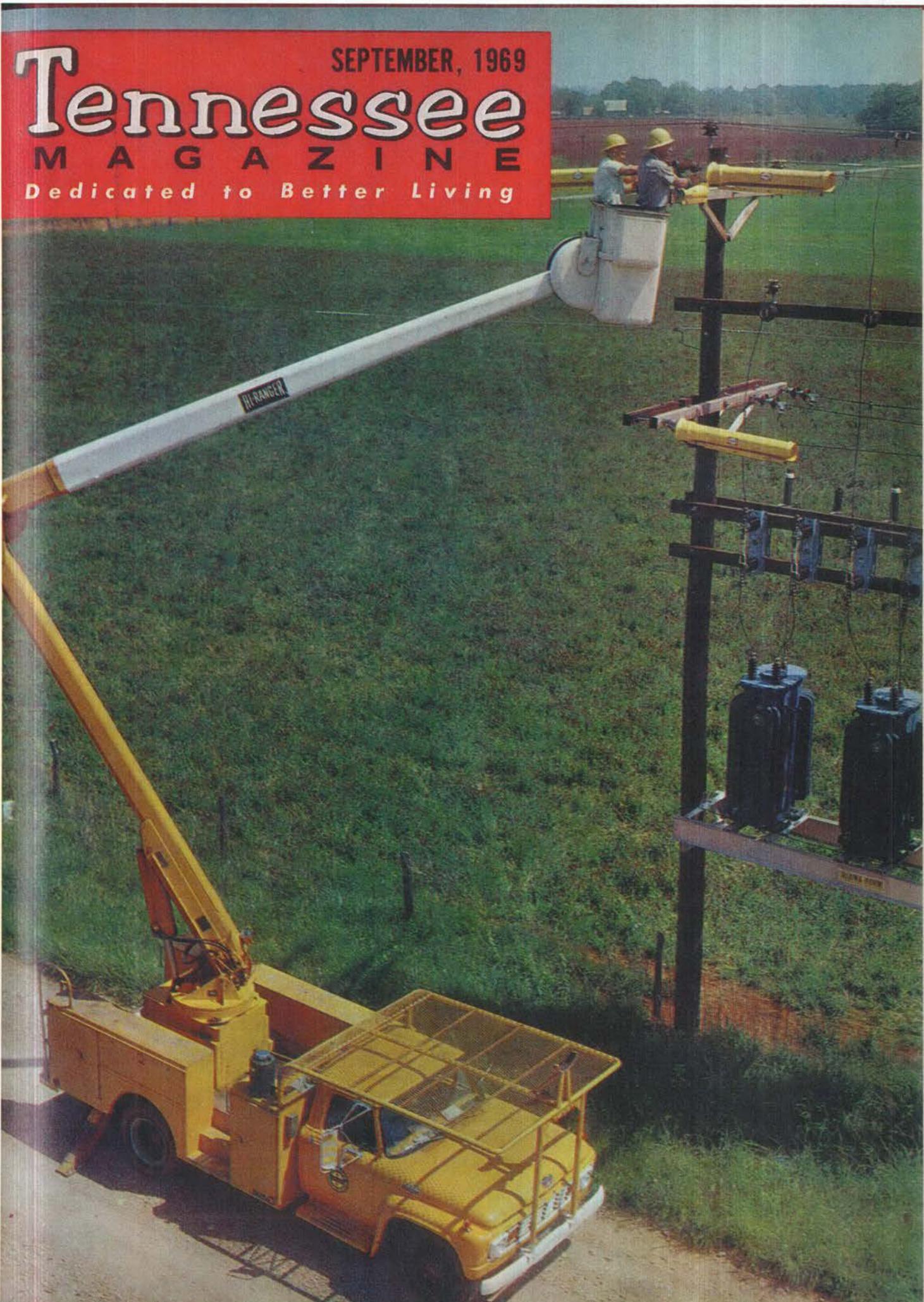


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Official Publication of the
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COOPERATIVE ASSOCIATION**

Executive, editorial and advertising offices:
710 Spence Lane, P.O. Box 7232
Nashville, Tenn. 37210

J. C. Hundley, Executive Manager

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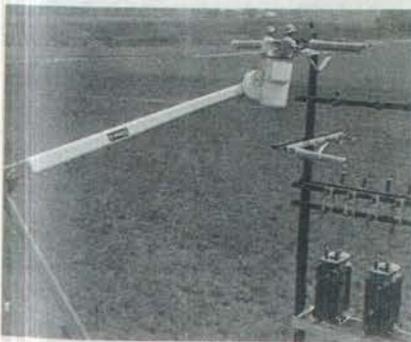
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THE TENNESSEE MAGAZINE is published monthly as an educational and informational service to members of rural electric cooperatives in Tennessee and in behalf of the welfare of their program. Second class postage paid at Memphis, Tennessee. Published monthly, at 3781 Lamar Avenue, Memphis, Tennessee 38118. Subscription price: 75¢ per year for members and \$1.00 per year for non-members.

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ON THE COVER



Our cover pictures Duck River Electric linemen working from a bucket truck on co-op lines. For more on this subject, see page 10.

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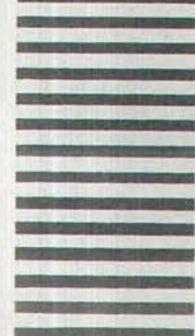
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To The Point

by John E. Stanford

Who can define loyalty? The dictionary makes clear that loyalty is essentially emotional; it is "a feeling of devotion" to a cause, a principle, the family, a friend — to flag and country — a strong sentiment involving personal dedication.

It differs somewhat from *fidelity* although both words imply a sense of duty or attachment to something or someone. *Fidelity* probably is closer to what people mean when they use the words "blind loyalty" since it denotes unwavering allegiance. *Fidelity* is a strong sentiment which can withstand all efforts to dislodge it from the human breast.

Polonius in Shakespeare's famous play *Hamlet* said: "To thine own self be true or it must follow as the night the day that thou canst not be true to anyone." In the famous speech containing that line and other philosophical observations, Polonius made abundantly clear that no greater cowardice exists than that of remaining silent when you see others being maligned, maliciously attacked, malevolently mistreated.

Which brings up the phrase . . . "the courage of his convictions" so frequently heard to describe a person with the fortitude to stand up for what he feels is right or wrong—and to speak out plainly and fearlessly on the issues, not the personalities, that get involved in controversy.

Which leads to the apt statement made by the late Gordon Clapp when he was chairman of the Tennessee Valley Authority. "If you're consequential, you're controversial," he said. Although uttered years before, he might have been describing a characteristic of his younger brother, Norman Clapp, when he served as the able administrator of the Rural Electrification Administration.

Forceful, aggressive, courageous leadership—whether in cooperative rural electrification, in our great colleges and universities, in business and industry—wherever those with responsibility must make decisions, to be consequential, they are bound to be controversial. There is no other way.

The small, the weak, the misguided and malicious—those without vision and without courage—somehow take great pleasure in seeking to tear down the comparatively few who are willing to risk the great hazards of leadership. Without the vision and the courage to assume the obvious risks involved, those who would tear down seldom ever truly build.

One fellow recently remarked: "It's like some of our townspeople. They carried the coach on their shoulders, cheering and shouting when the team won. They lavishly praised him, gave a dinner in his honor when our team won the sectional tournament. They spearheaded the local booster club and called for enthusiastic support of 'the greatest coach' our team ever had.

"But when the team went into a slump and lost in the finals, the very same guys screamed for his scalp and demanded that the coach be fired!"

In every worthy cause, when griping takes the place of reason; when men of good will turn into men of ill will; when immediate and petty expedience takes the place of important, long-range objectives, then the cause can be lost.

Loyalty, fidelity, allegiance—these are the rare and remarkable qualities so desperately needed by leadership among the rank and file during these extremely trying times.

* * * * *

We would gladly claim authorship of the above editorial, but we can't for the simple reason that we didn't write it.

It was written by Dave Mueller, since 1949 the General Manager of the Indiana Statewide Rural Electric Cooperative. It appeared under the heading of "Who Can Define Loyalty?" in the June, 1969 issue of the Indiana Rural News, a publication which Mueller started in the Hoosier State within one year or so after he assumed the management of the statewide organization and of which he served as editor since its founding nineteen years ago. In terms of years of service, this makes him the senior editor in this field in the entire nation. Only a few have served longer than his twenty years as statewide manager.

Soon after this editorial appeared—but we don't think for a moment because of it—the announcement came that Mueller's contract, after twenty years of what many in the cooperative rural electrification program deeply feel has been outstanding leadership, would not be renewed effective October 15 of this year.

