

February, 1971

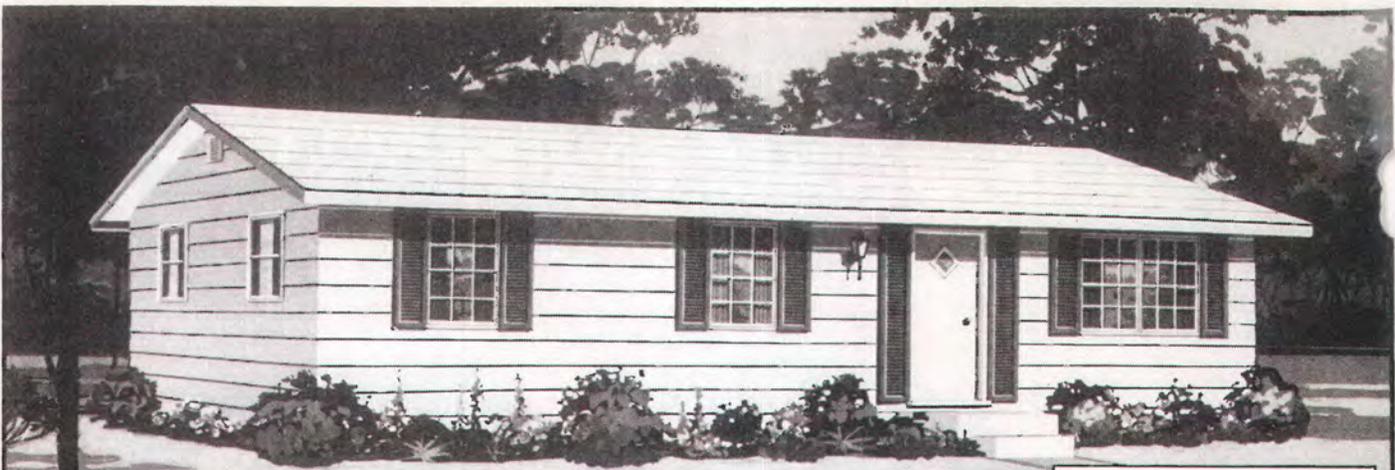
Tennessee

M A G A Z I N E

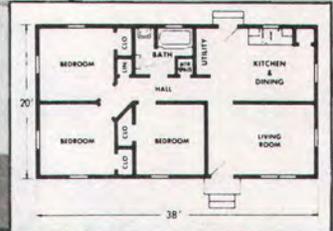
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A "Hollie Valentine"
See Page 10



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PUZZLE CORNER

Our January Puzzle Corner took quite a plunge in entries. Just the opposite of December, which boasted our highest number of entries, January proved to be our lowest number and only about 50% of those were correct.

The puzzle stated that four baseball teams organized a league. Each played one game against the others and each game had a different score. Each of the teams won a game, drew one and lost one. The championship had to be decided by average score. The Owls scored 4 runs against 2; the Elks 2 runs to 2; the Bulls 3 to 4; and the Bees 2 runs to 3. What was the score of the Bulls versus Bees game?

The answer: Bees 2 Bulls 0

Winner of the January Puzzle Corner and a \$10 check from THE TENNESSEE MAGAZINE is Mrs. James A. Greer, Route 2, Box 178, Fairview, Tenn., a member of Middle Tenn. Electric Memb. Corp. in Murfreesboro.

Second and third place winners \$5 each are Wayne P. Jones, of route 1, Copperhill, Tennessee 37317, a member of Tri-State Elec. cooperative in Copperhill and Harris Rankin, Moss Street, Tiptonville, Tenn., a member of Gibson Co. Elec. Memb. Corp. in Trenton. And here is the February puzzle:

Uncle Ned has lived one-fourth of his life as a boy, one-fifth as a youth, one-third as a man, and has spent thirteen years in his dotage. How old is the gentleman?

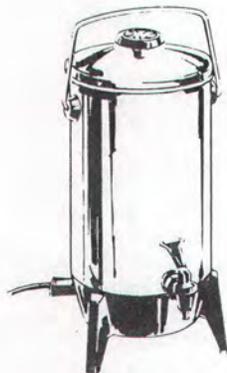
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ON THE COVER

Our Valentine, assisted, of course by Cupid, is Jackie Hollie, "Miss Tennessee Rural Electrification." Her story appears on page 10. Full color photograph by Lofton Robertson.

Volunteer Views

Much has been heard in recent weeks about the wholesale rate increase which TVA has been forced to pass along to its power distributors due to skyrocketing coal prices, interest rate increases, and increased equipment and labor costs.

It seems to be a part of human nature to magnify the bad news, to minimize the good. How much have you read during this same period of time, for example, about the ever-increasing power demands being made, and supplied, by TVA, or the work that it continues to do in such fields as flood control, navigation, environmental control projects, forestry, fish, wildlife, fertilizer, agriculture, tributary area development, and recreation? Let's review briefly what TVA has done during the past year in these various phases of the agency's multi-purpose operation.

Flood Control—Even though the year was relatively dry, heavy winter rains produced the largest Tennessee River flood in almost five years. TVA's regulation of this and two other floods on the Ohio and Mississippi Rivers averted more than \$21-million in potential damages. This brings to more than \$392-million flood damage averted since TVA's first project went into operation in 1936.

Navigation—Commercial freight traffic on the Tennessee River waterway doubled during the past decade, reaching a record 24.5-million tons during the past reported year. Private industrial investment in 221 waterfront plants and terminals now totals \$1.9-billion, an addition of \$114-million during the past year.

Electric Power—Total generated and purchased power on the TVA system passed 100-billion kilowatt hours for the first time. Of this total, approximately 90% was generated by TVA. Average home use of electricity in the region reached 14,560 kilowatt

hours, an average of almost 1,000 kwh more than the previous year.

Taxes—State and local governments received \$40.3-million from TVA and distributors of TVA power as taxes and payments in lieu of taxes, an increase of almost \$3-million over the previous year.

Environmental Control—Environmental control projects continued to receive strong emphasis during the past year as TVA announced plans to add new electrostatic ash collectors to 15 additional coal-fired generating units.

