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RURAL ELECTRIC CONSUMER PUBLICATIONS
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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.

SEPTEMBER, 1969
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 unswerving 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 dost 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, ineptly
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 outplainly 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 grumbing takes the place
of reason; when men of good will turn into men of
ill will; when immediate and petty experience 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
depends 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 publica-
tions, 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,
willling — 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 he operated on a two-way
street.

— John Stanford
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SEPTEMBER, 1969
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 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.

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.

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:

<table>
<thead>
<tr>
<th>Big City</th>
<th>Rural</th>
</tr>
</thead>
<tbody>
<tr>
<td>To be warm and friendly to other people...</td>
<td>7%</td>
</tr>
<tr>
<td>To be in good health.</td>
<td>8%</td>
</tr>
<tr>
<td>To be very honest in their business dealings</td>
<td>6%</td>
</tr>
<tr>
<td>To be the most hard-working</td>
<td>15%</td>
</tr>
<tr>
<td>To get real fun out of life</td>
<td>29%</td>
</tr>
<tr>
<td>To work actively in community affairs</td>
<td>27%</td>
</tr>
</tbody>
</table>

And our 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, may 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 and 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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Call, Write, or Stop by Today
"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 over-exertion, 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, it has grown steadily in scope and services. Now known as the Safety and Job Training Program, 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 in cooperation with the State Department of Education, has grown steadily in scope and services.

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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 philosophy 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 "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.

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.

SEPTEMBER, 1969
A CLEAN BREAK WITH THE PAST! THAT’S FLAMELESS ELECTRIC HEAT!

There’s a whole new world of comfort and convenience awaiting your family when you install electric heat!

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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, for 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.
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:

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Rogersville, Tenn. 37857
Halston Electric Cooperative
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."

Kennesaw 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. Beeman 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; 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 silos 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 dairymen start 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 dairymen 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. Blecher, 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," Blecher 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," Blecher 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.)

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 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 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
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.
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 pegboard.

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.

WORK IS EASY

By Patsy Myers, Home Economist
Middle Tennessee Electric Membership Corporation

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
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.
"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 Block (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.

Fidelity Federal of Nashville puts it within easy reach of every saver. $1200, $1500 (any amount over $1000)
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 insulation, 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 additional 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.

This is a fabulous return for the investment!

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TENNESSEE MAGAZINE
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 very far 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 prices of $5 each were won by Wayne Dunnun, Route 3, Clarksville, Tenn. 37040, served by Cumberland Electric Memm. 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 prices 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:
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