:

The cost of this project for the fiscal year ending June 30, 1938, to be paid by the Virginia Agricultural Experiment Station shall not exceed \$9500. Annual amounts greater than \$9500 will require amendments hereto.

The cost of this project for the fiscal year ending June 30, 1938, to be paid by the Soil Conservation Service shall not exceed \$4000, of which \$1500 will apply to the soil and water conservation studies and \$2500 will be devoted to the hydrologic research. The exact amounts to be agreed upon by the cooperating agencies will be arranged from year to year. Annual amounts greater than the amount specified in this paragraph will require amendments hereto.

17. EXPENDITURE OF FUNDS:

That all United States Department of Agriculture funds expended in connection with this agreement shall be disbursed in accordance with the Fiscal Regulations of the United States Department of Agriculture.

18. PUBLICATIONS OF RESULTS:

Data obtained throughout the progress of this cooperative work are to be interpreted under the direction of the project leaders thereof. Publication of results will be either jointly or separately as provided in the general memorandum of understanding between the Virginia Agricultural Experiment Station and the Soil Conservation Service. See page 5, paragraph 9 of memorandum.

19. PROVISION FOR TERMINATION:

Unless renewed, as hereinafter provided, this agreement shall terminate on June thirtieth following such failure to renew this agreement. In the event any major change in this agreement is desired by one party, not less than thirty days notice shall be given to the other party.

20. PROVISION FOR RENEWAL:

This agreement may be renewed from year to year by concurrence of the Chief of the Soil Conservation Service and the Director of the Virginia Agricultural Experiment Station, with the understanding that such renewal will be proposed in writing at least one month before this agreement would otherwise expire, provided, however, that this agreement shall not extend beyond the close of the general memorandum of understanding between the Virginia Agricultural Experiment Station and the Soil Conservation Service.

IN WITNESS WHEREOF, the parties hereto have executed this agreement on the date set opposite their respective signatures.

I. FOR THE STATE:

Approved by: \_\_\_\_\_ Date \_\_\_\_\_  
Director, Virginia Agricultural Experiment  
Station

II. FOR THE DEPARTMENT OF AGRICULTURE:

Approved by: \_\_\_\_\_ Date \_\_\_\_\_  
Chief, Soil Conservation Service

Approved by: \_\_\_\_\_ Date \_\_\_\_\_  
Director of Research, U.S. Department of  
Agriculture

Approved by: \_\_\_\_\_ Date \_\_\_\_\_  
Secretary of Agriculture



A STUDY OF THE EFFECTS OF TENNESSEE VALLEY AUTHORITY  
PHOSPHATE ON SOIL AND WATER CONSERVATION

PROGRESS REPORT

1937-1938

Agricultural Engineering Department  
Virginia Agricultural Extension Division

Cooperating with  
Tennessee Valley Authority

\*\*\*\*\*

Report by

W. H. Dickerson, Jr.  
T.V.A. Assistant County Agent

September 1938

## INTRODUCTION

This is the second report that has been prepared on the Soil and Water Conservation runoff studies in the Tennessee Valley area of Virginia.

The project is authorized by "A Supplement to Farm Unit and Area Test Demonstration Projects in Cooperation with the Virginia Polytechnic Institute". This provides for the establishment of a systematic procedure for the measurement of the progressive reduction in soil and water losses from watershed areas, farms and plots resulting from the use of Tennessee Valley Authority phosphates as specified in the contract and project indicated above. It is also stated that the construction of runoff plots and methods used in measuring runoff shall be in accordance with the methods and procedures established by the Virginia Polytechnic Institute, and that the Institute shall be responsible for obtaining complete records of soil and water losses from fertilized and check areas. All reports on the progress of this project are to be submitted upon request to the Director of the Agricultural Division, T.V.A.

The location of these studies was initially confined to Wythe and Washington Counties, with the agreement that the procedure could be extended to other counties in the Tennessee River watershed by mutual consent.

### Personnel

Mr. G. D. Kite was responsible for the original installation in Wythe and Washington Counties. W. H. Dickerson, Jr. was appointed on September 4, 1957 to take Mr. Kite's place upon his resignation, and is now

responsible for the collection of all data. T.V.A. assistant county agents in the counties where the work is located assist in the establishment of measuring equipment and the collection of data. Mr. W. R. Perkins of the V.P.I. Experiment Station cooperates in securing data from the runoff plots located at Glade Spring. Mr. H. T. Rogers and Mr. J. E. Lillard of the V.P.I. Experiment Station staff act in an advisory capacity in designing measuring equipment and formulating plans for the collection of data.

Discussion of Apparatus and Methods Used in Making Tests

It was decided that the best way to begin the study of evaluating the effect of T.V.A. phosphates on pastures in conserving soil and water was

Figure 1

Figure 1 is a view of the general layout of the plots established on Danmore soil in Wythe County and at Glade Spring. A trough at the bottom of the plot intercepts the runoff and it is conveyed into the storage tanks through a length of rain pipe.

to establish a number of small runoff plots. These plots are so constructed that the entire amount of soil and water lost by erosion during any one rain period can be retained for quantitative measurement. All plots are 1/100 acre in size and were constructed by sinking a border board around the desired area. The dimensions of each plot are 8 ft. wide by 54.45 ft. long, measured on the horizontal. The long dimension runs perpendicular to the contour.

Two plots were located on the same slope with a strip of approximately 2 ft. between to prevent any possible border effect. One plot on each slope was fertilized with T.V.A. triple superphosphate at the rate of 96 pounds  $P_2O_5$  per acre, the other serves as a check. A mixture of 10 pounds of lespedeza, 5 pounds white clover and 2 pounds red top per acre was sown on both treated and untreated areas.

Twelve such plots were installed on Dumore soil, six in Wythe County and six at Glade Spring in Washington County. The slopes being used are 15%, 18%, 23%, 24%, 30%, and 37% which, in general, covers the range in slope of this particular soil type. All areas were selected on a southern to western exposure, and an attempt was made to secure locations with approximately the same ground cover at the beginning of the experiment.

A slight change in the above layout was made in the more recent installations on Westmoreland soils. Three slopes ranging from 30% to 60% were selected. Four plots were installed on each slope used, thus allowing duplicate fertilized and check areas on the same slope.

Figure 2. This figure shows the layout of the later studies on Westmoreland soil. Notice the four plots on one slope. This allows two fertilized and two check plots on each slope studied.

Here again attention was given to securing areas with the same relative exposure and with comparable vegetative cover. The studies on Westmoreland silty clay loam soil are located in adjoining counties. One slope of 30% was selected in Tazewell County and slopes of 40% and 50% were found in Russell County. Two plots on each slope were fertilized with the equivalent of 96 lbs.  $P_2O_5$  per acre of T.V.A. phosphate, the others serve as checks. No grass seed mixture was used.

The third soil selected for investigation by means of runoff plots to determine the effect of T.V.A. phosphate applications on soil and water losses was Westmoreland silt loam. This is an important and extensive pasture land soil in the Holston River drainage area in Virginia. This study is

located in Washington County, and is so situated that the three slopes selected lie on the sides of a miniature watershed or drainage basin of approximately 10 to 12 acres. Plans have been made to locate a flume and waterstage recorder at the outlet of this basin in order to get a measurement of the total amount of water lost from the area to correlate with the measurements from the small 1/100 acre plots.

U. S. Weather Bureau standard rain gages are used to measure precipitation on all plots. Rainfall records are being secured in Wythe, Washington, Tazewell and Russell Counties at present.

After each rain producing runoff the catchment tanks are emptied and the runoff weighed. A representative sample of the runoff from each individual plot is secured. A portion of this sample is evaporated down to determine the actual soil loss. Composite samples are retained from each plot for periodic laboratory analysis to determine, if possible, the actual plant foods lost through erosion.

A vegetative count was made on all plots in June of 1936. A wire frame 1 ft. square divided into 25 equal units was used in making the count. Each small unit represented 4% of the total area. The approximate percent of the different kinds of cover was estimated in each small unit and these figures used to determine the total amount of each kind of cover present in the one foot square. The frame was thrown at random on the plot area and the counts made where it came to rest. The five counts were distributed over the length of the plot to simplify the work to some extent. The following classifications or groups were used:

- (1) Bare area, (2) Briars, thistles and brush, (3) legumes, (4) weeds, (5) desirable grasses, (6) undesirable grasses and dead vegetation.

#### Presentation and Discussion of Data

The data given in this report covers the period from June 30, 1937 to September 4, 1938. Complete records have been secured on the Dummore soil studies for this period. Construction of the plots on Westmoreland silty clay loam was completed during March and April of 1938 and records have been secured since May 1938. The studies located on Westmoreland silt loam soil in Washington County were completed during August of this year. No data has been secured as yet.

Results shown in Table 1 are from the plots on Dummore soil at Glade Spring in Washington County. This table gives the soil and water losses from individual plots for each rain or rain period and the actual rainfall that caused these erosion losses. A dash entered in the soil loss column indicates that no soil-water ratio determinations were made. From June 30 to September 7, 1937 no samples were collected so it was impossible to determine soil losses occurring. The figures given under water losses represent in this case the entire amount of erosion. Some rains occur in such a manner as to cause negligible soil losses.

An inspection of these figures reveals that erosion losses were much smaller from the fertilized plots than from the check plots. The fact that the 30% slope has given less erosion loss than the two smaller slopes indicates that more factors than slope may influence erosion and water losses. For a given rainfall, the type and amount of vegetative cover and the type of soil are probably the most important.







Table 2 gives the same data for the plots in Wythe County on Dumore soil. Note that during the period covered there were more rains causing runoff at Glade Spring than in Wythe County where these studies are located. This is partly due to local storms that did not extend over the entire area included by these locations.

One slope in Wythe County (18%) has given more total water loss from the fertilized plot than from the check plot. It will be seen by inspection of the data that this condition is tending to reverse, that is, the difference between the amount of runoff from the two areas has gradually diminished since the study began. It is interesting to see that the soil losses from this slope have consistently been greater from the check than from the fertilized area.

Significant differences in both soil and water losses from the fertilized areas as compared to the check areas are shown by the 24% and 37% slopes. That more erosion losses occurred on the 24% than on the 37% slope is perhaps partly due to differences in vegetative cover, and partly due to a difference in the soil on which these plots are located.

Table 5 was prepared to give a summary of the rainfall data secured at Glade Spring by months. The period from September 1, 1937 to August 31, 1938 is represented. Examination of the table shows the number of rains occurring each month, total precipitation, number of rains that actually caused runoff and the amount of precipitation during these rains. Total rainfall for the year was 45.92 inches and there were 122 rains or rain periods. Seventeen rains actually produced runoff, but 22.49 inches or about 50% of the total rainfall occurred during these rains.