Forestry, Fish & Wildlife—TVA stepped up efforts to promote multiple-use land management activities designed to sustain and upgrade wildlife while improving timber growth for future harvesting. Mine operators, complying with TVA reclamation requirements in coal contracts, planted and seeded more than 2,900 acres of strip-mined land.

Fertilizer and Agriculture—TVA research in six Valley watersheds will help determine whether or not chemical fertilizers are a significant source of stream pollution. The agency obtained six patents of new developments last year, bringing the total to 185.

Tributary Area Development—A project was started toward an industrial complex in the Appalachian region which is expected to create 5,000 new jobs. Construction neared completion on the multi-purpose Tims Ford Dam and planning neared completion for major water resource projects on the Upper Duck River in middle Tennessee.

Recreation—TVA transferred land to the State of Tennessee for the expansion of two existing state parks and the development of a new one, bringing to ten the number of Tennessee state parks on TVA lakeshores. Total investments in recreation improvements on TVA lakes by private interests and public agencies other than TVA climbed to an estimated \$287-million, up \$32-million over the previous year.

Yes, TVA is very much a multi-purpose operation, and it continues to do a great job in many ways.

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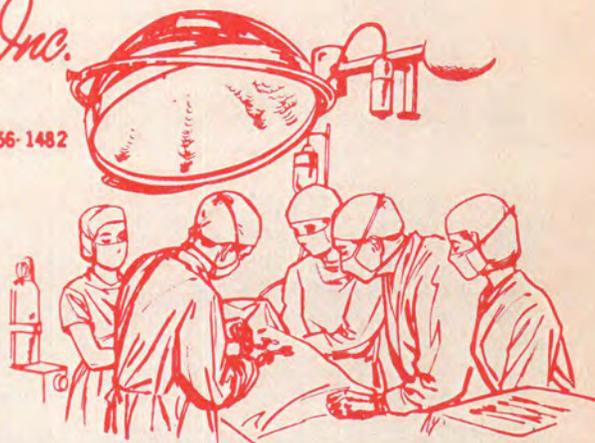
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CUT OUT ALONG DOTTED LINE AND MAIL

Gerald Partin: A Live-Wire National Electric 4-H Winner

By John Stanford

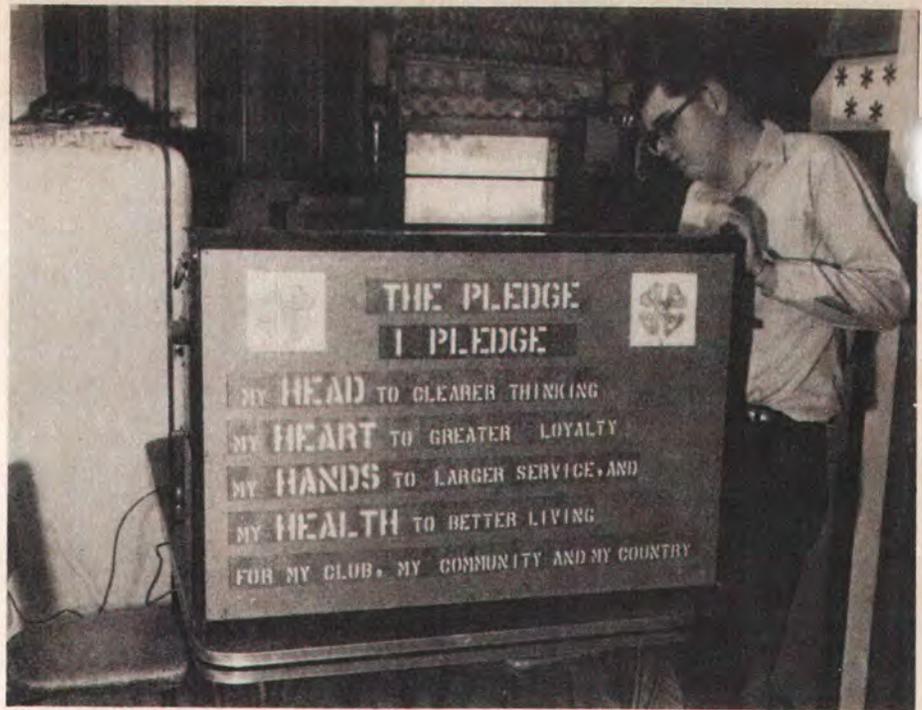
In the unlikely event that electrified medical pills are ever invented, chances are that Gerald Partin of Route 1, Estill Springs, Tennessee will have had a hand in such a development. This recent National Winner in the 4-H Electric Program has electrified just about everything else in sight. And, since he is now in college working toward a career as a pharmacist, don't bet against any possibility this young dynamo might try.

Seriously, this 18-year-old son of Mr. and Mrs. A. H. Partin has his feet solidly on the ground and for this congenial six-footer, that's sufficient to keep his head out of the clouds.

For an 18-year-old with Gerald's long list of accomplishments, this doesn't always hold true. Happily, for Gerald, it does.

Being one of only six 4-H Clubbers in the entire United States to win the 4-H Electric Program contest—and the \$600 educational scholarship that goes with it—is a fitting tribute to this fine young man who has been in 4-H Club work for nine successful years. But it doesn't necessarily tell the entire story of how hard he has worked and how much he has accomplished in order to receive this coveted recognition.

For eight of Gerald's nine years in 4-H, he has taken the Electric Project — and has encouraged others to take and to understand it as well. During these eight years Gerald made 15 items (including an electric pig incubator, a pig brooder with a thermostat, a wind tunnel and an electric box which lights up the 4-H motto), repaired 31 items (including the family's electric range and a heater in his church), completed 21 outlines, checked 36 items, used 42 tools and appliances, performed four



Gerald Partin lights up the 4-H Pledge light box which he constructed and electrified from scratch. He has been in 4-H work for nine years.

soldering jobs, helped wire five rooms, installed a motor on a portable stand, researched information of an electrical nature, put up Christmas lights, helped 153 people with electrical knowledge and use, drew a wiring plan, wrote three themes on electricity, and presided at the State Electric Luncheon.