Being next to Dave in length of service as an editor of Statewide Rural Electric publications, we have known, respected, and admired Mueller for most of those twenty years. We do not deny that he may at times appear to be controversial—neither does he deny this on himself. To do the outstanding job that he has done, he is certain to have "rubbed some people the wrong way."

But on the other side of the coin he was, and is, among other things intelligent, able, willing—and dedicated to cooperative rural electrification.

If the above editorial is any reflection of Mueller, he must also be a strong believer in loyalty which he has found, to be workable and successful, must be operated on a two-way street.

—John Stanford

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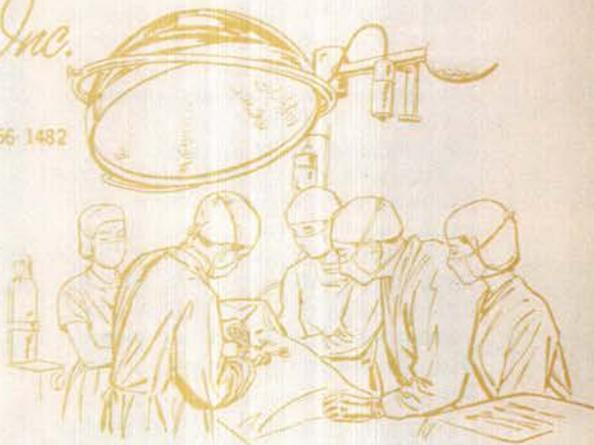
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FLOOR INSULATION PAYS

By Elmo Lunn, Electrification Engineer
Meriwether Lewis Electric Cooperative

No one today will deny the fact that proper insulation of the house is necessary for both comfort and economy. Everyone recognizes that the one purpose for using insulation is to trap the heat inside the house.

But this view has had slow acceptance. Actually man has used some type of insulation throughout history. Even the early cave dwellers used animal hides hanging at their cave entrances. This acted as insulation by trapping the heat inside the cave.

Only in the past few decades has insulation as we now know it been developed and applied to houses. It now comes in blankets, batts, rigid blocks, sheets, or loose bulk in bags and boxes. It may be nailed on, blown in, stuffed, poured, spread, glued, or taped on.

Initially, two-inch blankets or batts were used in the ceilings and walls. Later it was proven and accepted that 4 inches of insulation was economically practical. And even later it became the rule that the use of 6 inches overhead and 4 inches in the walls was best. But now it is advisable to apply as much insulation as may be feasible—fill the walls, put 8 or 10 inches in the ceiling, and as much as possible in the floor. Each dollar spent for good insulation will save several dollars in heating cost and will keep the homeowner much more comfortable.

Homebuilders in Tennessee, convinced of the importance of insulation since the wide acceptance of electric heat, are generally doing a good job of insulating homes overhead and in the walls. But one important area is being overlooked—the floor. Most builders have not been convinced of the value or importance of insulation in the floor. And it is costing the homeowner in terms of dollars and comfort. No matter how you heat, if your floors are cold, you will be uncomfortable—not to mention the extra cost of heating!

How Heat Moves

Heat is a form of energy that may be transmitted from one point to another by conduction, convection, or radiation. What we call cold is merely an absence of heat. Heat always moves from warm to cold. The amount that moves depends on the temperature difference and the resistance of materials to such movement.

Conduction is a creeping of heat through solids. When you hold a match to the head of an ordinary straight pin, the point becomes hot in just a few seconds—this is conduction.

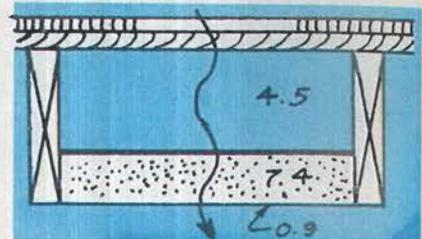
Convection is a washing of heat to or from solids. Heat moves from solid to air and vice versa as air moves past a solid—thus cold drafts chill us.

Radiation is a jumping of heat between solids. The heat you feel when sitting before an open fire or hot stove reaches you by radiation.

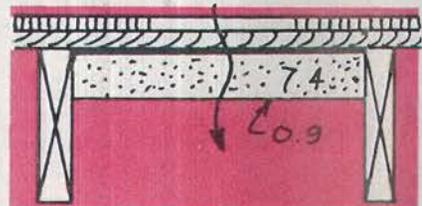
The heat flow through any structural section is retarded by several elements associated with or incorporated in the section. Each layer of material contributes resistance to heat flow. Usually heavy compact materials have less resistance than light ones. Each measurable air space adds to the over-all resistance. Resistances vary with dimensions of the space and character of surfaces facing the space. Heat absorbed by, or lost from, a building section is a combination of heat transfer by conduction, convection, and radiation.

Heat passes across the space by conduction from one face to the air space, then by convection through the space, and finally by conduction to the opposite face. This portion of heat flow is controlled by the dimensions and shape of the air space, the texture of the materials facing the space, the mean temperature of the space, and direction of heat flow. Heat also crosses the space by radiation from the warm face to the colder face and is practically unaffected by the depth of the face.

Calculations of heating and cooling loads are based on rate of heat flow through building sections, along with ventilation and moisture requirements. The overall resistance to heat flow through a building section is called the "R" value of that section. The building insulation industry has adopted Thermal Resistance, "R," to state in-place performance of products. Using "R" it is possible to specify the performance desired. The higher the "R" value, the better the in-place performance. And these designations are printed right on products so, by examining packages, a direct quality comparison can be made.



Insulation material installed at bottom of floor joists, together with air space, gives good resistance to flow of heat.



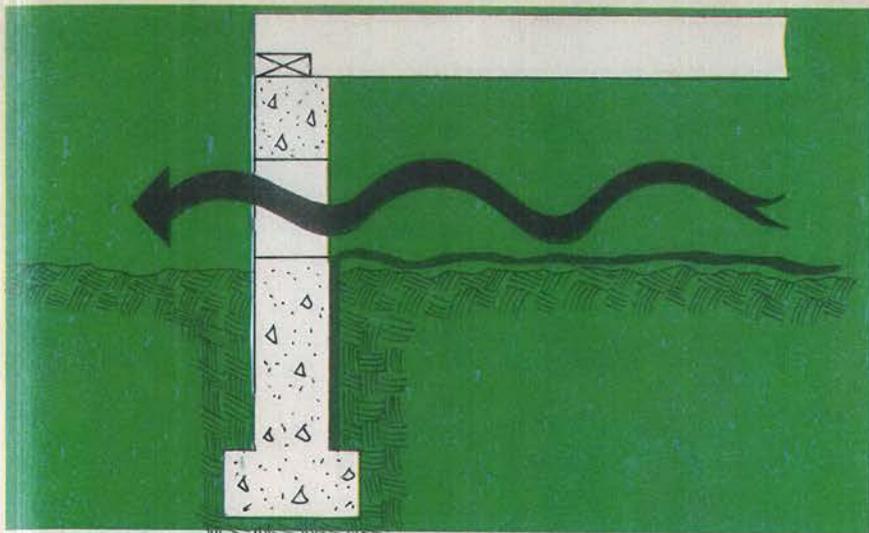
When the same material is installed directly under the flooring above it, air space value is lost.

Ventilation and Moisture

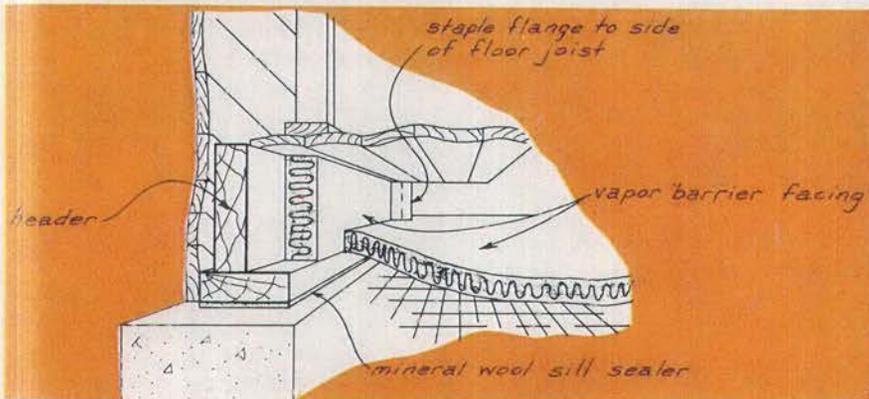
Excessive moisture within a house can result from dampness in a crawl space due to the omission of moisture control devices, such as ground cover, vapor barrier and ventilation openings. An uncorrected moisture problem can cause decay of wood, floor warping, and eventually structural failure of the house.

Proper ventilation underneath a house means that the temperature underneath the house is going to be very near the outside temperature. This points up the need to use floor insulation to prevent excessive heat losses and cold, drafty floors.