TABLE 5. SUMMARY OF RAINFALL DATA - GLADE SPRING

Month	No. Rains or Rain Periods	Inches of Rainfall	No. Rains Causing Run-off	Inches	% Rains Causing Run-off
1937					
Sept.	5	3.64	1	2.77	20.0
Oct.	14	7.22	3	5.51	22.1
Nov.	6	.93	0	0	0
Dec.	9	2.27	0	0	0
1938					
Jan.	11	3.79	1	1.70	9.1
Feb.	9	1.79	1	0	11.1
Mar.	10	4.24	2	3.52	20.0
Apr.	11	3.55	1	1.55	9.1
May	18	5.91	3	2.71	17.6
June	13	5.27	3	2.45	23.0
July	10	4.12	2	2.29	20.0
Aug.	7	2.60	0	0	0
Totals	122	45.42	17	22.48	

Percent of rains causing runoff - 13.93

Data secured to date from the Westmoreland soil studies is contained in Table 4. These plots were installed during March and April of 1938. Due to the short time this study has been in force, no reliable conclusions as to value of T.V.A. phosphate in conserving soil and water on this particular soil type can be drawn.

However, the figures do indicate that a much higher water loss may occur from Westmoreland pasture soils than from Dumore soils. The average loss per acre from Tasewell County fertilized and check plots was approximately 78,000 gallons for four months.

Information on the vegetative count is summarized by plots in Table 5. The figures given represent the average of five counts made on each 1/100 acre plot. A good picture of the beneficial effects of T.V.A. phosphate on Dumore pasture soils is shown by comparison of check and fertilized plots.

TABLE 4. EROSION LOSSES FROM WESTMORELAND SOIL

## (Tazewell County Plots)

Date	Rainfall in Inches	Runoff Losses Per Acre			
		30% Fertilized Plots		30% Check Plots	
		Soil in Lbs.	Water in Gals.	Soil in Lbs.	Water in Gals.
May 5-June 30	2.95	50.6	6,275	65.3	9,447
June 30-July 20	2.50	21.8	4,639	23.7	5,969
Aug. 1 - 4	1.01	79.4	26,936	123.8	24,607
Aug. 5-Sept. 4	5.15	29.7	32,799	63.6	36,364
Total	11.69	181.5	70,647	316.4	86,387

## (Russell County Plots)

Date	Rainfall in Inches	Runoff Losses Per Acre			
		40% Fertilized Plots		40% Check Plots	
		Soil in Lbs.	Water in Gals.	Soil in Lbs.	Water in Gals.
June 18-27	4.60	28.2	3,513	11.1	1,197
July 1-21	6.02	15.0	6,085	9.1	2,937
Total		43.2	9,598	20.2	4,134

## (Russell County Plots)

Date	Rainfall in Inches	Runoff Losses Per Acre			
		50% Fertilized Plot		50% Check Plot	
		Soil Loss in Lbs.	Water Loss in Gallons	Soil Loss in Lbs.	Water Loss in Gallons
June 18-27	4.60	9.2	888	40.5	1,116
July 1-21	6.51	16.0	1,665	11.0	1,375
Total		25.2	2,553	51.5	2,491

A comparison of the type of cover on each plot with the corresponding erosion losses per year is very interesting. High losses from some individual plots and the corresponding small losses from others do not appear unreasonable when the type of cover on the two plots is considered.

TABLE 5. COMPOSITION OF PASTURE ON SOUTHWEST VIRGINIA PLOTS

Washington County - Dummore Soil (Glade Spring)						
Plot No.	% Bare Area	% Briars, Thistles & Brush	% Legumes	% Weeds	% Desirable Grasses	% Undesirable Grasses and Dead Vegetation
15 Fert.	8.0	5.8	49.0	25.0	4.8	7.4
15 Check	21.0	13.8	9.8	37.0	7.0	11.4
23 F	1.2	2.8	87.6	19.0	2.8	6.8
23 C	6.8	2.0	3.0	72.0	4.8	11.4
30F	12.0	1.0	64.0	17.0	2.6	5.4
30 C	29.4	9.6	6.0	37.0	2.4	15.6

Wythe County - Dummore Soil						
Plot No.	% Bare Area	% Briars, Thistles & Brush	% Legumes	% Weeds	% Desirable Grasses	% Undesirable Grasses and Dead Vegetation
18 F	2.0	0	79.0	14.0	5.0	0
18 C	6.4	0	64.2	20.8	6.6	0
24 F	8.2	0	49.8	32.0	3.0	7.0
24 C	13.8	1.6	15.4	54.0	4.8	10.4
37 F	8.0	8.2	62.0	10.0	6.8	6.0
37 C	21.4	13.8	21.4	19.4	6.6	17.4

TABLE 6. COMPOSITION OF PASTURE ON SOUTHWEST VIRGINIA PLOTS

Tazewell County - Westmoreland Silty Clay Loam						
Plot No.	% Bare Area	% Briars, Thistles & Brush	% Legumes	% Weeds	% Desirable Grasses	% Undesirable Grasses and Dead Vegetation
30% R	15.2	0	12.4	30.0	3.0	39.4
30% RM	25.2	0	7.4	19.4	2.8	45.2
30% LM	19.6	0	9.0	27.4	2.6	41.4
30% L	14.8	0	1.8	31.2	1.8	51.2

Russell County - Westmoreland Silty Clay Loam						
Plot No.	% Bare Area	% Briars, Thistles & Brush	% Legumes	% Weeds	% Desirable Grasses	% Undesirable Grasses and Dead Vegetation
40% R	4.2	0	50.6	13.8	14.2	17.2
40% RM	1.8	0	53.2	8.8	21.4	14.8
40% LM	5.8	2	45.8	16.4	16.0	14.0
40% L	4.8	0	47.6	9.6	20.8	17.2

Russell County - Westmoreland Silty Clay Loam						
Plot No.	% Bare Area	% Briars, Thistles & Brush	% Legumes	% Weeds	% Desirable Grasses	% Undesirable Grasses and Dead Vegetation
50% R	12.2	0	8.2	32.8	15.4	33.4
50% RM	17.6	4	6.4	17.7	17.4	40.5
50% LM	9.4	0	11.2	24.8	11.8	42.8
50% L	7.8	1	7.8	18.2	14.8	50.4

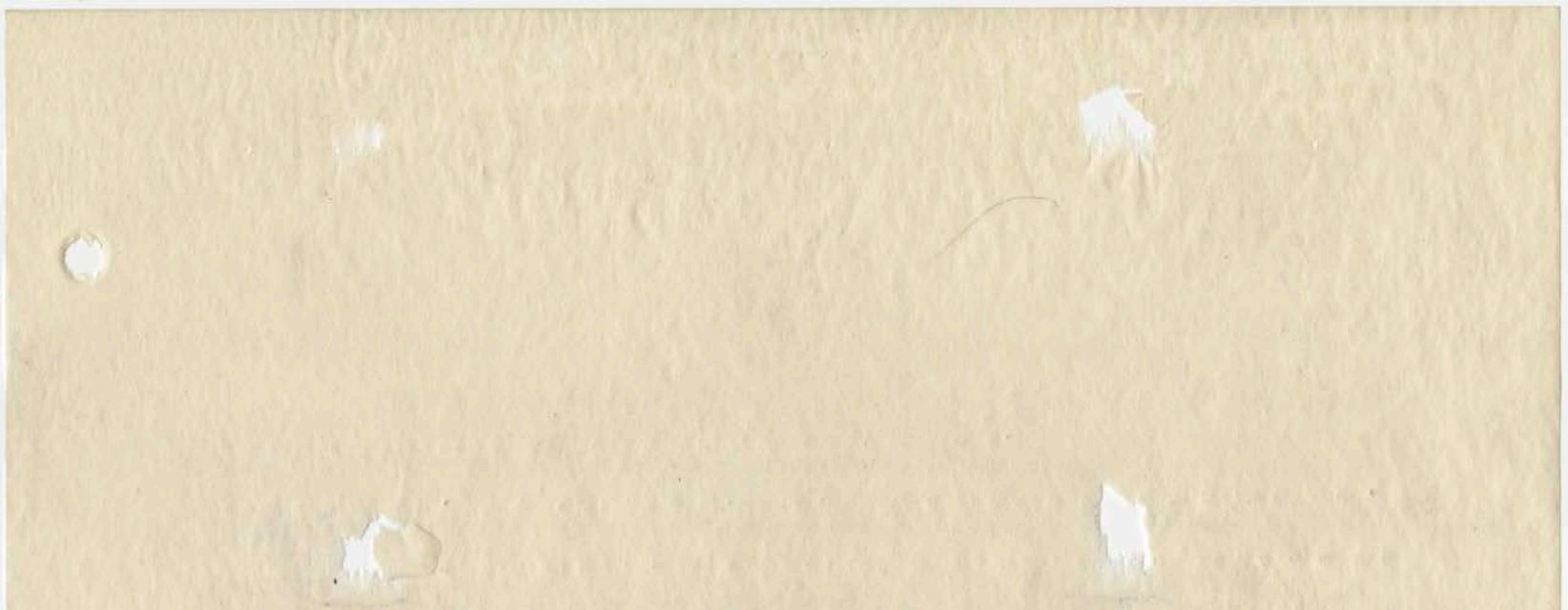
The image area for Figure 3 is mostly blank, showing the texture of the aged paper and some minor damage or discoloration. It is intended to show a view of a 15% slope at Glade Spring.

Figure 3. A view of the 15% slope at Glade Spring

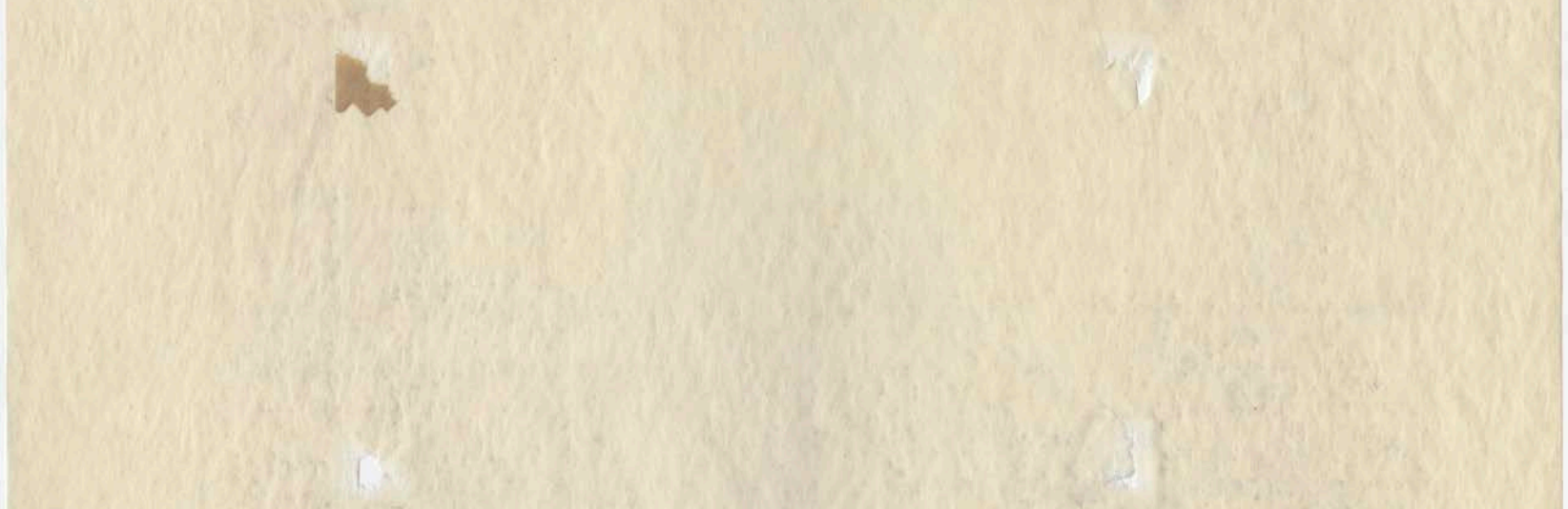
The image area for Figure 4 is mostly blank, showing the texture of the aged paper and some minor damage or discoloration. It is intended to show the 30% installation on Dunmore Soil.