One of the most useful installations made by Gerald on his family's 20-acre tree farm was a 49,000 foot electric fence. This has served him well in his Swine Project, in which Gerald has been enrolled all nine of his years in 4-H. And a profitable project Swine has been, too, for Gerald is attending Motlow Community College on the \$5,900 in bonds which he has bought from this project. In this phase of his long 4-H career, Gerald raised 389 pigs, sold 312 pigs, sold 43 top hogs and retained 34.

In another of his 9-year projects, Forestry, Gerald set out 1,000 pines, planted 400 walnuts, maintained fire breaks for nine years, cut 24 ricks of wood and sold 738 pounds of nuts.

And in still another 9-year project, Home Grounds, Gerald mowed 272 yards, set four trees and six shrubs.

In his Learning Situations Project, Gerald attended 24 Project meetings, gave 33 demonstrations, made 11 exhibits, went on four

tours, appeared on 36 radio programs and one television program and wrote two news stories. He has also spent a number of years in Citizenship, Junior Leadership and Public Speaking Projects with numerous awards to show for his efforts.

Gerald participated in Share-The-Fun contests for eight years, served on the local Livestock Judging team for four years, was a member of the local Honor Club for five years and of the State Honor Club since 1969, and was elected to the All-Stars in 1968.

He attended 4-H Camp for eight years, served in the State Congress as a Senator, attended the National Citizenship Short Course, participated in Parliamentary Procedure for four years, and received the Vol State Medal on Achievement record book in 1969.

Gerald is a personable young man with an obvious desire to achieve and to help others to do likewise. Of his many years in 4-H work and of his Electric Project in particular, he says, "If I were required to make a list of my overall Electric Projects in line of importance, *lessons learned* would head the list. For individual projects it would be hard to say. The motor I mounted on a stand to make it portable has been used to power a grinding wheel, a jig saw and corn sheller. But the thermostat-controlled pig brooder

has kept some of my pigs from freezing and therefore has repaid me many times the investment cost.

"Electricity is essential to our every day living. We could have all the electric appliances a home needs but without the benefit of that wonderful servant called electricity, everything would certainly be at a standstill.

"One year I wrote a theme about 'Duck River Electric Co-op—A Partner in Progress'. I must have expressed well how much I think of our electric co-op's fine service and its employees because I made an 'A' on the theme.

"I have had a few setbacks, and made some progress, have had some work and some play, a few disappointments as well as many

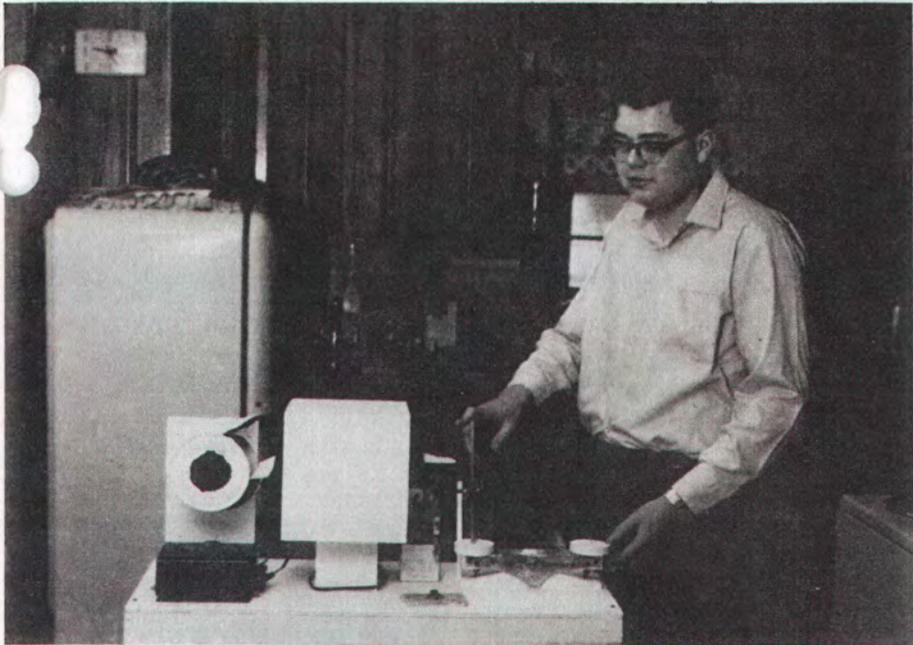
pleasant surprises, but when everything is totaled up, 4-H has been good to me."

In congratulating this fine, able young man, a National Winner, The Tennessee Magazine might add that Gerald Partin has also been good for 4-H and it is the likes of him to whom our nation can look with pride and high hopes for the future.

This model of an electric pig brooder with thermostat, which Gerald constructed in full size, is only one of his many electric projects. The big model saved many pigs for this National Electric winner.



Gerald demonstrates this model wind tunnel which he constructed to scale. It works just like the big ones.



Gerald points out items of importance in his 4-H Club Record Book, on which his National Championship was determined, to his Mother, Mrs. A. H. Partin, and to Patty Comstock (right) Public Affairs Coordinator of Duck River Electric Membership Corporation, Shelbyville, electric supplier to the Partin home and farmstead.



TOTAL-ELECTRIC LIVING MAKES A HOUSE A HOME

By **MRS. ANN THRONEBERRY**
Home Economist, Duck River
Electric Membership Corp.



Mrs. Frank Mann, Estill Springs, Franklin County, shows her favorite feature of the all-electric kitchen — the electric food center. The center provides a single power source for using the blender, mixer, knife sharpener, and juicer.



Mr. Frank Mann, home builder, Estill Springs, Franklin County, points to the master switch control for the low voltage wiring system used to control lighting throughout his new all-electric home. From this point in the master bedroom he can turn on every light in the house.

Total-electric living is for those who want to make their house a home. A home designed and constructed so the whole family can enjoy comfort and convenience as well as unmatched cleanliness. A home that provides extras for individual family members. To be such a home, today's house depends on the ability to use adequate wiring, heating & cooling, lighting, electrical centers, and outdoor conveniences for the ultimate in livability, charm and decoration.

Adequate Wiring

The total-electric home provides a service entrance which offers an unlimited capacity for operation of present electrical equipment and appliances. It also is more economical and permits the addition of new electrical equipment and devices as they develop, without the inconvenience and expense of rewiring.