With the use of insulation in the floors, it is very important that



Condensation problems are eliminated when (1) bare ground is covered by vapor resistant polyethylene film; (2) one square foot of wall vents is installed for every 150 square feet of crawl space; and (3) floor insulation is installed between floor joists with vapor barrier on warm side.



Drawing shows location of three elements of good floor insulation job—under floor insulation, cut piece of batt along header, and sill sealer.

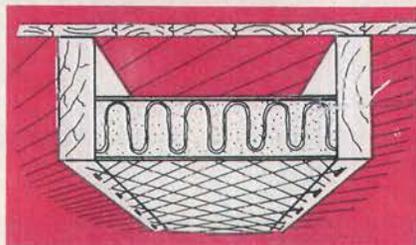
moisture be controlled. The basis of good moisture control is always the vapor barrier that must be installed on the heated side of all insulation. The only application where the vapor barrier may be placed down on the cold side of the insulation is where a vapor barrier is being used in place of building paper over the subfloor. Suitable vapor barriers are usually provided on batt and blanket insulation.

Methods of Installing Floor Insulation

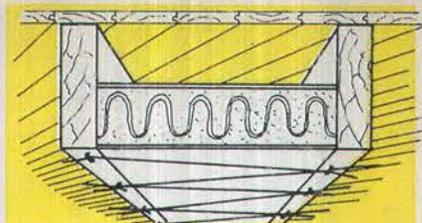
Floor insulation may be supported by chicken wire, commercial wire fasteners, or wire placed around galvanized roofing nails. Where insulation is applied near or on the bottom face of floor joists, it should be turned up vertically at the header, or a separate batt should be installed along the header.

Quite often reverse flange material is used for floor insulation. Some manufacturers are making "friction fit" insulation which is self-supporting for use between floor joists.

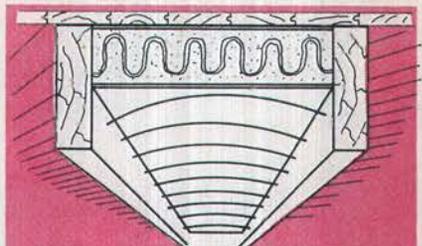
Since so many types and methods of installing insulation are available, the best guide to proper installation is usually the manufacturer's own specification sheet for it.



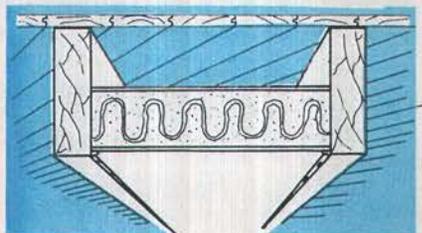
One method of installing floor insulation is to use chicken wire stapled to joists to support insulation.



Wire either stapled in place or laced around nails driven in joists may support floor insulation.



Commercially made fasteners made of heavy gauge wire are available to support floor insulation.



"Reverse Flange" material may be used as floor insulation and may be stapled from below.

Economics of Floor Insulation

Economy of operation is more than sufficient to offset additional charges for the installation of floor insulation.

For example, compare the heat loss for an average 1500 square foot house with and without 2-inch floor insulation. Assume design conditions of 0° outside and 70° inside the house. Heat loss through an uninsulated floor is 5.7 watts per hour per square foot. The addition of 2-inch floor insulation reduces that figure to 1.8. For the entire 1500 square foot house, this reduces the heating capacity needed by 5.85 KW. This can reduce initial wiring and equipment costs.

This reduction of heat loss has a tremendous effect on the heating costs. For an area with a 3500 degree day heating requirement, such as Nashville, Tennessee, the annual electricity use is reduced by 5,850 KWH. This is a savings of \$44.00 per year on the heat bill.

(Continued on Page 21)



Volunteer Views

by J. C. Hundley
Executive Manager, TECA

Whether we admit it or not, most of us do care about what other people think about us.

And those of us whose work is in large part with the rural and small town areas of our state and nation have more than a passing interest in what the general population thinks about Rural America as compared with Big City America.

The National Rural Electric Cooperative Association, with this in mind, retained the International Research Associates, Inc. to conduct a poll among adult Americans with this a prime question:

"Thinking about the people who live in the big cities and in the rural areas . . . which do you feel would be more likely:

	Big City	Rural
"To be warm and friendly to other people . . .	7%	81%
"To be in good health	8%	75%
"To be very honest in their business dealings	6%	65%
"To be the most hard-working	15%	56%
"To get real fun out of life	29%	53%
"To work actively in community affairs	27%	52%
	Big City	Rural
"To be concerned about the problems and needs of people outside their own communities	30%	42%
"To be open-minded about other people's opinions	35%	36%
"To be well-informed on what is going on in the world	54%	19%
"To have a lot of tension and pressure in their daily lives"	83%	5%

(Percentages not included were those persons who saw "no difference" or held "no opinion.")

We're happy the poll was taken and that the rural and small town areas are held in such high esteem. And it's good that such is true for not only have these areas always been an important part of American life, but they are certain to be even more so in the years to come. We're a growing nation and only in the rural and small town areas is there room for healthy expansion.

It's a matter of record that over the past few

decades, millions of Americans have migrated from the rural and small town areas to the big, industrialized cities. Their objective: a better life. Some have found just that, but they are relatively few. All too many have found that all that glitters is not necessarily gold. And of those who have found a better paying job, many have found that a few more dollars won't necessarily buy a better way of life, that it costs a lot more to live in the big cities.

Many of these folks are leading the way back to rural and small town America . . . away from the crowding and the pushing and the rushing of our big metropolitan areas where 70% of our entire population is jam-packed into only 1% of our entire land area.

Many who have left and are coming back will find that our rural and small town areas are not the same in every way to what they were when these folks left. Rather, they're even more desirable than ever before. New industries now offer more job opportunities than before, new hospitals offer the best in medical care, new schools as modern as any schools anywhere are now available to our children, new recreation areas are in abundance, new retail stores offer as wide a variety of merchandise as can be found anywhere. And all of this is available in so much of our rural and small town America without the penalties of overcrowding and the other disadvantages inherent in our large metropolitan areas.

No one individual or organization can transform nothing into everything, including rural development. But we are tremendously proud of the efforts and successes achieved by our rural electric cooperatives in Tennessee and throughout the nation, not only in making electricity available to everyone and everything that would aid rural development, but in providing much of the leadership and know-how in many areas other than rural electrification—all to the end of not only keeping rural and small town America a better place to live for those who have remained there, but also a haven for those who want to return or move to uncrowded, but opportune, places where there still is available, for the mere inhaling, a breath of fresh air.



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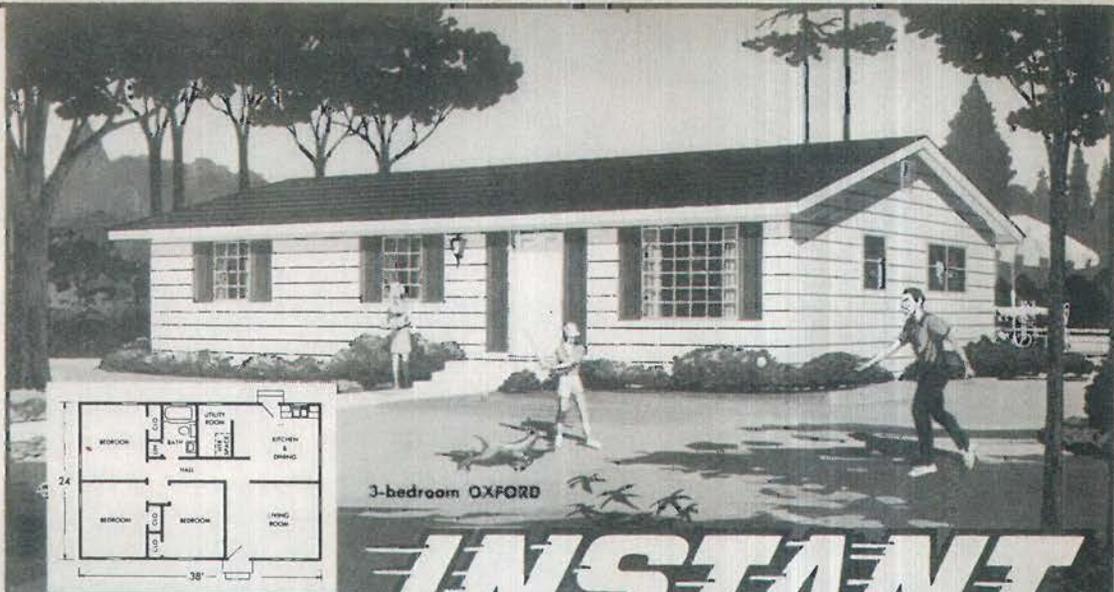
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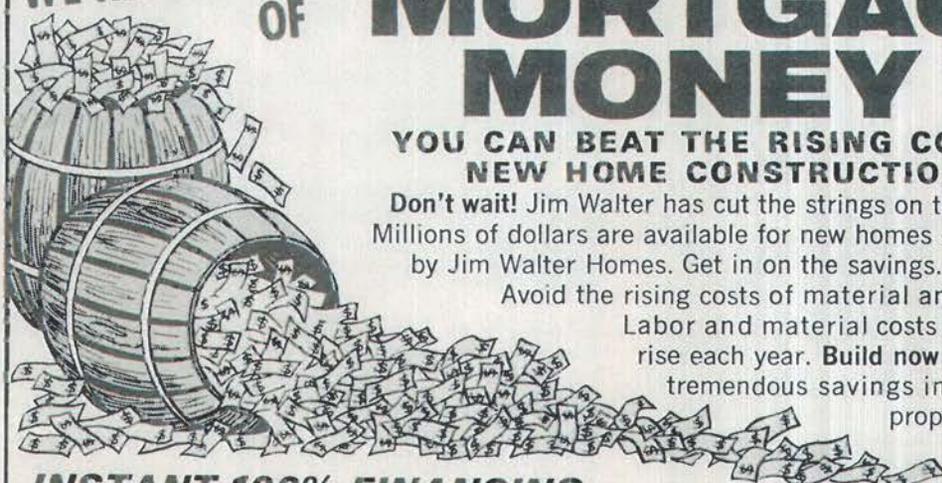
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“Man On the Pole” Fills Important Role