Figure 4. The 30% installation on Dunmore Soil

These pictures were made in June 1938 about the time the vegetative count was made. The fertilized and check plots can easily be distinguished. Note the absence of white clover on the check plots.

### Summary

The present investigations to determine the value of T.V.A. phosphate in conserving soil and water on pasture lands should be continued over a period of years in order to secure reliable results from the more important pasture soils present in the Tennessee River watershed in Virginia.

Results of 15 months study on Dumore soil indicate that the application of T.V.A. phosphate has reduced soil and water losses greatly.

Table 7 gives a summary of the losses from plots located on this soil type.

TABLE 7. TOTAL SOIL AND WATER LOSSES

Wythe and Glade Spring - Dumore Soil

Slope	Soil Losses Per Acre		Water Losses Per Acre	
	Fertilized Plots	Check Plots	Fertilized Plots	Check Plots
15%	318.0 Lb.	534.3 Lb.	61,069 Gal.	83,510 Gal.
23%	102.4	365.9	54,408	155,687
30%	197.9	212.5	45,278	48,584
16%	258.2	298.0	77,681	47,194
24%	298.4	2161.0	79,001	161,508
37%	552.5	595.2	39,405	55,814
Total	1785.4	4166.9	367,829	552,307
Ave. Loss Per Acre	297.5 Lb.	694.6 Lb.	59,638 Gal.	92,061 Gal.

The difference in amount of soil lost from check and fertilized plots is 597 pounds per acre in favor of the phosphated areas. Check plots lost 32,413 gallons of water per acre more than the treated plots.

Table 8 is a summary of the results from the vegetative count. It reveals a reduction in bare ground, an enormous increase in legumes and a

TABLE 8. SUMMARY OF VEGETATIVE COUNT MADE JUNE, 1938

Dunmore Soil - Washington & Wythe (Check)					
% Bare	% Briars, thistles	% Legumes	% Weeds	% Des. Grass	% Un. Grass & Dead Veg.
16.8	6.8	19.9	40.0	5.4	11.1
Dunmore Soil - Washington & Wythe (Fertilised one year)					
6.6	2.9	61.9	19.6	4.0	5.1
Westmoreland (Silty Clay Loam) Soil - Russell & Tasewell Co's.					
11.9	.1	21.7	20.8	11.6	33.9

corresponding reduction in weeds and undesirable grasses in favor of the phosphated as compared to check areas.

It is planned to continue the operation of the studies now being carried on for an indefinite period. Periodic vegetative counts will be made on all plots to evaluate the effect of phosphate on the quality of pastures. Laboratory analysis of the soils studied will be carried on in an effort to gain a more complete understanding of the erosion problem.

The present studies are now being expanded to include an investigation of the effects of T.V.A. phosphate on small pasture watersheds of 10 to 25 acres.

The work will be expanded to new localities and the effect of T.V.A. phosphate on other soil types and farming practices will be investigated as rapidly as money and personnel are available.



COOPERATIVE LABORATORY INVESTIGATIONS BY THE  
VIRGINIA AGRICULTURAL EXPERIMENT STATION

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A Supplement to 1937-1938 Progress Report on  
"A Study of the Effects of T.V.A. Phosphate on  
Soil and Water Conservation"

Prepared by

Howard T. Rogers, Assistant Soil Technologist  
Virginia Agricultural Experiment Station  
Blacksburg, Virginia

September, 1938

I. A Study of the Effect of Time and Method of Application of Phosphates and Lime on the Losses of These Materials Through Surface Runoff from Pasture Sods

Measurement of surface runoff from permanent pastures in Southwest Virginia has shown that large quantities of water are lost from these areas, carrying appreciable amounts of soil.

At present little is known of the actual plantfood losses by sheet erosion on permanent pasture lands. It has been rather definitely established that surface application of phosphatic fertilizers tend to be fixed in the surface inch or two of soil and move downward very slowly over a period of years. It is quite obvious that small soil losses where phosphates have been broadcast on the surface, may result in rather heavy losses of phosphorus. This possibility is being investigated and such findings should point towards the best time and method of applying phosphate and lime to pasture lands of steep slope, in order to minimize the losses of these materials through surface runoff.

Samples of the first runoff after a surface application of 200 lbs. of triple superphosphate per acre of permanent pasture land in Russell County, Virginia, were recently analyzed to determine the phosphate content of runoff water and eroded material from fertilized and untreated areas.

Total phosphorus content of the soil and the soil and water mixture expressed as percent of  $P_2O_5$  by weight is shown in Table I.

The data in Table I show that the soil lost from the phosphated plots contained considerably more phosphorus than that from the untreated areas. Approximately 25 to 200% more  $P_2O_5$  was contained in the eroded soil

TABLE I. TOTAL  $P_2O_5$  IN ERODED SOIL AND RUNOFF WATER FROM PASTURES  
(Westmoreland Clay - Russell County, Virginia)

No. Plot & Slope	Treatment	Lbs. Runoff Per Acre	Percent $P_2O_5$	
			Eroded Soil	Soil & Water Mixture
40%	L 96 lbs $P_2O_5/A$	38,900	1.842	.00154
	LM Check	9,500	.979	.00082
40%	RM 96 lbs $P_2O_5/A$	16,400	1.025	.00146
	R Check	10,500	.882	.00118
50%	L 96 lbs $P_2O_5/A$	No runoff	-	-
	LM Check	1,000	.344	.00228
50%	RM 96 lbs $P_2O_5/A$	14,800	.862	.00104
	R Check	9,300	.646	.00078

from the treated pasture land. The same relative percentages are shown in the phosphorus content of the soil and water mixture. However, the concentration of soil in the runoff was very small and the total pounds of runoff relatively insignificant from this rain.

It is planned to check the phosphate content of composite samples of the runoff from these areas which will show whether these losses are sufficient to affect the grass cover on these plots. As an outgrowth of this work, a project is underway at the Virginia Experiment Station designed to study under controlled conditions the various factors affecting the losses of phosphate and lining materials through surface runoff where surface applications of these materials are made on permanent pasture land.

## II. Soil Structures and Permeability Studies

A classification of the major soil types of Southwest Virginia as to their permeability to water and infiltration properties is being attempted. The need for this information is paramount when either agronomic practices or engineering devices are being designed to conserve soil and water in any specific area. This grouping will be based on: (1) detailed mechanical and aggregate analyses showing the structural properties of a large number of undisturbed samples for each soil type, (2) actual runoff data from comparable areas in permanent pasture, and (3) profile characteristics of these soils as described and rated by soil survey workers.

The structure of the Dumore and Westmoreland soils on which the runoff measurements shown in the first part of this report were taken, is shown by the analyses in Tables II and III for each plot or area where runoff measurements are being made.

Soils of similar mechanical composition do not necessarily erode alike. The far-reaching effects of soil aggregation on erodibility of the soil and amount of runoff must be recognized in interpreting data on soil and water losses from comparable areas.

It is interesting to note that the plots located on the steepest slope of Dumore (37% Wythe County) gave consistently less runoff than the more gentle sloping areas. A partial explanation of this may be the significantly greater percent of soil in aggregates larger than .1 mm in diameter (Table II) when compared with the other areas of Dumore.

It is impossible here to discuss in detail the application of such data to runoff measurements but it is evident that the aggregate composition of these soils as shown in Tables II and III will be helpful in interpreting

Table II. Aggregate Composition and Degree of Aggregation of Humore Clay  
(Wythe County and Glade Spring Pasture Knoff Plots)

Size of part and Name of Separate (mm)	Surface Soil					Sub-Soil					Weights Average	
	Wythe Co. 24% (3 ampls.)	Wythe Co. 37% (3 ampls.)	Glade Spr. 15% (3 ampls.)	Glade Spr. 23% (3 ampls.)	Weighted Average	Wythe Co. 18% (5 ampls.)	Wythe Co. 24% (3 ampls.)	Glade Spr. 15% (3 ampls.)	Glade Spr. 23% (3 ampls.)	Glade Spr. 15% (3 ampls.)		Glade Spr. 23% (3 ampls.)
2.0-5.0	29.4	39.1	38.9	33.2	33.6	14.5	13.0	15.7	10.4	15.7	10.4	15.5
1.0-2.0	16.7	21.3	22.8	22.5	18.9	19.0	13.3	19.9	18.4	19.9	18.4	17.7
.5-1.0	12.9	14.0	13.3	14.9	12.8	23.6	16.7	22.2	19.7	22.2	19.7	20.5
.25-.5	10.1	8.1	5.9	7.8	8.6	14.9	12.1	13.9	16.1	13.9	16.1	13.5
.1-.25	5.3	6.7	4.5	5.3	6.0	7.4	14.3	12.1	14.7	12.1	14.7	11.2
Total >.1	74.4	69.2	65.4	63.7	79.9	79.4	69.4	63.8	79.3	63.8	79.3	76.5
<.05 (silt & clay)	18.1	17.3	14.0	14.0	17.6	11.3	14.7	13.2	10.2	13.2	10.2	12.6
<.01 (colloids)	7.3	8.4	6.0	6.0	7.4	2.1	1.3	3.2	4.0	3.2	4.0	2.4
<.005 (clay)	4.9	4.2	0.0	0.0	3.3	0.8	0.6	2.5	1.0	2.5	1.0	1.0
<.05 (silt & clay)	69.9	—	64.4	66.2	64.4	89.4	82.2	65.6	63.6	65.6	63.6	67.3
<.01 (colloids)	70.0	—	43.4	45.6	60.7	76.5	62.0	53.6	49.6	53.6	49.6	68.5
<.005 (clay)	58.3	—	29.2	30.7	48.2	67.8	59.6	43.2	35.4	43.2	35.4	59.7
Degree of Aggregation	79.0	—	80.8	83.6	78.8	87.4	87.8	89.5	87.8	89.5	87.8	87.8