When plenty of convenience outlets are provided in every room for connecting lamps, clocks, stereos, and all of the other electrical devices which add to the joy of living better electrically, "octopus" outlets and ugly extension cord entanglements can be eliminated.

Convenience outlets should be placed so that no point along the floor line in any usable wall space is more than six feet from an outlet in that space. Along kitchen counters, one outlet should be placed for each four linear feet of work surface frontage, with at least one outlet to serve each work area.

Heating and Cooling

Automatic year-round temperature control for heating and cooling is another convenience enjoyed in a total-electric home. This temperature control may be obtained

by a combination of electric heating and air-conditioning, or by the use of the electric heat pump. When an electric heat pump is installed, it allows both heating and cooling to be automatically thermostatically controlled, flexible room control by adjustable registers, filtration of air, and dehumidification. This compressor unit is located outside of the conditioned area.

Lighting

Each family member will benefit from a truly adequate lighting system in the total-electric home. The lighting system should be planned with the living habits of the family in mind. Lighting should be both functional and decorative. Functional lighting will increase working efficiency in activity and seeing task areas of the home and will also provide safety in certain locations.

Decorative or accent lighting will enhance line, form, color and texture of a space and its furnishings. In one area it may aid relaxation, while in another add sparkle to an evening of social entertainment.

The uses of downlights, eyeballs, cornice, valance, and cove lighting also make for more appealing atmosphere in many applications throughout the home. A dimmer is used often to control the intensity of light.

The kitchen, too, should be carefully planned in terms of lighting in the all-electric home. It is very important that a homemaker can see what she's doing, but also that her time in the kitchen is comfortably spent. Under-cabinet lighting and luminous panels greatly assist the homemaker in her task.

Low-voltage remote control wiring is a modern and entirely different kind of system being used in many homes today to control lighting. It eliminates the 120 volt wiring to all switches and replaces it with a low voltage wire. The heavy work of switching is done by dependable relays that can be controlled from various remote points. Master switches give control of many lights, from one or several convenient locations.

Electrical Centers

The total-electric home contains several electrical centers that lighten household routines. Two of these centers are the kitchen and laundry areas.

The beauty and functional efficiency of a well-planned total-electric kitchen distinguish the modern, built-for-comfort home. Electric kitchen servants have certainly eliminated household drudgery.

New electric ranges have push-button controls, self-cleaning ovens and rotisseries. The electronic oven is another appliance to aid the homemaker in preparing nutritional meals for her family. Ventilation hoods make odors and steam disappear like magic.

The smartly-styled refrigerators provide roomy shelves, freedom from defrosting, automatic ice-makers, and even dispensers conveniently located in the door for crushed ice, ice cubes, and chilled water.

The electric garbage disposal is used in the well planned kitchen to provide removal of food, peelings, and bones. The electric trash masher is another new convenience of the total-electric home. It can reduce a week's accumulation of trash and garbage for a family of four into one small bag.

The electric dishwasher has a cycle for the most delicate china and a power scrub cycle for pots and pans. With such a flexibility available it is possible to wash dishes for a family for two or for a family of six or more.

Many small electrical appliances are found in the total-electric home to lighten the chores of the homemaker. These might include: an electric carving knife, coffee-maker, mixer, blender, frypan, the electric fondue, as well as many others.

The electric food center might be installed in the kitchen counter top to provide a single power source for using the electric blender, mixer, juicer, and knife sharpener and other convenience items.

The home laundry center, usually located in the utility room, kitchen or bath, should be arranged for personal convenience. The automatic washer provides the ultimate in programmed push-button ease, while the automatic dryer offers the user a choice of control in drying a variety of loads.

The laundry center, or utility area may also include a sewing center, planning desk, as well as a storage area for many household supplies.

An abundance of immediate hot water is available when an electric

hot water heater of sufficient size to meet the needs of the family is installed. Electricity makes it possible for water heaters to be conveniently located near the area they will serve. Two hot water heaters often prove to be more satisfactory than one.

The central vacuum system can be a convenience enjoyed not only by the homemaker but by the entire family. By making use of a centrally located power unit, pulling a vacuum tank or canister through the house is eliminated. The vacuum hose is connected to one of the built-in receptacles to allow the powerful vacuum system to start automatically.

Many other electrical centers may be present in the total-electric home. These centers will be established to meet the needs of individual family members.

Outdoor Conveniences

The conveniences of the total-electric home extend outdoors onto the patio as well as into the yard. Outdoor weatherproof outlets can provide for outdoor games and hobbies as well as the preparation of meals on the electric grill.

Outdoor lighting extends outdoor recreation into the night. It can dramatize gardens, trees, and provide the desired safety of family members.

For All The Family

Dad, like everyone else, reaps the enjoyment of good lighting for reading the evening newspaper, as well as having adequate wiring to handle power tools.

Mother probably won't admit it, but she gets more from total-electric living than anyone. Electric heating, for example, is the cleanest type available. That means less house cleaning. Outlets are handy, and her full complement of electric appliances save labor and time.

Teenagers benefit from plenty of light for studying as well as for entertaining friends. An automatic dishwasher cuts down on "chore time" and provides more time for watching television.

Primary schoolers and preschoolers enjoy the convenience of a large refrigerator-freezer where after-school snacks are kept to satisfy the needs of growing bodies.

Total-electric living does make a house a home. A home that offers warmth, convenience, and safety to all family members.



Entertaining teenage friends is now simple with the stereo music center. Jeffery Mann, son of Mr. and Mrs. Frank Mann, Estill Springs, finds that with the music intercom system, he has his choice of listening to stereophonic music or AM-FM radio, or talking to his friends through the intercom.



One of the features of the side-by-side refrigerator-freezer is the availability of ice cubes, crushed ice, and chilled water. Here is Teresa Mann, daughter of Mr. and Mrs. Frank Mann, Estill Springs, having a glass of chilled water.

Versatile Is The Word For Jackie Hollie

By John Stanford

A soon-to-be 18 year old, who feels as much at home in the driver's seat of a farm tractor as on the queen's throne of a beauty contest, will soon be representing Tennessee in the Miss Rural Electrification U.S.A. Pageant to be held in Dallas, Texas later this month.