By John Stanford

An inscription on New York City's main Post Office reads as follows: "Neither snow, nor rain, nor heat, nor gloom of night stays these couriers from the swift completion of their appointed rounds."

This motto, adopted from a statement made by the Greek philosopher, Herodotus, more than 400 years before the birth of Christ, is a modern day dedication of the U.S. Post Office Department to its letter carriers—and justly deserved.

There's one segment of employees of rural electric cooperatives, however, whose continuing over-all working responsibilities would often make walking or driving a mail route a pleasure by comparison, and that is meant in no way to belittle or criticize the great job performed by postal employees.

The intent is a salute to cooperative linemen who, in the performance of their jobs, must often not only work in snow and rain and heat and at all hours of the day and night but must do so under dangerous conditions which, at best, must be considered as a risk to their lives and limbs.

Some idea as to the dangers to which co-op linemen expose themselves in building, maintaining and repairing electric facilities to members may be gleaned from statistics provided by the Rural Electrification Administration. For the latest full year available, figures reveal that 18 co-op employees in the United States (most of them linemen) were killed on the job in 1967. Disabling injuries were suffered by 1,257 employees which resulted in the loss of 184,000 man days.

Generally, about 75% of all fatal accidents result from electric shock. Some understanding of this tremendous hazard may be gained from the fact that linemen generally work with electric lines carrying anywhere from 7,200 volts to more than three times that amount of power. With enough amperage, as few as 40 volts can be fatal. Falls represent the second greatest cause of on-job deaths.

Among the list of non-fatal accidents, electric shock ranks fourth behind being struck by various objects, slips and overexertion, and falls from different levels.

Although every accident is one too many and every death a real tragedy, electric co-ops have good safety records when all facts are considered. On the average, more than one-half of all co-op employees are "outside" workers and are in varying degrees of exposure to danger. This list would include linemen, groundmen and helpers doing construction, maintenance and repair types of work. And the types of work they are doing, according to the National Safety Council, rank third behind only underground coal mining and underground non-coal mining in the frequency, severity and disabling aspects of on-the-job injuries. And exposure is great. Outside employees—linemen, groundmen and helpers—worked upwards of 40-million hours throughout the nation last year in building, maintaining and repairing lines, most of them energized so that services would not be disrupted to co-op members.

Here in Tennessee, outside employees worked an estimated 2-million hours, the seventh highest total of any state in the nation. One worker suffered a fatal accident last year, two the year before, along with 83 disabling accidents in 1967. Man hours lost due to accidents numbered in the thousands in both 1967 and 1968.

Safety is of the utmost importance to every co-op Manager and Director in Tennessee and has been for many years. On January 1, 1944 a formal Safety Program was begun by the Tennessee Electric Cooperative Association and, in cooperation with the State Department of Education, has grown steadily in scope and services. Now known as the Safety and Job Training Program (and these two functions go hand in hand), this program is financially supported and actively participated in by every electric cooperative headquartered and/or serving in Tennessee except one, which partici-

pates in a similar program sponsored by the Statewide organization in the state in which this co-op is headquartered. In addition to electric co-ops, Tennessee's municipal electric systems also participate in the Safety and Job Training Program in the number of more than 40 systems.

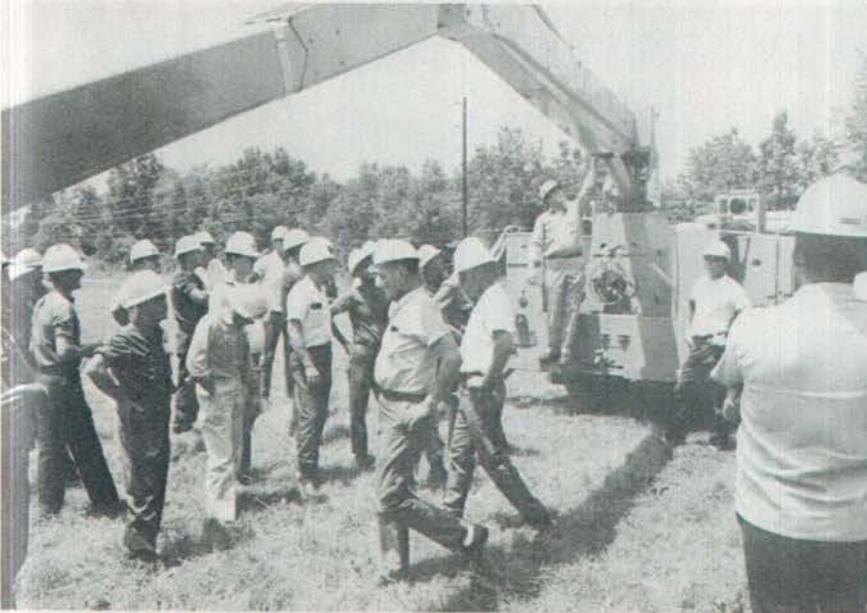
The Safety and Job Training Program has stepped up its pace through the years, particularly during the past five years. It was in 1964, with the granting of use of a large section of its back lot by Duck River Electric Membership Corporation, the purchase of materials by the Tennessee Electric Cooperative Association and the donations of others by various electrical equipment suppliers, that a permanent Lineman's Training School was established on the Duck River property in Shelbyville. It is here that outside employees, from the youngest apprentice to the most experienced first class lineman, can get the latest in theory and practice under the guidance and instruction of the Safety and Job Training Program's four full-time employees plus a number of visiting instructors who are employees of manufacturing companies. Instruction covers a variety of topics, including how to work on "hot" (energized) lines and the use of bucket trucks. Special sessions are held on each of these two highly important subjects. The "school" generally holds three or four sessions each year, with about fifty outside employees enrolled at each session. Except for these "schools," the four permanent employees of the Safety and Job Training Program spend most of their working hours during the year conducting instructional sessions at participating co-op and municipal offices over the state. One is assigned to each grand division and one serves as State Supervisor.

Working lines while "hot"—or energized—and the use of bucket trucks are two of the most widely accepted developments of recent years. The first allows service to remain virtually uninterrupted for co-op members while the second, where it can be used, has

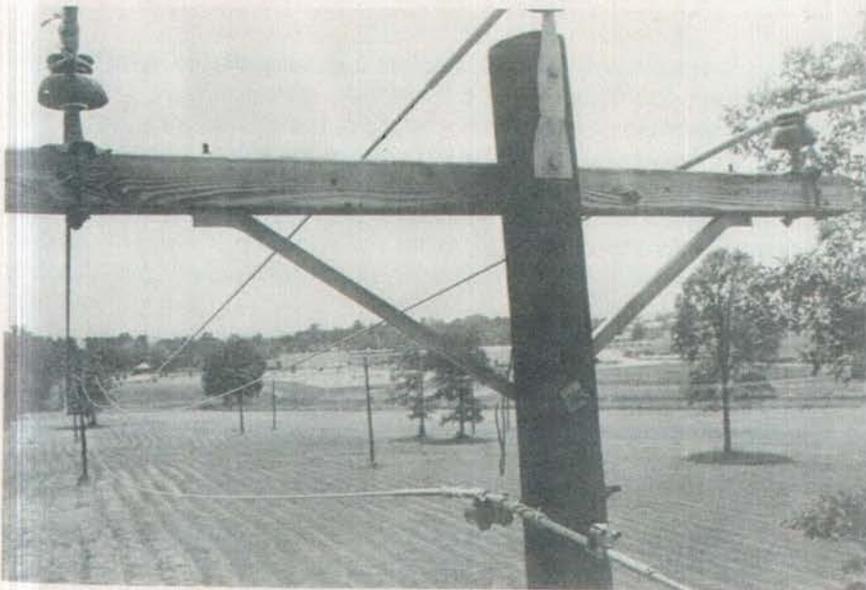
eliminated countless hours of pole climbing (most poles running from 30 to 55 feet in height) while adding a considerable amount of safety for linemen.