Per cent silt, colloids, and clay not in aggregates >.05 (silt size)

Total Per cent silt, colloids, and clay (Mechanical Analysis), and Degree of Aggregation

TABLE III. AGGREGATE COMPOSITION AND DEGREE OF AGGREGATION OF WESTMORELAND CLAY

Size of Particle (mm) and Name of Separate	Percent Material					
	Surface Soil			Sub-Soil		
	Russell Co. 5 Samples	Tazewell Co. 3 Samples	Weighted Ave.	Russell Co. 5 Samples	Tazewell Co. 3 Samples	Weighted Ave.
2.0 - 5.0	51.1	54.5-	52.4-	42.8	27.0	36.9
1.0 - 2.0	24.6	23.3	24.1	24.0	27.2	25.2
.5 - 1.0	14.1	11.4	13.1	17.8	16.7	17.4
.25 - .5	5.0	4.4	4.8	6.5	9.7	7.7
.1 - 2.5	3.6	3.0	3.4	5.3	6.1	5.8
Total > .1	98.4	96.6	97.7	96.4	91.6	94.3
% Silt, Colloids, and Clay not in Aggregates > .05 (Silt Size)						
< .05 (Clay and Silt)	7.4	10.4	8.5	8.5	11.6	9.8
< .01 (Colloids)	4.4	5.1	4.7	3.7	5.6	4.5
< .005 (Clay)	1.9	2.5	2.1	1.7	3.6	2.5
Total % Silt, Colloids, and Clay (Mech. Analysis), & Degree of Aggregation						
< .05 (Clay & Silt)	79.9	80.8	80.2	80.5	81.8	81.1
< .01 (Colloids)	57.4	56.0	56.9	61.8	57.5	60.0
< .005 (Clay)	46.6	41.9	44.8	49.5	47.2	48.5
Degree of Aggregation	90.7	87.1	89.4	89.4	85.8	87.9

the variations found in soil and water losses from such areas. The degree of aggregation is a calculated factor used to express the state of aggregation of the finer materials in soils. In general the higher the degree of aggregation, the better the structure with more resistance to erosion.

TABLE IV. A COMPARISON OF THE STRUCTURAL PROPERTIES OF DUNMORE CLAY AND WESTMORELAND CLAY

Size of Particle (mm) and Name of Separate	Percent Material			
	Surface Soil		Sub-Soil	
	Dunmore	Westmoreland	Dunmore	Westmoreland
2.0 - 5.0	33.6	52.4	15.6	36.9
1.0 - 2.0	18.9	24.1	17.7	25.2
.5 - 1.0	12.8	15.1	20.6	17.4
.25 - .5	8.6	4.8	18.5	7.7
.1 - .25	6.0	3.4	11.2	5.8
Total > .1	79.9	97.7	78.5	94.3
Percent Silt, Colloids, and Clay not in Aggregates > .05				
< .05 (Clay & Silt)	17.6	8.5	12.6	9.8
< .01 (Colloids)	7.4	4.7	2.4	4.5
< .005 (Clay)	3.3	2.1	1.0	2.5
Total % Silt, Colloids, and Clay (Mech. Anal.), and Degree of Aggregation				
< .05 (Clay & Silt)	84.4	80.2	87.3	81.1
< .01 (Colloids)	60.7	56.9	68.5	60.0
< .005 (Clay)	48.2	44.8	59.7	48.5
Degree of Aggregation	78.8	89.4	87.8	87.9

COOPERATIVE EXTENSION WORK  
IN  
AGRICULTURE AND HOME ECONOMICS

STATE OF VIRGINIA

VIRGINIA AGRICULTURAL AND MECHANICAL  
COLLEGE AND POLYTECHNIC INSTITUTE  
AND UNITED STATES DEPARTMENT OF  
AGRICULTURE, COOPERATING

Blacksburg, Virginia  
April 15, 1938

EXTENSION SERVICE

Dear Agent:

The Extension Division is sponsoring a series of rural electrification schools in cooperation with the Rural Electrification Administration and leading Virginia utilities. These schools are planned for training home demonstration agents and county women leaders so they will be better qualified to assist farm women with this type problem. The schedule of the schools is as follows:

- April 25 & 26 - Petersburg - Over Max Dutch Kitchen on Sycamore Street.
- April 27 & 28 - Lynchburg - A.E.P.Co. Demonstration Kitchen. Electric Building.
- April 29 & 30 - Roanoke - A.E.P.Co. Demonstration Kitchen. Electric Building.
- May 2 & 3 - Marion - Over Wyatt's Cafe.
- May 4 & 5 - Harrisonburg - Friddle's Restaurant.
- May 6 & 7 - Fredericksburg - Stratford Hotel.

These schools will give instruction on wiring, household equipment, water supply and electricity on the poultry farm. Although the subject matter will be treated from the women's viewpoint, we feel that it will also be of value to the county agent. Therefore, if you find it possible to do so, we will be glad to have you attend the school most convenient to you one or both days.

Yours very truly,

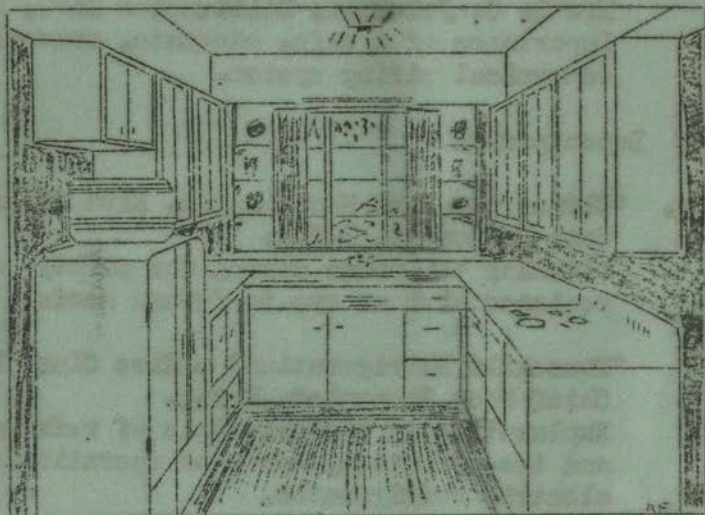
*Chas. E. Seitz*

Chas. E. Seitz  
Extension Agricultural Engineer





# "LIGHT" ON RURAL ELECTRIFICATION



V. P. I. Extension Service in  
Cooperation with the Rural Electrification  
Administration and Virginia Utilities



PROGRAM

First Day

- 10:30 A.M. "Need and Purpose of School" --(District Agent)
- 10:40 " " "ABC's of Electricity" - Mr. E. T. Swink, Asst. Agr. Engr., V.P.I.  
Explanation of simple electric terms, minimum bill and rate schedule.
- 11:45 " " "Fundamentals of Good Wiring" - Mr. L. C. Prickett, Utilization Div., R.E.A.  
Importance of a safe, adequate, convenient and economical wiring system.
- 12:30 " " Lunch period
- 1:30 P.M. "Wiring the Farm Home" - Mrs. Elva Bohannon, Home Economist, R.E.A.  
Planning the house wiring for safety and convenience with an eye to future needs.
- 2:30 " " "Household Refrigeration" - Miss Clara Nale, Chief Home Economist, R.E.A.  
Explanation of the principle of refrigeration and the selection, care and operation of the electric refrigerator.
- 3:45 " " "The Science of Seeing" - Mr. Walter Moulton, Utilization Div., R.E.A.  
An explanation of lighting terms, the human eye, and the relation of good lighting to its protection.
- 4:30 " " "Discussion period"  
Questions will be collected and answered by the proper person during this period.
- 5:00 " " "Adjournment"

- 7:45 P.M. "Home Lighting and Fixtures Demonstration" -  
(Local Service Co., Home Lighting Specialist)  
A practical demonstration of home lighting  
equipment, its selection and arrangement.
- 9:00 " Sound movie "Bill Howard, R.F.D." - General  
Electric Company. A full hour of enter-  
tainment. The best rural electric film  
yet produced.

Second Day

- 9:00 A.M. "Electric Cookery" - Miss Clara Nale  
A demonstration of the selection, use and  
care of the electric range and roaster.
- 10:30 " "Farm Water Supply by Electricity" -  
Mr. E. T. Swink and Mr. L. C. Prickett.  
The various types of electric pumps ex-  
plained and demonstrated.
- 11:30 " "Laundry Equipment" - Miss Clara Nale
- 12:00 Lunch period
- 1:00 P.M. "Small Kitchen Appliances" - Mrs. Elva Bohannon  
The selection, care and use of the more common  
small electric household appliances.
- 2:00 " "Electricity for Farm Poultry Profits" -  
Mr. E. T. Swink.  
Electric brooding, poultry lighting, etc.
- 3:00 " "Discussion period" - Questions will be  
collected and answered by the proper specialist.
- 3:30 " "Adjournment"

COOPERATIVE EXTENSION WORK  
IN  
AGRICULTURE AND HOME ECONOMICS  
STATE OF VIRGINIA

VIRGINIA AGRICULTURAL AND MECHANICAL  
COLLEGE AND POLYTECHNIC INSTITUTE  
AND UNITED STATES DEPARTMENT OF  
AGRICULTURE, COOPERATING

Blacksburg, Virginia  
May 25, 1938

EXTENSION SERVICE

Dear

We are offering for the first time a special summer course in Electrical Household Equipment. This is an important phase of our extension program in rural electrification in Virginia. I am enclosing a prospectus of this summer course which I believe will be of interest to you.

The great national interest in electrification, both rural and urban, has created a demand for leaders with a better understanding of electrical household equipment.

If you are a teacher, home demonstration agent, commercial demonstrator, or student, you should be interested in preparing yourself to meet the demand for leadership in this field. Such a course as we are offering here at V.P.I. will better prepare you to handle your own job more efficiently. It may also equip you to secure a better position in the rapidly growing field of home equipment.

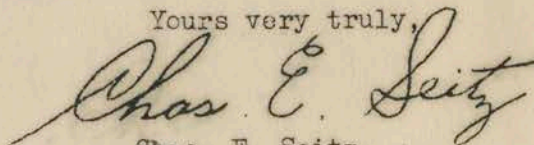
It is practically impossible to find persons with the proper background, training and experience, to qualify them for some of the good positions now available in household equipment. For example, one Federal agency recently asked us to find several women for them with the type of training we are proposing in this course. The few women who have taken our graduate work, specializing in household equipment, now hold splendid positions in this field.

Professor P. B. Potter, a nationally recognized authority in household engineering, will be in actual charge of this course. He will be assisted by several household equipment, lighting, and rural electrification specialists who will be available for lectures and demonstrations at certain periods during the latter part of the course.

Anyone desiring to take the course in a shorter period may do so by doubling up on the hours during the last two and a half weeks, from June 28 to July 15.