She is Deborah Jacqueline (Jackie) Hollie, a pretty Obion County farm girl who, it was noted by an interested spectator, won her way to the National contest *by a country smile*.

Jackie, as she prefers to be called, is the 17-year-old daughter of Mr. and Mrs. R. B. Hollie of Route 3, Union City, Tennessee or, to be more specific, the Harris Station community. She is the youngest and only still-at-home of the Hollies' three children, who include a 27-year-old son, Larry, and a 23-year-old daughter, Dianne.

A senior at South Fulton High School, Jackie enjoys living on the family's 185-acre farm and doing her share both in the home and on the farmstead. She is almost as skilled at driving a tractor or a combine as she is at pushing an electric vacuum or cooking on an electric range. Unlike her parents, Jackie can't remember when there was little or no electricity in our rural areas. The Hollie home and farm has long been served by Gibson County Electric Membership Corporation, Trenton, which also sponsors the Beauty Contest won by Jackie last August which started her on the way to Dallas this month to compete for the National crown. In between, in October, she won the

Miss Tennessee Rural Electrification pageant in Nashville to open the final door to competition at the National contest.

Jackie is good testimony to the fact that a young lady can be beautiful, brainy and busy at worthwhile pursuits. She ranks first in a graduating class of 86 at South Fulton High School, has won other scholarship recognitions as a Junior Honor Student and member of the Beta Club, is a captain of cheerleaders, is serving as editor of the high school annual, was chosen as Most Likely To Succeed in the Senior Hall of Fame, was named Miss Congeniality by the Athletic Club, was picked as 1st Alternate and Most Congenial in the 1970 Miss South Fulton Beauty Pageant, and also in 1970, was selected as Obion County Fairest of the Fair.

Realizing that too much work and not enough play might make Jackie a dull girl, this brown-haired, green-eyed, 5'-6" beauty devotes as much time as she reasonably can to such hobbies as reading, swimming, cooking, spectator sports and just plain being with people.

On the more serious side, Jackie allows more than ample time for her church work. She is a member of the Church of Christ.

After high school, Jackie plans to attend the University of Tennessee at Martin, working toward a degree in nursing.

This, in brief, is Miss Tennessee Rural Electrification 1970, Jackie Hollie, a lovely young lady who is certain to ably represent the Volunteer State in Dallas on February 17th.



Jackie Hollie, "Miss Tennessee Rural Electrification," looks over copy of The Tennessee Magazine which carries picture of her and two runners-up on the cover after the State Contest which she won to win the right to compete in National Contest.



Jackie feels equally at home in the kitchen, on a tractor or on the Queen's throne of beauty contest. Cooking is one of her favorite hobbies.

Uncle John's Page

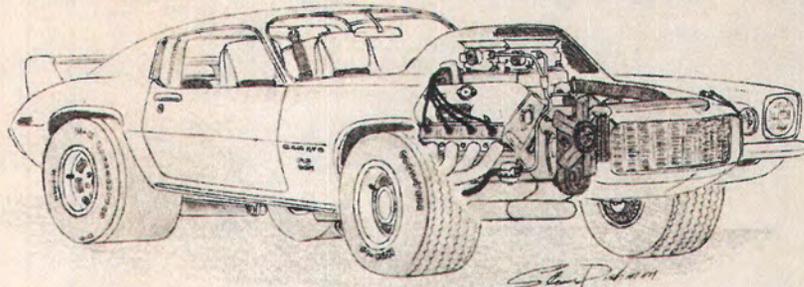
This page is reserved for the young folks. We will pay one dollar for each poem or drawing published. ALL WORK MUST BE ORIGINAL. Drawings should be in black, and drawn on white, unlined paper. Tell us your age, address, and Electric Co-op, and

Send all items to:

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



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Ball Play Road, Route 4
Madisonville, Tennessee
Ft. Loudoun Electric Cooperative



Steve Dishman
Livingston, Tennessee 38570
Upper Cumberland E.M.C.



Dana Ferguson, Age 13
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Gibson County E.M.C.



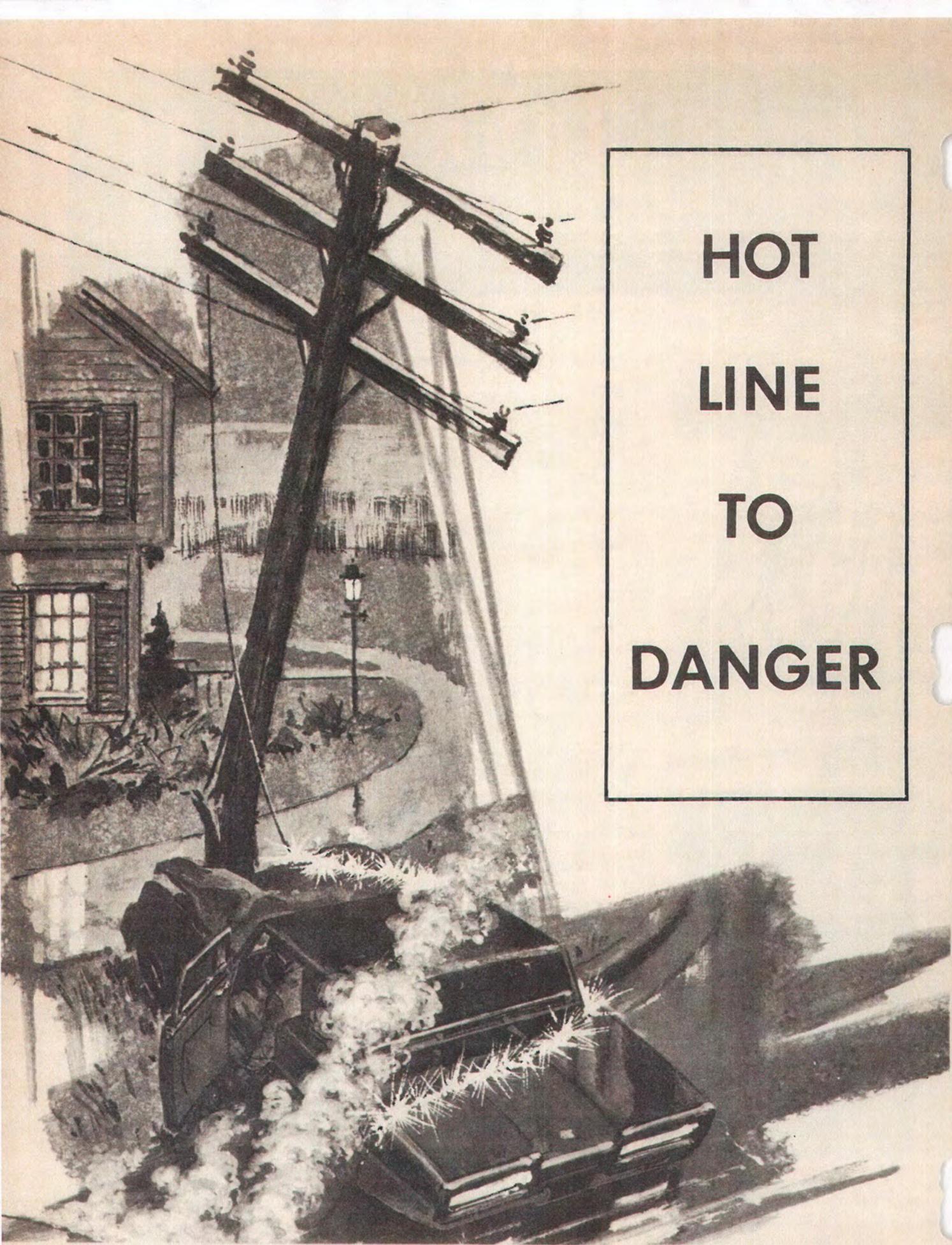
Jackie Franklin, Age 16
Route 2, Box 340
Jamestown, Tennessee 38556
Volunteer Electric Cooperative