Bucket trucks cost anywhere from \$18,000 to \$35,000 and every electric co-op in Tennessee has at least one. But the philos-

ophy of your co-op is that whatever facilities help provide good service to you while at the same time giving the greatest possible safety to those whose lives and limbs are at stake in keeping this good service coming to your homes and farms and businesses — these facilities really don't COST — they PAY.



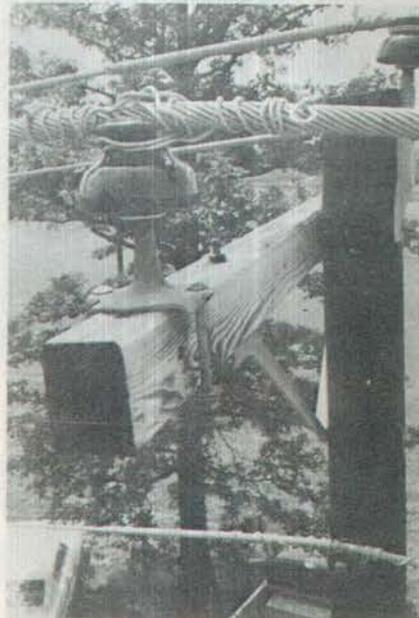
An instructor for the Pittman Company instructs a portion of the 50 linemen and groundmen attending a Bucket School on the operation of a bucket truck. All "students" had to wear hard hats as part of continuing safety practices. A second school was conducted by the Altec Company, which also manufactures bucket trucks.



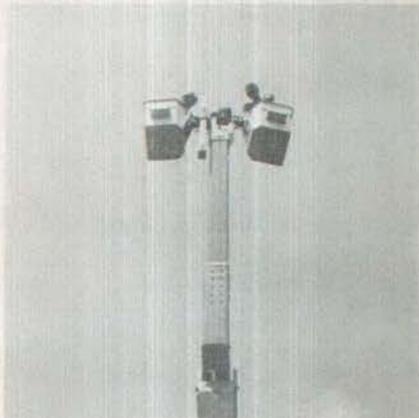
Here's how a pole top would appear in approach with bucket. This is one of many poles, with lines, installed on property of Duck River Electric Membership Corporation, Shelbyville. Co-op headquarters building is barely visible in background.



Here's how "ground crew" looks from buckets about 50 feet in air. Most actual line work is performed at from 30 to 55 feet from ground.



Side view of a pole top gives closer look at structure from bucket.



Two Bucket School trainees take their first ride in a twin bucket some 60 feet above ground. To some, first experience is more nerve tingling than first airplane ride. Buckets are insulated.



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FOR BETTER
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RURAL
ELECTRIC
POWER

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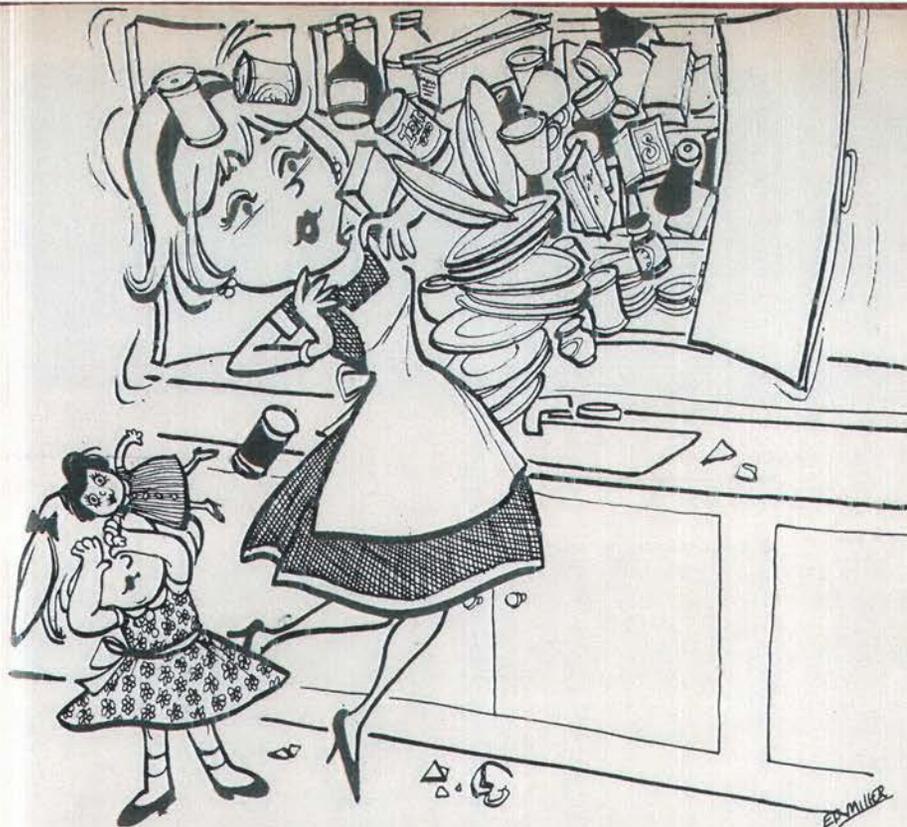
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But the big advantage of electric heat is comfort. You select the temperature that's best for each room. There's no fires to build or maintain. No fuel to order. Just carefree, floor-to-ceiling comfort.

Now's a good time to prepare for next winter. Stop by or phone your rural electric system for free information about low-cost electric heat. No cost or obligation.



TENNESSEE'S ELECTRIC
COOPERATIVES



How to side-step

Turmoil

in the kitchen

WORK NEVER done? Maybe your kitchen is stacked against you. Re-organization might result in better room appearance and improved workability. So instead of laboring time-and-a-half to keep things in place, consider these management tips.

Take a business-like approach. Industry's efficiency experts use principles that apply to the kitchen. They never let a worker stoop or reach for supplies, as an example, if supplies can be brought to him.

You might get the same benefit by use of a sliding rack to hold pots and pans you probably keep in a bottom cabinet. Eliminate much stooping and fumbling—and have a neater arrangement.

Instead of carrying dishes two at a time from cupboard to table, why not use a tray or service cart to move them all at once? Orderly storage of dishes is another key to efficiency. Dinnerware racks—available in most housewares departments—with built-in revolving cup racks put dishes within easy reach.

Head off cleaning woes. Keep your oven clean by guarding against spatter. Make sure casseroles and other dishes are big enough so food doesn't run over. A hood over the range traps smoke and keeps grime from accumulating on walls and cupboards. Foil grease with a burner liner. Schedule your preventive cleaning chores—so that the

tasks don't build up to overwhelming proportions.

Conquer space like a real "kitchenaut." If your cabinet space seems to be shrinking, consider an adjustable stack-a-shelf, available in many housewares departments. It gives you more space by providing two-tier storage for assorted size jars and food containers. Consider the possibility, also, of other inside-the-cabinet space savers such as glass holders or lid and tray racks.

Keep a lookout for small details. When you're cooking, for example, are spaces handy? A spice rack, mounted on a wall or cupboard door, might be helpful. And school lunch making or food wrapping is easier if you organize your supply of paper bags, wax paper, aluminum foil and other wrapping materials.

Put yourself in a working mood. Color and lighting have a great effect on human efficiency. They also can create an illusion that a room is either more spacious or more crowded than it really is.

If you feel "under pressure," try having the walls painted a cool color such as light violet, blue or green. They calm the mind and reduce muscular tension.

Warm colors like yellow, orange and red tend to stimulate you—helping overcome moods of depression. They may be your colors if you find it hard to get started with kitchen chores.

Noise control is another efficiency idea you can apply to your kitchen. One study showed that working under noisy conditions takes 60 per cent more energy than when the room is quiet. Put a rubber or felt pad under electrical appliances. Rubber casters on chair legs reduce scraping sounds. Consider acoustical tiles for the kitchen ceiling.