We shall be glad to give you further information and send you a summer catalog which contains full information in regard to registration, fees, living accommodations, and other courses that may be taken.

Yours very truly,



Chas. E. Seitz,  
Extension Agricultural Engineer

P R O S P E C T U S   O F

SPECIAL SUMMER COURSE IN ELECTRICAL HOUSEHOLD EQUIPMENT

Under Direction of  
Professor P. B. Potter

Agricultural Engineering Department  
Virginia Polytechnic Institute  
Blacksburg, Virginia

June 10 -- July 15  
1938

Contents

Introduction and Explanation of the Course  
    Mechanics and Physics of the Household  
The Electrical Installations in the Home  
    Modern Home Lighting  
    Laundry Processes and Equipment  
The Cooking Process and Available Equipment  
    Food Preservation and Refrigerators  
    Cleaning Methods and Equipment  
    Small Electrical Appliances  
    Kitchen Planning Clinic  
Rural Electrification Aspects  
    In Conclusion

## INTRODUCTION AND EXPLANATION OF THE COURSE

With the greatly increased sale and use of modern mechanical equipment in the home, there has come a demand for reliable information on the part of consumers and the need for qualified instructors, demonstrators and salesmen in the field of home equipment who are equipped with a practical knowledge concerning the performance and use of all the latest appliances. This course is being set up as an educational contribution to this great new field. It is to be given in the household engineering laboratory just completed in the new Agricultural Engineering Building at Virginia Polytechnic Institute and will be conducted by a number of highly qualified specialists in household equipment and rural electrification.

This course in household equipment is arranged especially for home demonstration agents, commercial demonstrators, home economics teachers, students, and other qualified persons interested in the various phases of home equipment. It is a six-weeks course beginning June 10 and ending July 15, 1938, and conforms to the schedule and regulations of the V.P.I. Summer School. A catalog will be sent upon request. The course will require 2 hours of lecture and 12 hours of laboratory work per week which will permit the student to take other courses in the summer school. As a special inducement to some who may want only the household equipment course, the work may be doubled up during the last three weeks so that the entire course can be taken in that time. Within this last 3-weeks period will be given the special demonstrations of equipment by outside experts such as cooking on electric ranges, preparing frozen foods in refrigerators, wiring the home, lighting, etc.

While the course will deal mostly with electrical household equipment it will be the aim to cover all equipment for the home, whether electrical or not. The instruction given will take up the fundamentals, including principles of physics and mechanics, involved in household processes and in the operation of the equipment designed therefor. Then the parts and features of the equipment will be studied for operating technique, and, finally, limited tests will be run to determine the performance characteristics of the different appliances. All the work will be interspersed with demonstrations, especially in the last three weeks of the course when outside experts will demonstrate the use of the larger appliances. Much of the work will be given from the rural electrification viewpoint.

In general, the object of the course will be to teach the underlying principles or reasons for the equipment, as well as to familiarize the student with the operation, use and care of it.

## HOUSEHOLD MECHANICS

A certain portion of the laboratory time will be given over to household mechanics, that is, the actual doing of mechanical repairs and details concerned with installations and equipment in the home. Included will be such things as electrical wiring, connections and repairs; switches and switch diagrams; meter reading and computation of electric bills; winding and installing coils in range units; soldering; pipe fitting and repairs of water supply fixtures; electrical measurements; fuses and electrical safety; tool sharpening; light measurements and lamp tests; care of electric motors; and other things as time permits.

### THE ELECTRICAL INSTALLATION IN THE HOME

Since installation is the basis for successful use of electrical appliances in the home, it will be taken up early in the course. Discussions will explain where electricity comes from, how it is transmitted and transformed for use, what the entrance wiring has to be, location of entrance installation, switch and meter, size of wire and distribution of circuits over the house.

The work will include a short trip into nearby towns and territory to observe all the necessary devices used in electrical distribution, and to a house under construction to observe the wiring system.

### MODERN HOME LIGHTING

This being a most important type of home improvement, it will be stressed and thoroughly covered in the course. Based on a proper understanding of the wiring system, the work will include a lecture and a demonstration of proper lighting in the home by an outside specialist in this field. The latest types of lighting units will be available for observation and demonstration.

### LAUNDRY PROCESSES AND EQUIPMENT

Laundry work in the home is a steady and tiring task that makes successful use of mechanical equipment. It will be given special attention in the course, including discussions of the six factors in washing; the function of the washing machine and its features in operation; and a demonstration of our dark room tests to evaluate the factors of washing.

Following this will be a discussion of the ironing process with late test data to show what is essential. Since our research work has brought out important information concerning ironing and electric irons,

we think this will be an interesting part of the course. It will take up such things as fabrics to be ironed, ironing temperatures, dampening the clothes, use and selection of the iron. With the laundry work there will be a discussion of heating and softening water. Equipment will be available to demonstrate the different types of laundry work.

#### THE COOKING PROCESS AND AVAILABLE EQUIPMENT

This is another daily task in the home which makes use of modern equipment, especially electric ranges, roasters and other special equipment. It will be an important phase of the course and will be covered mostly by expert demonstrations of latest equipment and methods, and by fundamental discussions of the use of heat and temperatures in cooking, and the important role that electricity has come to play in it. Part of the work will cover gas and kerosene cooking equipment.

In our research work we have considerable information, data and curves to show performance characteristics of oven for baking, and the research set-up will be available for use of the class.

#### FOOD PRESERVATION AND REFRIGERATORS

This all important piece of equipment will be given prominent consideration in the course. Lectures will cover the fundamental conception of food preservation by cold; the cycle of operation of the mechanical refrigerator; characteristics of refrigerants used; features of the different makes and points in the selection of a modern refrigerator. Samples on the floor and instruments will permit of interesting tests of performance, while specialists will demonstrate the full use of refrigerators in the home in food storage and preparation.

#### CLEANING METHODS AND EQUIPMENT

To a limited extent the methods of cleaning in the home will be taken up along with the study of vacuum cleaners and related equipment. Such things as washable surfaces, filtered air and tight windows to prevent dirt entrance, the ventilating fan in the kitchen, etc, will be discussed. Simple tests on cleaners may follow.

#### SMALL ELECTRICAL APPLIANCES

A number of small appliances like toasters, grills, heaters, food mixers, etc, will be studied and discussed so that the student may know of the uses, as well as the limitations, of these devices.



### KITCHEN PLANNING CLINIC

A study of equipment is not complete without a knowledge of its convenient and efficient placement in the home. Since the kitchen is the place where the greater part of home equipment is used, it becomes necessary to take up the planning of the modern kitchen. In addition, this is a most prominent feature of home improvement programs. Much study of the kitchen has been made in the last few years and there are definite recommendations as to planning up-to-date kitchens. These will be brought out in discussions and demonstrations with models and full size equipment. A part of the laboratory work will be the drafting and blueprinting of plans for improved kitchens. Expert outside assistance will be available.

### RURAL ELECTRIFICATION ASPECTS

Since all the studies in the course tie in with rural electrification programs now being promoted in the state and elsewhere, considerable attention will be given to rural electrification. Most of the outside instructors will be from the rural electrification field. The Agricultural Engineering Department has a rural electrification laboratory with equipment which will be available for this course.

### IN CONCLUSION

Since this course is a new venture in a new laboratory it cannot be foretold as to how completely all of the material can be presented. It is certain that anyone interested in this field will be well repaid for his or her attendance. The subject matter described can be changed and varied in amount to suit the needs of students in attendance, especially in the last three weeks period. The course is planned as an annual event in the V.P.I. Summer School.

Prospective students should write Professor C. E. Seitz, Agricultural Engineering Department, V.P.I., Blacksburg, Virginia, for further information in regard to registration and attendance. As first mentioned, the course is regularly scheduled in the Summer School Quarter and governed by its regulations.

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## Standard Unit Prices Established for MECKLENBURG ELECTRIC COOPERATIVE

Unit price includes material  
Labor for complete installation.  
Installation Units

Unit price does not include cost  
of light and fixtures

Quantity	Name	Approved W. P. Service Cable
<b>Main Service Entrance</b>		
3 wire No. 8 A W G with 20' cable .....		\$ 8.50
3 wire No. 6 A W G with 20' cable .....		9.50
	(25c. for each additional ft. of cable)	

### Yard Pole Meter Loops

3 wire No. 6 A W G .....	13.50
3 wire No. 4 A W G .....	15.00
3 wire No. 2 A W G .....	18.00

### Distribution Panel

	Armored Cable
2—15 Amp. 2-20 Amp. Circuit Breaker Type .....	8.00
4—15 Amp. 2—20 Amp. 1—50 Amp. Circuit Breaker Type .....	12.50
60 Amp. fused, 4 branch circuits — 1 range circuit .....	8.00
50 Amp. Multibreaker—Range Circuit—4 Branch Circuits .....	10.00

### House Wiring

	Non-Metallic Sheathed Cable
Light outlets and receptacles, inside and out .....	1.75
Switch outlet. S. P. Switch and flush type switches and plate .....	1.75
Switch outlet. 3 way switch and plate .....	2.25
Electric Range outlets with 20' cable .....	8.50
	(25c. additional per ft. over 20 ft.)
Bell transformer and bell .....	4.50

### Outbuilding Wiring

	Non-Metallic Sheathed Cable
Light outlets .....	1.75
Surface type switch outlets .....	1.75
Convenience outlets .....	1.75
Yard light and switch, 2 — 3 way .....	7.75
Yard light and switch S. P. .....	4.90
Water pump outlets .....	4.00
Portable utility motor outlets 1 h. p. 20' cable .....	3.50
Portable utility motor outlets 3 h. p. 20' cable .....	4.00
Portable utility motor outlets 5 h. p. 20' cable .....	5.00
Stationery motor outlets 1 h. p. 20' cable .....	5.00
Stationery motor outlets 3 h. p. 20' cable .....	5.50
Stationery motor outlets 5 h. p. 20' cable .....	6.50

### Intra Building Wiring

	Weather Proof Wire
No. 10 W. P. wire in place per ft. ....	.03
No. 8 W. P. wire in place per ft. ....	.04
No. 6 W. P. wire in place per ft. ....	.05
No. 4 W. P. wire in place per ft. ....	.08

# **EXTRA!**

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Due to rain on Monday night, the important Chase City meeting on wiring was postponed for **YOUR BENEFIT** until

**Thursday, May 26**

At 8:00 P. M.

**Town Hall---Chase City**

---

**J. WARNER PYLES**

REA, Washington, D. C.

—AND—

**E. T. SWINK**

V. P. I. Extension Division

Will Speak on the "WHY" and "HOW" of  
WIRING YOUR FARM.