Patricia Smith Harris, Age 19
Route 1, Ashland City, Tennessee
Cumberland Electric Memb. Corp.



Gloria Collier, Age 12
Route 1, Box 218, Atoka, Tennessee
Southwest Tennessee E.M.C.



**HOT
LINE
TO
DANGER**

Editor's Note: We are grateful to Family Safety Magazine, published by the National Safety Council for the permission to reprint this article.

Imagine a pair of identical twins that no expert can tell apart by visual examination and that have only one discriminating characteristic: one can kill you and the other is perfectly harmless.

Electric wires can be like that. When one is downed by the forces of nature or by destruction of the power pole supporting it, the wire may lie on the ground with every appearance of innocence. And to the observer with less than professional knowledge, there may be no hint of danger, no warning that a killer is casually awaiting a victim. The "hot" electric wire looks exactly like one that is not energized. Unless it contacts a "ground" it simply lies there. But if, before linemen have a chance to take it out of the circuit, a person comes along and touches the wire, it can strike with the paralyzing swiftness of a snake and perform its deadly act of electrocution.

High-tension wires may fall onto the ground, or dangle within reach, as a result of a storm, or they may be loosened or broken when a vehicle strikes a utility pole. Dead branches falling from trees account for thousands of wire breaks each year. Occasionally there will be civil disturbances or actual sabotage that will result in wire damage. And it seems that there are still little boys of all ages who cannot resist the compulsion to use insulators as bullseyes in their target practice during hunting season.

Wire Unpredictable

When the wire breaks or comes loose from the pole and falls to the ground, there's no predicting how it will act. If it could be depended upon to crackle, snap, twist and throw sparks all around it would be less dangerous because it would give plenty of unmistakable warning to any passerby. But often, lacking a good connection with the ground, the wire lies quietly and gives no indication of its deadly potential. Any person who touches it may provide a path to ground,

in which case the person's body would become a part of the deadly circuit.

An automobile accident that damages a pole may set up a frightening trap for any unwary driver or by-stander. College basketball fans will long remember the tragic death in 1965 of Wayne Estes, the 6-foot, 6-inch, 225-pound forward who was an All-American candidate and the greatest scorer in Utah State history. Minutes after completing the best game of his career he and some teammates were leaving the campus to get a bite to eat when they saw an automobile accident. As he rushed to the scene to help, Estes' forehead touched a downed wire from a utility pole struck by the car. He fell to the ground immediately and died despite mouth-to-mouth resuscitation efforts.

Explosive Power

Electric power is power in every sense of the word. It can be as explosive as a bullet or as destructive as a speeding automobile if something happens to allow it to get loose from its normal means of transmission. Most people know this—they have received a shock from their household supply of 120 volts and they have a fairly good idea of what thousands or hundreds of thousands of volts could do to them. Yet an electric wire lying quietly on the ground can be disarmingly deceptive, especially to children and adults made unwary by its seeming innocence.

Storms and traffic accidents are so frequent that most people can expect to come across a live wire from time to time. The best protection you can give the members of your family is to be sure they understand the hazards of damaged electrical equipment yet know how to deal with it should it ever become necessary to do so. Follow these general rules suggested by Sherman R. Knapp, board chairman of Northeast Utilities, Wethersfield, Connecticut:

If you see a downed wire, assume it is "hot" and can kill you. Protect the scene by posting a guard to keep passersby at least 100 feet away, then call police immediately and give them the exact location of the trouble. The police

will relay the information to the power company.

As a result of a storm there may be downed wires at several locations and power companies sometimes have to borrow emergency crews from another company. This takes time. While repair work is going on, keep curious children away from all danger areas.

Be especially careful in any area where there are metal fences, guardrails or highway dividers. A "hot" wire can send a charge for miles, even along an old barbed wire fence.

If a wire has fallen onto a vehicle with occupants, call to them to stay inside until professional help arrives. Occupants of a rubber-tired vehicle usually are effectively insulated. But if a driver or passenger should step out with only one foot on the ground, electrocution is possible. If it is absolutely necessary to get out of the vehicle (in case of fire, for example), have each person leap from it without touching it again. This will prevent a potential victim from forming a circuit to ground with his body.

If a wire is draped across a victim, it must be removed immediately to save his life—but not at the risk of another life in a foolhardy attempt to rescue. Non-conductors—of dry wood, plastic or rubber hose, dry rope or similar material—can sometimes be used to allow a rescuer to push or pull the wire away without great risk.

Never try to cut fallen wires. This takes skill and special equipment.