In the kitchen—as well as on the farm or in the factory—saving time, space and labor is a matter of organization and planning.—■

Uncle John's Page

This page is reserved for the young folks. We will pay one dollar for each poem or drawing published. ALL WORK MUST BE ORIGINAL. Drawings should be in black, and drawn on white, unlined paper. Tell us your age, address, and Electric Co-op, and

Send all items to:

UNCLE JOHN, The Tennessee Magazine
710 Spence Lane, Nashville 10, Tenn.



Billie Jo Puckett, Age 13
Route 1, Box 26
Banner Elk, N.C. 28604
Mountain Electric Cooperative

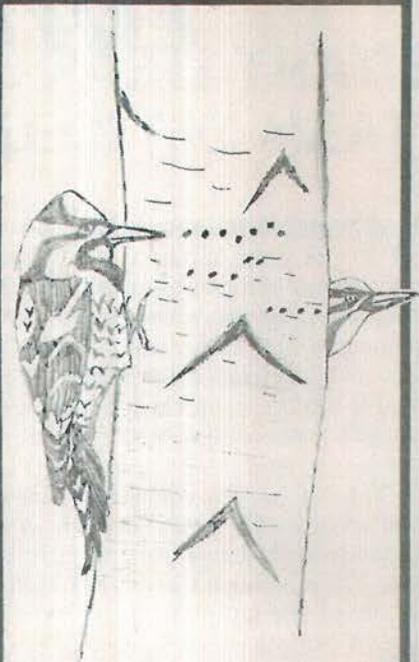


Judy Little, Age 15
383 High St., Dyer, Tenn. 38330
Gibson County E.M.C.

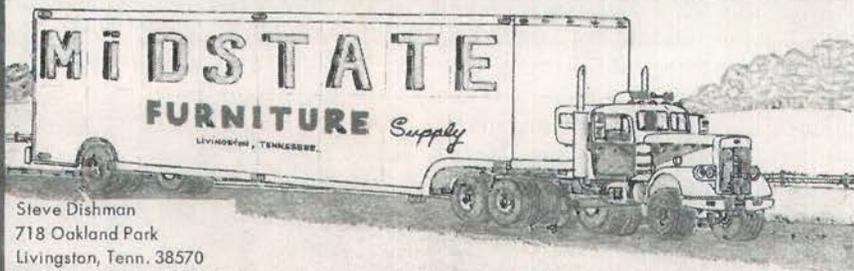


Jannie Armstrong, Age 13
Route 2
Culleoka, Tenn. 38451
Duck River E.M.C.

Harold Sanders, Age 13
Route 2
Ramer, Tennessee 38375
Pickwick Electric Cooperative



Donnie Lynn Heck, Age 15
Route 8
Rogersville, Tenn. 37857
Holston Electric Cooperative



Steve Dishman
718 Oakland Park
Livingston, Tenn. 38570
Upper Cumberland E.M.C.

Timely Topics

RED CLOVER-TIMOTHY FOR GOOD HAY MIXTURE

Many farmers are using a red clover-timothy mixture for hay, and Joe D. Burns, University of Tennessee Extension associate agronomist, has several suggestions and comments about these mixtures.

"Clair, a new variety of timothy, produces two cuttings a year and fits well with red clover in a haying operation," Burns says. "Red clover and Clair timothy reach the hay cutting stage—boot stage for timothy and early bloom stage for clover—at about the same time."

Kenland red clover is the recommended variety due to its high production and ability to maintain a stand for two years. Red clover usually lasts only two years, but can be reseeded in the grass if the grass stand is still adequate.

Orchardgrass can also be used with the red clover in a hay mixture, Burns points out. Boone and Potomac are two of the recommended varieties. Orchardgrass matures a little earlier than red clover and the mixture should be cut when the orchardgrass reaches the boot stage. The red clover will usually be in the bud to early bloom stage at this time.

Burns gives the following mixture seeding rates: red clover, eight pounds and timothy, eight pounds; or red clover, eight pounds and orchardgrass, 12 pounds.

Seed August 15 to September 15. Spring seedings can be made February 20 to April, but fall seedings are preferred.

CUT CORN SILAGE AT PROPER STAGE

For best feeding results, dairymen should harvest corn silage in the dough to dent stage of maturity, suggests Herbert Holt, University of Tennessee Extension assistant dairy husbandman.

The corn plant at this time has about 65 to 70 percent moisture, which is almost ideal. Also, the grain content is much higher than that of earlier cut corn, he adds. At this stage dairymen can expect more tons of silage and more total digestible nutrients per acre than if the silage is cut in the milk stage.

"Since corn silage can provide a large part of the stored feed needed on a dairy farm, keep a close watch on corn that is intended to be used for silage," Holt recommends.

"The stage of harvest and moisture content will affect the nutrient content and the preservation of the silage."

High moisture is one of the problems that has plagued many dairymen in storing high quality corn silage. Dairymen must realize that if water gets into the silage through high moisture plants or if rain falls into the silo, silage quality can be lowered.

Several problems are created by high moisture, Holt notes. Loss of nutrients results from seepage of juices from the silo. Research has shown that seepage juice contains as much as 10 to 15 percent dry matter, which is highly digestible. Excessive moisture causes silage to be less palatable with a bad odor, resulting in less consumption. Also, more labor is needed to handle high moisture silage.

On the other hand, corn cut at a late stage of maturity will create problems because it will not thoroughly pack and thus exclude air, Holt states. Silage poorly packed will shrink and pull away from the walls of the silo, thus causing spoilage. It is easy to see that high quality silage requires harvesting the plant at the proper time and taking the necessary steps to eliminate spoilage after harvest.

"Once the dairyman starts to feed the stored silage, a sample should be mailed to the University of Tennessee Forage Testing Laboratory to determine its feeding value," Holt points out. "After the laboratory analysis has been made, the dairyman will receive a copy of the results plus a recommendation for the kind and amount of concentrate to feed."

You can get further information on silage and forage testing from your local county Extension office.

POULTRY EFFICIENCY IS MUCH IMPROVED

"John Q. Public is getting a big break when he buys today's poultry products compared to what he had to pay back in 1950," says J. K. Bletner, University of Tennessee associate professor of poultry.

"Consumers now benefit from improved production efficiency in the form of lower retail prices than those of 1950," Bletner explains. "Production units have become fewer but much larger. This has resulted in more efficient use of buildings, equipment and labor."

Poultry breeders have stepped up the rate of egg production and the rate of growth in broilers and turkeys. Also, the pathologists have improved disease control procedures and the poultry nutritionists have created more efficient diets.

"During the past 30 years, the feed required to produce a dozen eggs has been cut about 10 percent," Bletner points out. "And today you can produce a pound of live turkey for 25 percent less feed and a pound of live broiler for about 40 percent less feed than it took in 1939."

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TENNESSEE MAGAZINE (OUT 9/1) SEPT. 1969

PARTNER IN PROGRESS

BY CARMEN BURTON

(Editor's Note: Miss Carmen Burton, a 17-year-old senior at Clarksville High School, is the 1969 winner of the State Youth Essay Contest sponsored annually by the Tennessee Electric Cooperative Association. In order to compete for the \$500 scholarship awarded the State Winner by TECA, Carmen first had to win the local Essay Contest sponsored by the Cumberland Electric Membership Corporation, Clarksville. And writing is only one of Carmen's successful ventures to date. She was a 1969 delegate to Girls' State, winner of the Junior Classical League's State Oratorical contest and attained a Degree of Excellence in the National Forensic League. In 1968 she was the State 4-H Club Public Speaking contest winner. Her hobbies are art, fishing, swimming, photography and, apparently, succeeding in most of her undertakings.)



of an area was a challenge to the resourcefulness of man. Community leaders met this challenge by forming the Cumberland Electric Membership Corporation furnishing low cost electrical power to 5 counties in north central Tennessee and owned by its consumers.

A tour of The Cumberland Electric service area will be an eye-opener for Rip Van Winkle. He will see how and why CEMC has contributed to a better life for people, how it is a partner in progress.

The tour begins on a modern highway. Good roads are a result of people and industry moving in. An adequate highway system is necessary for the products of the farm and factory to reach the market place. Ample low cost electrical power furnished by CEMC is an inducement for industry to locate and expand in this area.

The back yard well pump has been replaced by clean, sanitary water supplied by the many water districts in the area. CEMC furnishes the power for pumping, filtration and purification of the water. This is an example of how CEMC is contributing to the health of an area.

The farms in the area have taken on a new look. Rip Van Winkle's milking pail and stool have been replaced by "milking electrically." Feeding, milking and cooling of the milk can be done electrically. Automation in livestock feeding, heating and ventilation of the poultry houses, and irrigation of the farmland is

Thirty years ago a Rip Van Winkle dozed off in a section of north central Tennessee. In 1969 he awoke from his lone hibernation, rubbed his eyes and tried to comprehend the many changes that were so evident in this area.