**You Will Profit by Being Present**

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**MECKLENBURG ELECTRIC COOPERATIVE**

PROGRAM  
JAMESTOWN ADULT CAMP

Aug. 17 - 22, 1938

FIRST MEAL - Supper Wednesday, Aug. 17, 1938  
LAST MEAL - Breakfast Monday, August 22, 1938.  
COST - One dollar (\$1.00) per day, plus fifty cents (.50)  
registration.  
BRING - Sheets, blanket, toilet articles, bathing suits,  
fishing tackle, etc.

SCHEDULE  
A.M.

7:30 - Rise  
8:00 - Breakfast.  
9:00 - 9:30 - Music Hour.  
9:30 - 10:00 - Parliamentary Institute.  
10:00 - 10:30 - Discussion - Rural Electrification.  
10:45 - 12:00 - Handwork and Swimming.  
12:30 - Dinner.

P.M.

Afternoons will be devoted to pilgrimages, fishing, handcraft, swimming, or any other activity the camper desires.

MAY YOU ENJOY IT!

6:00 - Supper  
7:30 - 8:00 - Vespers.  
8:00 - Moving pictures, music and other evening entertainment.  
10:00 - Good night.

PERSONNEL

Director of Music - Miss Dorothy Wise - Accomac, Va.  
Director of Recreation - Miss Betty Ricks, Blacksburg, Va.  
Instructor in Handicraft - Miss Ruth Broughton, James City, Va.  
Instructor in Handicraft - Mr. Ward Wheeler -  
Rural Electrification - Mr. E. T. Swink, Blacksburg, Va.  
Parliamentary Practice - Mrs. P. E. Lotz, Norfolk, Va.  
Life Guard - Mr. Sidney Jaffy, Suffolk, Va.  
Dietitian - Miss Opal Covington -  
Camp Manager - Mr. G. M. Hodge  
Registrar - Miss Genelle McGhee - Lawrenceville, Va.

## School Showing How Electricity Lightens Farm Work Opens Here

(Harrisonburg Daily News Record)

A school showing how the use of electricity can lighten the work on the farm, especially for the women, was opened here yesterday for Home Demonstration Agents and others from nine counties.

These agents and women's leaders were instructed in how to encourage the use of electricity in farm homes. Particular stress is being laid upon the fixtures and equipment which should be installed, according to the needs of the individual homes.

The sessions, being held in Fridele's Grill Room, will be concluded this afternoon. The school is one of six being conducted in the state under the V. P. I. Extension Division and the Utilization Division of the Rural Electrification Administration.

The electric fixtures and equipment demonstrated are provided by Mason and Lambert, the Berry Lumber and Supply Co. and J. O. Stickley and Son. The City of Harrisonburg is providing the electricity.

Among those who addressed the school were E. T. Swink, assistant agricultural engineer, of V. P. I.; and Miss Clara Nale, chief home electrification specialist; Mrs. Elva S. Bohannon, home electrification specialist; and Lee C. Prickett, agricultural electrification specialist, of the REA at Washington. Miss R. Belle Burke, district home demonstration agent, explained the purpose of the meeting—to train home demonstration agents in the use of

electricity on the farm.

A sound picture, illustrating the uses of electricity on the farm, was shown at the Strand Theatre. Topics in the classes include good farm wiring, household refrigeration, home lighting and fixtures, electric cookery, farm water supply, laundry equipment, small kitchen appliances, and electricity for more poultry profits.

Those attending the school included:

Margaret Vaden, Home Demonstration agent, Alleghany county; Madeline Blair, Home Demonstration agent, Frederick county; Virginia Swink, Home Demonstration agent, Greene county; Jesse Ewell, Greene county agent; Katherine Bowen, Home Demonstration agent, Augusta county; Miss Leta Hiner, Homemaker, Highland county; Hazel Propst, Home Demonstration agent, Highland county; Mrs. P. A. Carver, chairman Rockingham Home Demonstration committee chairman; Mrs. Charles W. Wampler, Homemaker, Rockingham county; Mary Lee Dovel, Home Demonstration agent, Shenandoah county; Mrs. Sallie M. Boyer, Front Royal, F. S. A. Supervisor; Mrs. C. A. Tatum, Homemaker, Harrisonburg; Alice Tatum, F. S. A. Home Supervisor, Staunton; Regenia Matlock, Home Demonstration agent, Rockingham.

FOR NATIONAL, STATE AND  
LOCAL NEWS, READ THE  
DAILY NEWS-RECORD

# The Southside Virginia News


VOL. 11, NO. 6.

PETERSBURG, VA.

THURSDAY, AUGUST 25, 1938

5c A COPY

## Electricity Goes Rural Here



**The Southside Virginia News**

Chronicler of the Good News and Advocate of Every Worthy Cause in Petersburg and the Great Agricultural Section of Southside Virginia.

**WALTER P. MCGUIRE**  
President and Editor

Published Every Thursday by the Southside Publishing Company, Inc., at 14 E. Tabb Street, Petersburg, Va.

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### THE WEEK

News Summary and Historical Scrapbook—Aug. 25, 1938

#### Events That Stand Out

Electricity brought the news today that statistics, gathered by Federal agencies in all parts of the country, prove that business is definitely improved—that the upswing in many leading lines in the past seven weeks has won back all ground lost in the previous seven months. . . . It brought also the news that President Roosevelt has called Farley to Hyde Park to talk over further political moves; that the President believes there should be some changes in the Labor Relations Act but hasn't said what changes; that Capt. G. E. T. Eyston, who traveled 347.10 miles an hour in a auto in Utah the other day, says that 360 is as fast as can ever be done on land (this failure to make more the other day was caused by failure of electricity to function just right in his timer, due, though, to a mechanical defect). The other day electricity flashed the news that Lieut. Commander Frank M. Hawks, world famous speed flier, had been killed in the crash of his plane near Buffalo.

#### From Far Away

Electrical waves, coming by cable under the ocean or through the air, have brought more news of continued fighting in Spain and in China; of the British and German officials being nearer a crisis in their dickering over the German relations with Czechoslovakia — that there will be a break or an agreement soon now; of a Chinese-American air liner shot down by Japs in China, causing the death of the 12 aboard.

#### More Liquor "Profits"

An increase of nearly 7 per cent in the profits of the ABC board for the fiscal year ended June 30, as compared to the preceding period, has been revealed in the annual report submitted to the state comptroller by State Auditor L. McCarthy Downs. The total funds for distribution purposes amounts to \$4,920,207. Of this, \$1,675,000 is allocated specifically by statute to the general fund, while the balance of \$3,245,207 will be divided into a third for the state and two-thirds for the localities. According to this diversion, the state will receive \$1,081,736, leaving \$2,163,471 for localities, whose share was \$1,949,685 last year.

#### Young Democrats to Meet—and Maybe Argue

The Young Democrats of Virginia will hold their state convention in Richmond Friday and Saturday with an unusually large attendance. Maybe there will be some fireworks, because there has been a lot of agitation about a tentative proposal that Mr. Roosevelt be approved for a third term, and

(Continued on Page 44)

### The Electrical Show Is to Be Broadcast

(Continued from Page 1)

nearest telephone lines by short wave radio when there are no wire lines available.

Both units are of the latest design and in Richmond they will handle a program from any point some distance from the city limits to the receiving station atop the Central National Bank building—a 23-story structure—the tallest in the city. From this station the program goes to the near-by studios by telephone lines.

During the exhibition at McKenney the receiver will be set up inside the school building while the truck in which the transmitter—W3XIS—is housed will be driven about the grounds. In this way there will be given a demonstration of the actual operation of the equipment.

Formerly WPHR, Greatly Enlarged

The call, Station WRNL, may be new to some listeners, but it is received "in the middle of your dial," where so many Southside Virginians for years listened to WPHR. For in fact WRNL is ex-WPHR, now located in Richmond, with the latest and finest of Western Electric high fidelity equipment, the South's newest and most modern studios and a quality of broadcast that is equaled by few broadcasting stations anywhere.

The studios are located on the second floor of the News Leader Arcade, adjacent to the home of The Richmond News Leader, and were designed to be the most practical in operation that could be built under the surrounding circumstances. They have proved that in the short time that they have been in operation.

There are three studios with elaborate equipment, a striking reception room, a ladies' lounge, and an audience room with comfortable theatre seats. Throughout the plant there has been special sound-proofing and acoustical treatment, and the entire assemblage has been air-conditioned for winter and summer.

Through every stage of location and construction of this new broadcaster the accepted practice was not deemed adequate and experts studied the very "best" way an operation could be performed. This was always the practice followed. The net result was that by a combination of these practices, the location of the transmitter, the equipment used and the frequency of 880 kilocycles, WRNL has become the talk of radio men in Virginia. Never before has a station of such power enjoyed such a wide coverage or such a signal of such clarity. WRNL is now being heard from the mountains of West Virginia across the Eastern Shore of Virginia and from Pennsylvania far down into North Carolina.

The station has set for itself a task of becoming a definite part in the civic life of Virginia and the McKenney exhibition and broadcast will be just another page in that story.

### Thomas W. Ozlin's Appendix Removed

A dispatch from Richmond Tuesday said that Thomas W. Ozlin, of Lunenburg county, member of the State Corporation Commission, underwent an operation for appendicitis at Johnston-Willis Hospital, Richmond, that day. His condition since has been described as good.

A letter which Judge Ozlin wrote to The Southside Virginia News last week on the subject of rural electrification is published on another page of this issue.

### Coming Events

On Page 4

### This Is Your Invitation To The Electrical Exhibition At McKenney, Aug. 30th.



The Southside Virginia News takes pleasure in inviting all Southside Virginia people to the Electrical Exhibition and Demonstration which will be held in the new building and on the grounds of the Sunnyside-McKenney High School, at McKenney (Dinwiddie county) next Tuesday. There will be no charge for admission to the Exhibition or to the interesting auditorium program that night.

The Exhibition will open to the public at 3 p. m.

At 3 o'clock also a "cooking school" will start in the auditorium, conducted by Mrs. Bohannon, a noted expert, of the REA headquarters in Washington.

At supper time there will be music and other entertainment. People are asked to bring something to eat. However sandwiches and drinks can be obtained on the grounds, sold by Home Demonstration Club members for the benefit of their community-improvement projects.

The night program in the auditorium will include three outstandingly-good motion pictures (sound) and brief addresses on subjects of immediate interest and importance. This program is more fully described in the article below.

You will enjoy the day, we are sure, and learn much of interest and value. Come, and tell your friends and neighbors to come—or bring them along

THE SOUTHSIDE VIRGINIA NEWS.

### Exhibits, Cooking School, Music, Movies At McKenney

Afternoon and Night Features of the Electrical Show Next Tuesday Are Free

To give the people of Southside Virginia opportunity to see the wonders of electricity and its various uses there will be assembled at the high school building in McKenney and on the school grounds, next Tuesday, probably the largest display of electrical equipment ever shown in this part of Virginia, and various demonstrations will be given so that people may understand better what electricity will do in the home and on the farm.