Help For Victim

If a victim is pulled free and is unconscious from electric shock, emergency mouth-to-mouth resuscitation must be started immediately. Just as with a drowning victim, every second counts. If possible, keep the victim warm with blankets and do not abandon him or cease respiration efforts until trained hands take over from you.

Remember, when you're dealing with high-voltage wires you must not depend on rubber or plastic boots, raincoats or ordinary gloves to protect you from shock. They're designed to protect you from the rain, not from being electrocuted.

Timely Topics

DEADLINE NEAR FOR INCOME TAX

Farmers have less than one month to meet the March 1 deadline for filing their 1970 income tax returns, reminds a University of Tennessee agricultural economist.

"You are considered a farmer if two-thirds of your gross income is from the sale of agricultural products," explains Frank DeFriese, associate professor with U-T's Agricultural Extension Service.

DeFriese points out that although you may not have to pay any income tax this year for one reason or another, you still may need to file a Schedule F if you had any income from farming.

The economist adds, "You must have a net farm profit to be required to pay income tax. Then you have the same exemptions and deductions as any other individual, so no tax may be due." For the 1970 returns, married persons filing joint returns would not be required to pay any tax if their incomes were less than \$2,300. However, they still need to return Schedule F.

DeFriese concludes by saying that farmers may want to file a Self-Employment return for Social Security purposes. You can file on either net or gross farm income if your net income was less than \$1600. Your county Extension office has information available to help you with your 1970 returns.

INCREASE GROWTH RATE FOR TOP BEEF PROFITS

You, as a cow-calf producer, will have to increase the weaning weights of your calves by 40 to 50 pounds per head in the next four years to hold your income at today's levels.

This advice comes from Haley M. Jamison, University of Tennessee beef cattle specialist, who says that one of the best ways to increase these weaning weights is to use bulls with records showing that they are fast gainers themselves.

"Although the bull contributes genetically only half of the makeup of a calf, he has more impact on your profits than just half of the calves you sell," Jamison continues. "A good bull that stays in the herd several years directly improves many calf crops. In addition, his money-making ability is further passed on through replacement heifers selected to remain in the herd."

Perhaps one of the greatest things wrong with the beef cow-calf program is that so few of us know where we stand concerning profits—or the lack of them, notes Jamison, an associate professor with the U-T Agricultural Extension Service. Production testing can give us a better picture of how well our cattle are producing and can help us pick out the "money-makers" in our herd.

If a production testing program is going to be useful, you must have a few basic objectives, Jamison believes. You should want to produce a larger percentage of cattle with superior conformation, along with cows that wean heavier calves that grow fast and efficiently. And your interest can't stop at this point, because you must keep in mind that you need to produce calves that will finish at an acceptable weight with a maximum amount of lean in the carcass. These objectives are important to you, the beef cattle producer,

because they determine how much money you will make.

PLANT GARDEN PEAS EARLY

Low yields from English or garden peas may mean you aren't planting the seed early enough, according to a University of Tennessee horticulturist.

"Garden peas need fairly cool temperatures for the blossoms to set on and develop pods," says Robert D. Freeland, assistant professor with the U-T Agricultural Extension Service. "The later seeds are planted in the spring, the higher the temperatures will be at blooming time."

Freeland says that a good date to aim for planting garden peas is Valentine's day, or around the middle of February. If the garden was turned last fall, you can usually find a day in February when the soil is dry enough to work. If it wasn't turned, work up the spot where the garden peas are to be planted.

"Shallow working is all that is necessary," adds Freeland, "because the seeds should be covered with soil no more than one-quarter inch deep. Sunny days will warm up the soil enough for the seeds to germinate in one week if they aren't covered too deeply."

The young plant is able to withstand some fairly low temperatures because garden peas have reserve food supplies underground, Freeland explains. Bean seeds send their food reserves above ground upon germination, and a low temperature will kill the crop.

SERVICE ENGINE IN OFF SEASON

A University of Tennessee agricultural engineer reports that off-season deterioration is often more damaging to engines than the use season. "Engines most affected are those on machines with short seasonal use such as combines, balers, and forage harvesters," says Albert J. Swearingen.

Special off-season servicing can be even more important than use-season servicing, continues Swearingen, an associate professor with the U-T Agricultural Extension Service. He gives the following tips for off-season servicing which will prolong the life of your engines:

Change engine lubrication oil and filter, and drain the fuel system to avoid gum accumulation.

If the engine has a liquid cooling system, drain and refill with fresh antifreeze coolant to the manufacturer's recommended concentration. If the engine is air cooled, remove dirt and trash from the cooling fins.

Give valves extra oil film protection by injecting lube oil into the intake system of the engine while it is running.

Give pistons and cylinder walls extra oil film protection by squirting some oil on top of the pistons through the spark plug holes.

Keep moist air out of the engine by sealing the exhaust and intake ports.

Swearingen concludes by saying that if you find it difficult to give your engines this kind of off-season service, do the next best thing and store them in a dry place.

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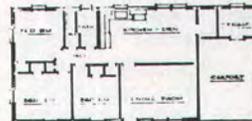
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"Electricity"...

Progress In Powdered Metals

By David Dudney
Electrification Advisor U. C. E. M. C.

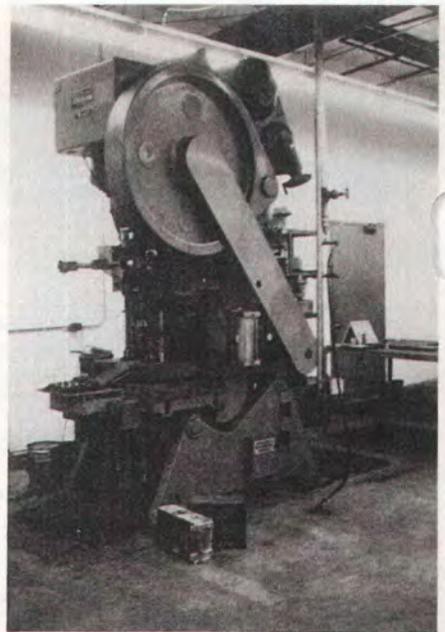
Today, a vital question often pondered is "what can electricity do?" Well, for one thing it can milk 100 cows in an hour. It can power the largest of motors, and light the largest of cities. It can warm our homes, cook our meals, and power the "electric automobile." Yet, there is one thing it does that is not often seen by many people. Got you guessing already? Well if not, the thing it does is to make products from "powdered metals."