What brought about such drastic changes in the countryside? They have resulted from a trend toward urbanization of an area that Mr. Winkle remembered as principally a rural one.

Mr. Winkle could be reminded that while he was sleeping, many, many others in this area of Tennessee were wide awake. If necessity is the mother of invention, resourcefulness is the father of progress. The greatest resource of any area is its people. The north central area of Tennessee is fortunate in having resourceful people as well as ample natural resources.

When man's resources of ideas and concepts are applied to the natural resources of an area, progress is the result. A prime example is the Tennessee Valley Authority. A bountiful supply of water was converted into water power, then into electrical power.

The distribution of this electrical power to benefit the people

CEMC's contribution to better farming.

CEMC feels that the youth of this area is worth a major investment. They cooperate with youth groups by giving demonstrations and programs, give scholarships and furnish modern appliances for home economics departments. Total electric, modern schools are being built in the area. Athletic fields are being constructed with the best in lighting for school athletics. Rip's memory of school was nothing like this.

The availability of electric power has made untold changes in the home. All electric homes are the closest thing to the pushbutton home. The homemaker has learned to rely on her electrical appliances to give her more leisure hours and to do a better job managing the household. Many new homes as well as remodeled, old ones and mobile homes are supplied with clean electric heat and air conditioning.

Rip Van Winkle was astonished at all that he saw. One thing that surprised him most was the discovery of what Rip remembered to be a cornfield now completely covered with water. Modern boat docks, trailer parks, and camp sites abound. It was explained to Rip that progress has meant that the people of the area have more time for recreation. Our lakes have also meant a thriving tourist business. Tourists mean more dollars for the area. It also means that CEMC contributed to the development of these recreational areas by having electrical power where it was needed.

Rip Van Winkle was sorry that he had slept through thirty years of great progress. But probably Rip appreciated this progress more than those who grew up with it. After all, he saw these drastic changes occur in a span of time that seemed like overnight. When he thought of the changes he had seen in the homes, farms, roads, schools, land use, industry, economy and way of life of the people, he was reminded that Cumberland Electric Membership Corporation had been a partner in all of this progress.

Suppose a Rip Van Winkle went to sleep today. He will find, in the year 2000, that CEMC has continued to be a partner in progress.



A LEAKING FAUCET

It has been estimated that 60 drops per minute would supply water for an average family for 5 days, and 120 drops per minute would supply water for 11 days. If it was the hot water faucet... part of your electric bill is going down the drain.

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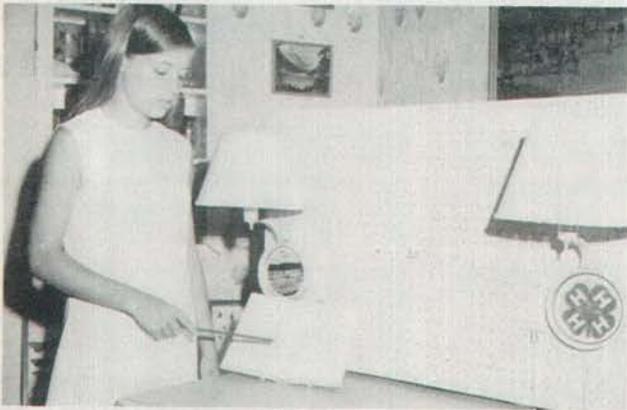
By Patsy Myers, Home Economist
Middle Tennessee Electric Membership Corporation



Greg Gamble, Lebanon, enjoys showing us his study area. His desk is well-lighted with a shelf above it built especially for concealing the fluorescent bulbs. Notice that with the strip of white plastic in the front of the shelf, his art objects are easy to see.

One very special advantage of this kind of lighting is that the whole desk top is left free for study materials and books. If the desk top should be dark or shiny, a good solution is a light-colored blotter.

Greg is the son of Mr. and Mrs. Sam Gamble.



Here Martha Jernigan, Route 1, Readyville, rehearses her 4-H Electric demonstration on Study Lighting, where she shows 2 wall-hung lamps over a study desk. Note 30" distance between lamps and 15" distance from the bottom of lamp shade to desk top which she indicates on her peg-board.

Martha won ribbons and prizes in competition at local, county and District levels with her demonstration in 1969.



As Mrs. Hollis Vaughn, Holly Grove Rd., Route 2, Lascassas, shows us her good lighting beside the mirror, we see in the mirror her husband's easy chair with a good floor lamp beside it to make reading easy and pleasant.

One of the most important factors in having and keeping good eyesight is providing good lighting for the task at hand. Good lighting, located in correct relation to the person using it, encourages concentration as well as good posture. For the student, better lighting can mean making the work seem easier.

A noted scholar recently remarked that the student in twentieth century America does more work than a student in any previous culture in the history of the world. This remark was made in connection with the gathering and the processing of the great amount of information available today.

What makes a good lamp for study, or for work in any area, is not just wattage, nor increased intensity of light. Too much light, according to the Better Light Better Sight Bureau, can produce harsh and distracting shadows; it can produce glare that bounces into the eyes and creates a veil that makes the work hard to see; it can produce an excess of contrast, with the light adequate at some points and very inadequate at others.

All of these characteristics of too much or too little light produce eyestrain and fatigue, shorten the concentration span, and reduce the reader's ability to assimilate information quickly.

All of these problems may be solved for the student by choosing the lamp for his desk carefully. To meet the requirements for good lighting, the desk lamp should be tall enough to give a wide spread of light on the task. This means it should be at least 25 inches tall. It should use at



Here we see a group of proud 4-H members, because now they are owners of new study lamps they have just finished assembling in a workshop. Middle Tennessee Electric orders these kits for assembling and the Member Services Department personnel helps supervise the assembling of them. This is a very worthwhile project, since this is about the only way a 4-H member can obtain the quality and quantity of light he needs for his study desk.

IF YOU LIGHT IT

least a 150-watt bulb and have some means of diffusing the light, by the bulb itself or with a bowl or disc. The shade's bottom edge should be on a level with the reader's eyes, which means about 15 inches from the desk. The inside of the shade should be white for greatest light reflection.

For the student, if there is not enough room on the desk for a table lamp, two wall-hung lamps provide a good spread of light over the study area. These lamps should have shades 10 inches or more in diameter and use 100 watt bulbs. They should also have diffusers to control reflected glare.

Built-in fluorescent lighting, in the form of a low wall bracket with deluxe warm or deluxe cool white lamp, is another type of installation that works satisfactorily for the study desk or for any type of task requiring good lighting.

There are several factors involved in achieving good results. First, are the proper lamp and shade dimensions, including heights and diameters. Then, the under-shade device to make the light more comfortable, without glare or sharp shadows. Third, and very important, is the correct placement of the lamp or lighting equipment in relation to the reader. You will find all of these discussed in detail in "The Light Book," a new publication by General Electric, which should be available at your power distributor's office.

The high-intensity lamp, now so popular, is unsuitable for prolonged study periods. High brilliance from its small source causes harsh, heavy shadows, and its high brightness forms a glare source that actually depresses vision.

Whatever light source you have chosen for work or the task at hand, there must be a wide distribution of light, upward and outward, soft shadows, and no direct or reflected glare. Then, there must be good general or background lighting in the room.

There are many areas in the home where task lighting is required, some of which are not for work. For instance, good task lighting should be planned for the dressing table mirror or the bathroom mirror for grooming. The task here is very pleasant with good lighting. Then, there is lighting for the entertainment center, particularly for television.

One publication says of Television Lighting: "A television screen, unlike a motion picture screen, is not designed to be viewed in a darkened room. The strong contrast between bright screen and dark surroundings is extremely tiring to the eyes. Relaxation and enjoyment increase with a moderate lighting level." It also recommends that the television or the lamps be positioned so that the lamps do not form reflections in the screen at the viewing positions. This may be accomplished by placing lamps at the side of the viewers, or in some cases controlling the lighting for televiewing with a dimmer.

Whatever the specific work (or task) to be done, light it correctly, and it will be much easier to do.

RECIPE OF THE MONTH

CALIFORNIA CHEESECAKE

- 1-12 oz. pkg. cream cheese
- 2 eggs
- 1 cup sugar
- 1 teaspoon vanilla

Make GRAHAM CRACKER CRUST from recipe below.

Mix broken up cheese and other ingredients until creamy, preferably with the electric mixer. Pour into crust and bake at 325° for 20 minutes. Remove from oven and cool (about 1 hour). Spread on the TOPPING and bake for 5 minutes at 325°. Cool in refrigerator for several hours or overnight. Serve.