#### Mrs. Bohannon Coming to Conduct Cooking School

In the afternoon there will be a cooking school, in the large, new school auditorium. It will be interesting and helpful to all women, whether they have electricity or not. The Southside Virginia News was fortunate in getting Mrs. Bohannon, of the REA, Washington, to come to conduct it. Mrs. Bohannon is one of the best known cooking experts in the United States and has conducted such demonstrations in many parts of the country in the presence of many thousands of women.

#### Unusual Motion Pictures

In the evening there will be an auditorium program of unusual interest. Three motion pictures will be shown all dealing with the subject of electricity—pictures full of human interest and drama and revealing surprising things.

One of the pictures will show graphically how electricity carries the human voice on a telephone wire—and will reveal something to you that you will think of perhaps for years whenever you talk by phone.

Another will explain, in an amusing "animated" film, how the motion pictures "learned to talk"—by what process the "sound movies" supplanted the "silent films" of yesterday.

The third will deal with farmers. The title is "Bill Howard, R. F. D.," and what happened to Bill (and his girl) and to his dad when the matter of getting electricity came up will interest, amuse and instruct

(Continued on Page 44)

### The Electrical Show Is To Be Broadcast

Visitors at McKenney Can See, at the Same Time, How WRNL Does It

McKenney will originate the first radio broadcast in its history when The Southside Virginia News' Electrical Exhibition goes on the air on Tuesday over Station WRNL, Richmond, "the station in the middle of your dial," which was formerly WPHR in Petersburg.

Telephone lines have been installed to carry the program to WRNL's powerful transmitting station in Richmond where it will be put on the air and radioed to all of Southside Virginia and to the far larger area reached by that station. The broadcasts will be at intervals between 4 and 6 o'clock.

#### Can See Latest in Broadcasting Equipment There

On exhibition at McKenney will be the last word in broadcast auxiliary equipment, WRNL's short-wave mobile relay transmitter and receiver. Both are laboratory-built pieces of equipment for use in moving broadcast programs from point of origin to the studios or

(Continued on Page 4)

### Changing Labor And Living In Many Counties

### New Development Has Interesting Phases

### Electricity's Wonder, Power and Spread in Southside Virginia Described

Thousands of people in rural Southside Virginia, farmers and villagers, have electricity this year for the first time; other thousands will have it before the year comes to a close.

Construction crews are at work in several counties, setting up poles, stringing wire and making extensions from trunk lines to homes, churches, schools, physicians' offices, stores, filling stations, garages, mills.

Other men are wiring these places, providing in many of the homes outlets that will make it convenient for housewives to preserve food, churn, cook, toast, percolate, wash the clothes, heat the iron, freeze the ice cream, curl the hair and bring in entertainment and instruction from all the world, by using the energy released by the push of a button.

On many farms wires are being run also to barns and other buildings, with numerous outlets, so the farmer can light his barn when it is dark, keep the brooder at the right temperature, saw wood, hoist hay, milk the cows and do various chores by using the same mysterious energy.

Water systems, giving running hot and cold water in the kitchen and for the bath, and inside toilets, are being installed in numerous homes; providing also water for the stock.

It means a great change in farming methods is in process in the Southside Virginia counties, and in the aspect and atmosphere of the home, with relief from drudgery, greater efficiency and a bit more leisure.

#### This change this "Electrical Edition" signalizes.

The paper has been prepared with the purpose of giving interesting and helpful information to all who have electricity or who, having "signed up" for a line, are to have it soon, and also to others who are yet to decide whether or not they should participate in the plans of utility companies or cooperatives and get light and power for themselves.

The information given, covering many aspects of electricity, will doubtless enable readers to understand better this tremendous yet controllable and flexible force—to understand at least its great usefulness, not only by means of the particular pieces of equipment which may be in the home and on the farm, but otherwise.

In all its phases it affects, one way or another, the lives of all, though some of these may be beyond comprehension to the average person, and not particularly interesting to him until, in some emergency, it is used for him—as, for instance, the X-ray, an electrical current which enables a physician to discover disease conditions or broken bones invisible to the naked eye, and, by providing right treatment promptly, prevent long suffering or death.

It is a great theme—the theme of this Edition. What has been prepared is sent forth with the hope that it will be variously helpful.

# Mr. Swink Will Answer Questions At McKenney

## V. P. I. 'Electric' Man Has Wide Experience With Farm Current

Farmers Can Pick Up Lots of Helpful Ideas From Him Tuesday

E. T. Swink, who teaches rural electrification in the agricultural engineering department at V. P. I. and does extension work in that line all over the state, will be at the Electrical Exhibition and Demonstration at McKenney next Tuesday and will tell farmers whatever they want to know about farm electricity—unless they ask him some questions that will "stump" a man who has had thorough education and long experience in that line. Mr. Swink will also be at the high school building on Monday to give assistance in the installation of exhibits, especially those of electrical equipment for farm use.

### How He Found Out About It

He was brought up on a farm, in Augusta county, remaining there until he went away to school, and worked on farms in his vacation. In 1930 he completed his course at V. P. I., and received the degree of Bachelor of Science in Agricultural Engineering. Then he spent a year taking a rural electrification training course at the Westinghouse Electric and Manufactur-

ing Company's plants at Pittsburg and other points.

For three years he was with the Virginia Electric and Power Company, serving as agricultural engineer in the Suffolk district. He went back to Blacksburg in 1935 to teach and to do extension work.

**Good Wiring Important, He Says**  
Mr. Swink's varied studies, experiences and observations on farms would enable him to talk all day about farm electricity.

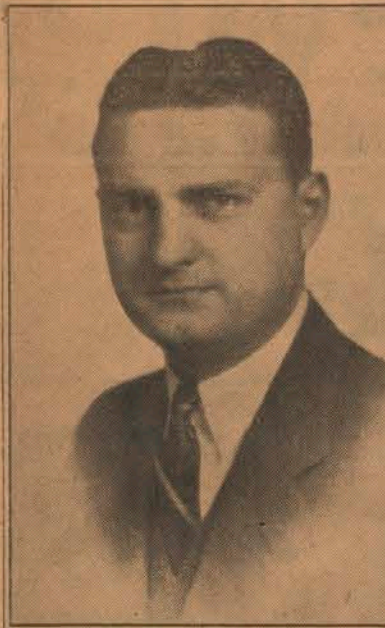
One of the first things Mr. Swink said to a Southside Newsman the other day was that few people realize the importance of getting a good wiring job done when preparing for electric service.

"This," he said, "applies not only to the people just receiving service for the first time but also to farms where electricity has been available for some time but has not been used to the fullest extent. Many of the latter group are now purchasing additional electrical equipment making it necessary to change, extend or revamp the wiring previously installed."

"The wiring system is the heart of the light, heat and power service on the farm. If it isn't adequate, full and economical value of the electric service cannot be realized. The wiring plan for each building should be carefully considered by the owner, to see that it is adequately served. Often additions are made to the contractor's work that are both unsafe and unsightly. Therefore, the wiring should be planned not only for present needs but also for appliances that might be installed in years to come.

**Arrange for Convenient Use**  
"Safety should be the prime con-

### He Perhaps Can Tell You



E. T. SWINK, instructor in rural electrification at V. P. I., and state extension worker, who will be at the Southside Virginia News' Electrical Exhibition at McKenney next Tuesday, "all set" for any questions anyone may wish to ask him about the installation and use of electricity on the farm.

sideration. Convenience, too, will be found important. Many people have been content to wire a house

so that the only outlet in a room is the ceiling light. If a floor lamp, radio or other appliance is wanted, a double socket must be used at this same outlet and extension cords run out. This is an unsightly, inconvenient and unsafe arrangement.

"Convenient outlets should be placed along the walls, and the ceiling light should be controlled by a wall switch by the most-frequently used door. Better yet, a light can be controlled from two or more doors by using three or four-way switches. These conveniences frequently cost little extra when the complete job is done at first and the economy comes from the time and bother saved in doing the many house chores."

There are many things Mr. Swink could tell a farmer about use of electricity on the farm if he were asked. For instance, when the Newsman happened to mention butter Mr. Swink said:

"In spite of modern manufacturing processes, there are still many city people who much prefer good home-made butter. The market for country butter is almost unlimited, provided the product meets the quality requirements of the consumer. Electricity has proved to be the farmer's friend in this matter, coming to the aid of the small producer. With a very simple and inexpensive piece of equipment, the electric churn, the small producer can make country butter of such quality and purity that it will find ready sale and steady customers. Moreover, people who have always dreaded churning will find the operation a pleasure."

### Just Ask Him

The Southside Virginia News urges that farmers who attend its Electrical Exhibition at McKenney hunt up Mr. Swink and "pick his brains" for ideas—about farm refrigeration, for instance, or the construction of a home-made electric brooder, or the setting up of a water system from a shallow well, or a deep one. The pointers he will give will be helpful to anyone who has electricity, or who is going to have it as the lines are extended further in this area.

### Rawlings News

Rev. and Mrs. W. L. Foley of Quitman, Ga., with their two children, Winfield and Ellen High, were visitors last week in the home of Mr. and Mrs. R. P. Baird. They also visited Mr. and Mrs. A. M. Jones, Mr. and Mrs. Geo. F. Chambliss and Roger Chambliss. Mr. Foley will be remembered as a former pastor of Concord and Bott-Memorial Presbyterian churches.

Lee Chambliss, Jr., and Campbell Chambliss are expected home in a few days from Blacksburg where they attended summer school.

Mr. and Mrs. A. M. Jones spent the week end in Covington, the guests of their daughter and son-in-law, Mr. and Mrs. Walter I. Smith. While there they also went to Lexington. Mrs. Smith returned home with her parents for a visit.

Miss Cornelia Jones, after a two months' stay with her brother, S. G. Jones, left Wednesday for Petersburg where she will visit a few days before going to Pulaski to resume her school duties.

People here, who are greatly interested in rural electricity, will doubtless go in large numbers to the big Electrical Exhibition at McKenney next Tuesday afternoon and night.

Raymond Rivers, who recently had the misfortune while hunting to shoot off one finger, is getting on nicely.

Miss Anne Bolling Chambliss entertained a number of young people in her home one night last week in honor of her cousin, Miss Meade Jones, and a girl friend of Saunton, and her cousin, Miss Mary Neilson Atkinson, of Champe.

Most of the farmers have finished housing their tobacco and naturally are looking forward to the time for the markets to open.

Work is going right along on a large stable Geo. F. Chambliss is having built.

Until next Wednesday (not after) two annual subscriptions for the price of one—and two free want ads with each. Don't overlook this brief opportunity.

### MISS RUTH CHAMBERS

Miss Ruth Chambers died Monday at the home of her brother, T. E. Chambers, in Blackstone, after a long illness. Funeral services were held at White Oak church, Dinwiddie county, Wednesday afternoon with burial in the family plot in White Oak cemetery. Miss Chambers is survived by one sister, Miss Ruby Chambers of Richmond, and four brothers, T. E. Chambers, postmaster at Blackstone, Vernon Chambers of Rice, J. F. Chambers of Huntsville, Ala., and W. W. Chambers of Athens, Ga.

### Secretarial School Opens Term Sept. 8

Mrs. Spotswood's secretarial school in Petersburg will open its fall term on September 8 with enrollment on September 6th and 7th from 9 a. m. to 2 p. m.

This school has been increasingly successful and among those who have recently received secretarial diplomas are: Adelaide Andrews, Sutherland; Mary Harris and Emily Harrison, Woodlawn; Janice Yoeman, Petersburg. Pins for Gregg shorthand, 120 words a minute for five minutes, have been awarded to Adelaide Andrews; Ella Mae Wells, Carson; Mary Harris, Emily Harrison, Janice Yoeman; and Jane Birdsong and Lida Virginia Smith, Petersburg.

Complete Filing certificates have been awarded to Adelaide Andrews, Ella Mae Wells, Sallinda Gilliam of Surry, Alice Marek, RFD, Petersburg; Helen Benish, R.I. Petersburg; Amy Bush, Colonial Heights; Lida Virginia Smith, Kathryn Stern, Janice Yoeman, Jane Birdsong and Mildred Perkins, Petersburg; Mrs. Wythie Register and Marian Hays, Hopewell, and Helen Pulley, Richmond. Those recently receiving Accounting Certificates are Mrs. Wythie Register, Alice Marek, Kathryn Stern and Carter Spencer, Petersburg; Helen Benish and Adelaide Andrews.

The school will observe the summer vacation from August 26 to September 6.

### Bible Class Has Guest Day

The Bethany Bible Class of the M. P. Sunday school met at the home of the president, Mrs. J. M. Sprague, in Claremont, Aug. 17. It was guest day, and each guest was presented with a corsage and a short welcoming address was given by Mrs. Mills. After reports by committees the hostess served delicious refreshments.

The beautiful floral decorations of dahlias and gladioli grown by Mrs. C. W. Daugherty were a most pleasing addition to the occasion.

### Cox Reunion Near Yale

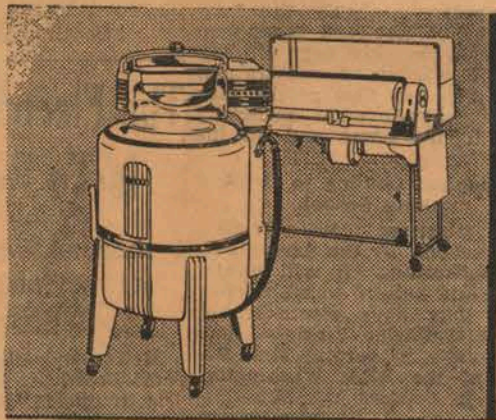
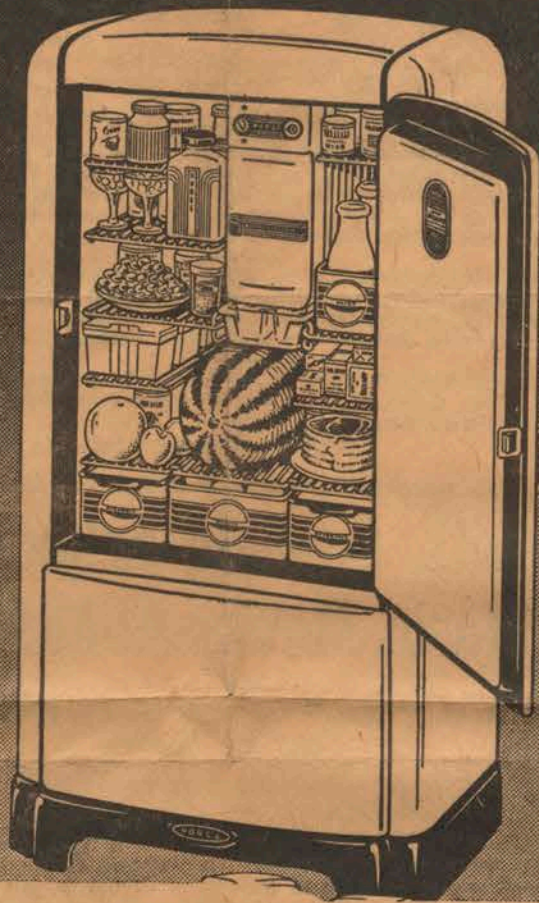
Fifty-three members of the Cox family attended the Cox reunion last Sunday at Antioch Baptist church, near Yale.

Those present were Mrs. R. L. Prince and daughter Mabel, Mr. and Mrs. T. N. Cox, Mr. and Mrs. H. H. Gilliam and son Herbert, Jr., Mr. and Mrs. Junius Cox and three children, Brownley, David and Daniel; Mr. and Mrs. Buddy Dickerson, Mr. and Mrs. Neal Neblett, Marie, Maud, Helen and Graham Cox; Mrs. Eva Parsons, Clifford Parsons and daughter Eleanor, George Parsons, Mr. and Mrs. P. C. Cox, Mr. and Mrs. Earl Williard, Mr. and Mrs. Roger Cox, Mr. and Mrs. P. H. Cox and son Hunter.

Mr. and Mrs. W. H. Flowers and daughters Mary and Ruth, Mr. and Mrs. Ryland Dunn and son Wayland, Mrs. Nora Jackson, Mr. and Mrs. Walter Tiffany, Mr. and Mrs. W. F. Dunn, Mr. and Mrs. C. E. Dunn and son Carrol, Jr., Mr. and Mrs. L. A. Darby and children, Lawrence, Jr., Margaret and David.

The invited guests included J. L. Gilliam, Mrs. Susie Parsons, Irvin Darby, Jr., Mr. and Mrs. E. C. Judkins and daughter Ruby and Misses Pearl and Ruby Gilliam.

GET YOUR NEW NORGE NOW!



TRIPLE-AUTOMATIC ELECTRIC COOKING ON THIS NORGE ELECTRIC RANGE... 3-WAY CLOCK CONTROL OF OVEN, TOP ELEMENT, OR CONVENIENCE OUTLET

Cushioned Water Action in the New Norge Autobuilt Washer Gives Cleaner, Whiter Clothes • Iron Easier, Faster with a New Norge Duotrol Ironer.

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Call 'Em!



CALL 'EM WITH GRAVES'

Nationally-Known Box Turkey Calls A Perfect Yelp, Squeal and Gobble

Get Yours Now. Price \$1 P. L. GRAVES YALE, VA.



**FREE** YOU ARE INVITED **FREE**  
TO SEE  
**“Bill Howard, R. F. D.”**

THE MOST DRAMATIC, APPEALING, HUMAN,  
EDUCATIONAL MOVIE EVER FILMED  
*One Solid Hour of Entertainment and  
Education for the Farm Family*

SPONSORED BY

**Appalachian Electric Power Company**  
*And Your County Agricultural Service*

BILL HOWARD,

prosperous, conservative, respected farmer beset with loneliness and disappointment because his agricultural college trained son has embarked on a successful business career in the city. Wonders why he doesn't come back.

GRANDMA HOWARD,

his mother, knows why. Gently suggests that he write and ask his son to come back—then rocks and rocks and hopes.

JIM HOWARD,

with all his success in the city, cannot deny the call of “The Good Earth” in his veins. Asks his lovely wife Barbara if she will return with him.

BARBARA HOWARD,

lovely, dainty, city-bred, girl, makes her decision to go with him based simply on love and loyalty. Made of stern stuff,

**A PICTURE THAT TELLS  
AS IT ENTERTAINS**



**AND SEE  
In Actual Operation**

she bravely carries on in a life of drudgery until—a dramatic event occurs. Barbara can no longer face the stern realities of farm life under the changed conditions. Abruptly she leaves for the city to rejoin her mother.

Bitterly disappointed in the apparent frailty of the daughter-in-law he has come to love, Bill Howard cries out to his son—“So she can't take it?”

What's this? Electricity coming to the farm of Bill Howard—so long obdurate to any change. What has wrought this change? And why did Barbara leave? Will she come back now?

See the conversion of Bill Howard—a conversion wrought by two dynamic forces that reshape the entire life of this farm family in Happy Valley.



**The Last Word In Modern FARM and HOME EQUIPMENT**

IN THE EXHIBITION [COACH]



FRONT INSIDE VIEW



REAR INSIDE VIEW

See This Equipment Exhibited In Actual Use

- |                   |                 |                 |                   |
|-------------------|-----------------|-----------------|-------------------|
| Water System      | Portable Motors | Warming Pad     | Burglar Alarm     |
| Water Heater      | Sewing Machine  | Home Lighting   | Insect Electrocu- |
| Ironer            | Waffle Iron     | tors            | tors              |
| Vacuum Cleaner    | Sandwich Grill  | Brooder         | Electric Razor    |
| Radio             | Toaster         | Soldering Iron  | Wiring Devices    |
| Range             | Coffee Maker    | Display Board   | Heating Unit      |
| Washer            | Percolator      | Display Board   | Display Board     |
| Roaster and Grill | Hand Iron       | Heating Unit    | Paint Sprayer     |
| Food Mixer        | Bottle Warmer   | Electric Hotbed |                   |
| Refrigerator      | Portable Room   | Equipment       |                   |
| Churn             | Heater          |                 |                   |

**COACH OPENS 7 P. M.**

**Moving Picture Begins 8 P. M.**

NOTHING SOLD DURING EXHIBITION

This Farm and Home Exhibition is brought here for the purpose of showing the new things in electric farm and home equipment. You will not want to miss it as it is the only exhibition of its kind in the state. The women, especially, will be interested in the new modern equipment for the kitchen while the varied farm equipment will appeal to the men.

**DISPLAY SCHEDULE**

County	Town	Location	Date	County	Town	Location	Date
TAZEWELL	FALLS MILL	SCHOOL	MONDAY, MAY 9	RUSSELL	HONAKER	HIGH SCHOOL	TUESDAY, MAY 17
TAZEWELL	NORTH TAZEWELL	HIGH SCHOOL	TUESDAY, MAY 10	RUSSELL	ELK GARDEN	SCHOOL	WEDNESDAY, MAY 18
TAZEWELL	BURKES GARDEN	SCHOOL	WEDNESDAY, MAY 11	RUSSELL	LEBANON	HIGH SCHOOL	THURSDAY, MAY 19
TAZEWELL	TAZEWELL	HIGH SCHOOL	THURSDAY, MAY 12	WISE	POUND	HIGH SCHOOL	FRIDAY, MAY 20
TAZEWELL	BAPTIST VALLEY	SCHOOL	FRIDAY, MAY 13	DICKENSON	CLINTWOOD	HIGH SCHOOL	MONDAY, MAY 23
TAZEWELL	CEDAR BLUFF	HIGH SCHOOL	MONDAY, MAY 16	DICKERSON	HAYSI	HIGH SCHOOL	TUESDAY, MAY 24