TOPPING

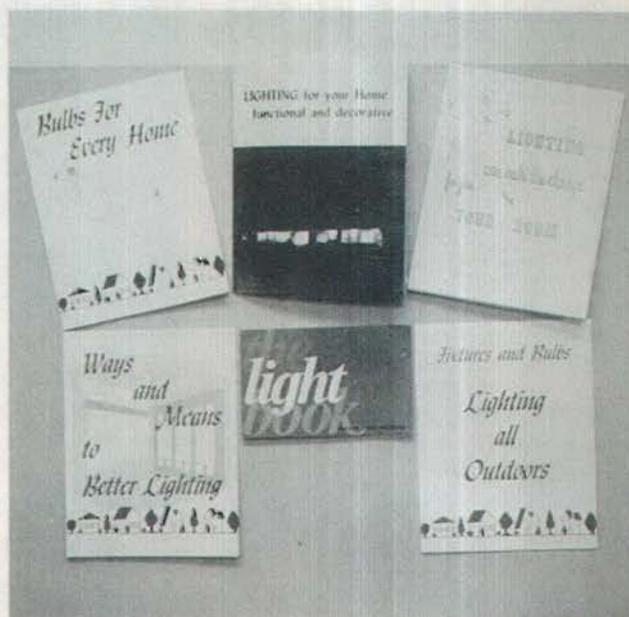
- 8 oz. sour cream
- 2 tablespoon powdered sugar
- ½ teaspoon vanilla

Mix well.

GRAHAM CRACKER CRUST

- 1 cup graham cracker crumbs
- 3 tablespoons powdered sugar
- 3 tablespoons butter

Mix sugar and crumbs. Blend in butter with electric blender or pastry blender. Press into bottom and sides of 9-inch piepan.



In the above picture, we show the various booklets and leaflets we have available in our office for information on lighting and lighting equipment.

THE ROUND-UP

4-H, THAT IS

By Lofton Robertson

"When the round-up is over this fall" has long been a phrase used by cattlemen, and even glorified by the song writers, but to the 4-H Club member it also has a lot of meaning. Several hundred of them met in Knoxville on Aug. 4-5th to "round-up" and round out a year of keen competition in their various contests.

The Farm and Home Electric Contest has become one of the most popular and enjoys a very large enrollment across the state. For the past 21 years our electric cooperatives, through their state association, the Tennessee Electric Cooperative Association, have sponsored this contest at the district level giving some \$470 in cash prizes annually.

On August 5th, ten district winners appeared at the University of Tennessee before judges Donald McDonald of Middle Tennessee EMC, Miss Virginia Lowe of Cumberland EMC, and Miss Elizabeth Davis of Chattanooga Power System and "locked" in deadly competition for the state title and a free trip to the National 4-H Congress. With a high score on his demonstration and an excellent record book, Bill Banks of Woodbury edged out the competition to win the coveted trip. Bill was previously winner in Cannon Co. and District IV and demonstrated the electric welding principles. He lives in the service area of Middle Tennessee EMC.

Electric cooperative boys and girls from all across the state stood out in the more than 30 contests and their awards given at a mass banquet on Tuesday evening. Several members of the electric cooperatives Youth Tour were in the competition including Miss Carmen Burton (state essay winner) who was 4-H winner in the Arts and Crafts.

So to paraphrase a song we say that we are real proud of our electric cooperative 4-H clubbers "when the round-up was all done this fall!"



Kenneth E. Debusk, (extreme left, back row) UT Extension Specialist, who handles the state Farm & Home Electric Contest, posed here with the contestants and some of their alternates. Those competing were: Dennis Black (Brighton); Carol Williams, (Dyer); G. C. Hixon, (Murfreesboro); Mary Kennedy, (Cedar Hill); Mary Jo Hutton, (Vonore); Gerald Partin, (Estill Springs); Bill Banks, (Woodbury); Shirley Wheeler, (Cookeville); Keith Davis, (Rogersville); and Mary Bussell Johnson, (Gate City, Va.).



Bill Banks of Woodbury, Tenn., won the state award in the 4-H Farm and Home Safety Contest with a real fine record book and a demonstration on electric welding.

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Insulation

(Continued from Page 7)

The use of floor insulation gives a very large increase to the efficiency of a heat pump. The outside temperature at which the heat pump, without auxiliary heat, can exactly provide the heat requirements of the house is called the "balance point." Without floor insulation, this balance point for the above house is 35°; with 2 inches of floor in-

sulation, the balance point is 24°. The coefficient of performance for the heat pump is 1.5 without floor insulation and better than 2.0 with its addition. This results in a great savings in heating costs due to the increased efficiency of the heat pump.

Another plus factor in installing floor insulation is the improved comfort resulting from warm floors. The inside temperature may often be reduced by as much as 5° where there are no effects of cold drafts. This gives addi-

tional savings in heating costs.

One insulating contractor charges 10¢ per square foot for installing 2-inch floor insulation. For the above 1500 square foot house, the cost would be \$150. In only three years, the heat bill savings would pay for the installation.

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AGENTS WANTED: Sell lifetime metal social security plates. Good Profits. Free sample. B & L Enterprises, 406 West Main, Waverly, Tennessee 37185.

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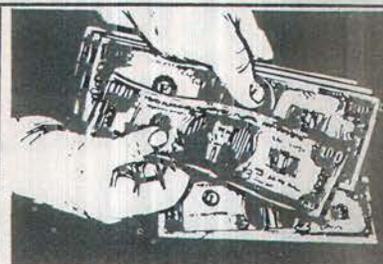
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PUZZLE CORNER

Readers continue to respond in great numbers to the puzzle corner which last month involved figuring out the name of a railroad engineer, who, as the riddle unfolds, has the name of **Smith**, the same name as one of the passengers named Smith. Ratio of correct replies was way over the wrong answers with almost 75 percent of all the letters giving Smith as the correct answer.

Winner of the first prize of \$10 is Miss Gayle Simmons, Route 1, Sharon, Tenn. Miss Simmons is a member of Gibson County EMC in West Tennessee. Second and third prizes of \$5 each were won by Wayne Dunnum, Route 3, Clarksville, Tenn. 37040, served by Cumberland Electric Memb. Corp. in Middle Tennessee and John E. Russell, Route 1, Greenback, Tennessee served by Fort Loudoun Electric Cooperative in East Tennessee.

The contest winner each month is determined by first draw. Second and third place winners are determined by continuous drawing if necessary, until all three grand divisions of Tennessee are represented in the prize winning list.

And now for the October puzzle and the three cash prizes of \$10-\$5-\$5, to be distributed to one winner in each grand division.

**HERE IS THE PUZZLE:
THERE ARE THREE MOTHERS,
EACH OF WHOM HAS TWO
DAUGHTERS LIVING IN A
SEVEN ROOM HOUSE. EACH
WOMAN HAS A SEPARATE
ROOM. HOW IS THIS POSSIBLE?**

Send answers to:
Puzzle Corner
The Tennessee Magazine
P. O. Box 7232
Nashville, Tennessee 37210

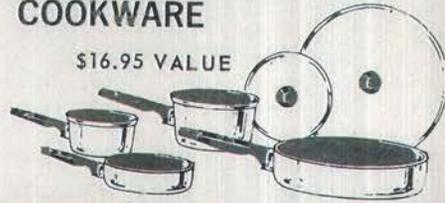
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- 15 HOLLAND FAIRY TALE TULIPS (10 cm.) \$3.43
- 16 HOLLAND GRAPE HYACINTHS (Muscari—6 cm.) 1.20
- 3 DUTCH HYACINTHS (14 cm.—5" circumference)75
- 18 CROCUS—Holland (7 cm.—2½" circumference) 1.35
- 12 GLORY OF THE SNOW—Holland (Chionodoxa) 4 cm.—1½" circ.90
- 12 SNOWDROPS—Holland (Galanthus) 4 cm.—1½" circ.90
- 18 ALLIUM LILY—Holland (4 cm.—2" circ.) 1.35
- 6 DUTCH IRIS—Holland (6 cm.—2½" circ.)45

100 BULBS—OUR \$10.33 VALUE
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Early blooming—long lasting 10 cm. bulbs (Tulipa Kaufmanniana Hybrids) bloom in mix of bicolor and multicolor shades. 10-12" stems rise from lush variegated foliage that covers ground.



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18 CROCUS
IMPORTED FROM HOLLAND
"First Flowers of Spring" includes whites, yellow, blue and striped blossoms.

6 DUTCH IRIS
IMPORTED FROM HOLLAND
Iris-like blooms up to 2 foot heights in a mix of blues, yellows and white make perfect background to bulb garden.

12 GLORY OF THE SNOW
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12 SNOWDROPS
IMPORTED FROM HOLLAND (Galanthus) Dainty, hanging bell-like white blossoms mass quickly and appear very early. Grow about 6-8 inches tall.

18 ALLIUM LILY
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