The Livingston Tool and Powdered Metals Corporation of Livingston, Tennessee is a unique operation. I was simply amazed at the operation that goes on in this business. You see, you take a little powdered metal, put it under 100 tons of pressure, and you have the finished product. Sounds simple doesn't it? Yet it is not as simple as it sounds. This finished product may be a

housing, gear box, bearing, cogs or just about anything you want to name. There are 1000 and 1 things that could be made by this process, and it can be done in this plant.

Mr. Carl Edwards, who is President of this corporation, was most gracious showing me through his plant, and answering questions concerning powdered metals. It was a technique that I knew absolutely nothing about. So, I would like to share with you my experience. I believe you will be interested enough to go and visit him and see this amazing operation.

Our journey began as follows: Mr. Edwards stated that "the availability of labor in the area has been a big asset if not the biggest. I'm willing to help people who want to learn a trade like powdered metals." I asked him about materials being available for his operation. He stated that

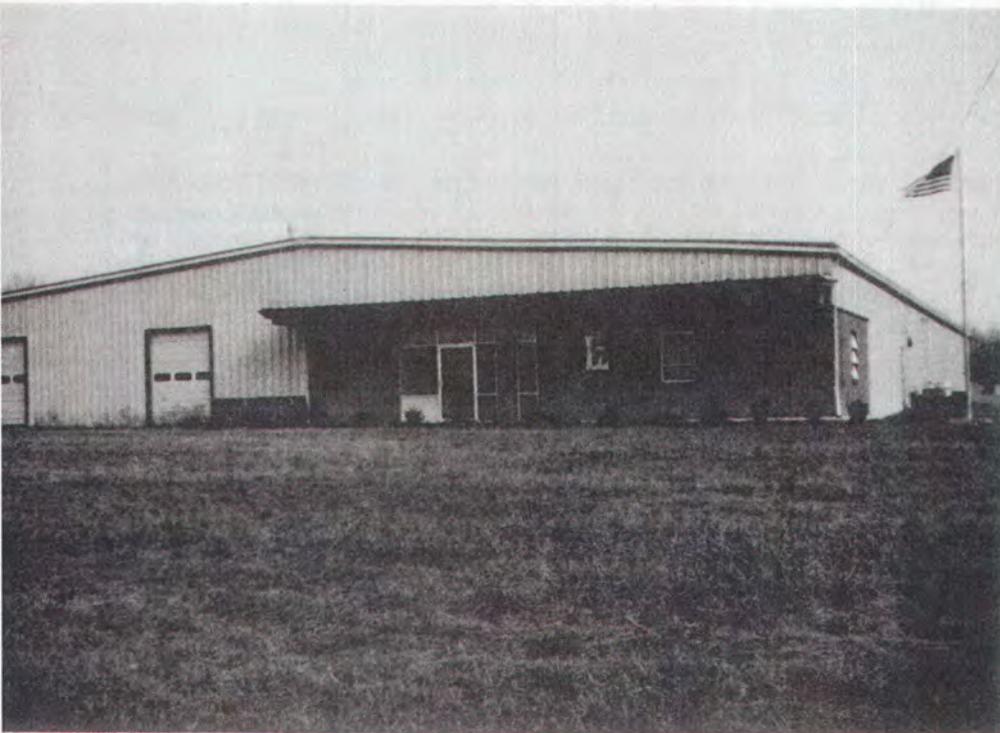


Pictured is the 100 ton press.

people are usually standing in line to offer their assistance and technical help. "This is overwhelming," Mr. Edwards stated. They will go so far as to provide technical books to help you, and will even furnish materials. So you see, this business is not only profitable but interesting, and is a great challenge to the open mind. So this brought about my next question as we continued our tour. What goes into the process of powdered metals? Mr. Edwards explained that raw materials play a vital roll in this business. Such metals as iron, stainless steel, brass, and bronze are received in drums in the form of "atomized powder." This powder is mixed with approximately 4% nickel and 2% copper. This is where you get the proper alloy. "Why," I asked? For strength, texture, etc, was the answer.

Moving along, we came to the electric furnace. But before we go into this, let me add that the "atomdized power" is kept at an even temperature. This is done by the humidifier. Why? If this is not done, you will lose the texture of the powder and will possibly have a faulty product. As stated, the electric furnace plays a major role in this process. The product enters at the front where all the impurities are burned off. After this burning it begins a slow process of tempering. This process is called sentering. The furnace maintains a temperature of 1850 degrees and

This is the Livingston Powdered Metals Corporation building located in Livingston, Tenn.

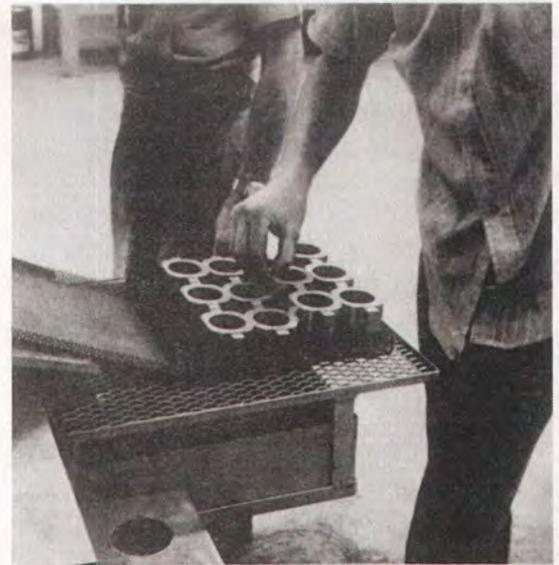


reaches a maximum of 2050 degrees of high heat. This is done to temper and bond the particles together. I was amazed to see that you could take one of the pressed products and crush it with your fingers. But after going through the furnace, you couldn't break it with a hammer. Our next stop was to see the "steam homo-furnace." This is a process by which it seals the pores of the product and coats it to prevent corrosion.

We continued to go on the tour and I was even more amazed at the 100-ton press and its mechanical operation. A quantity of the powder is placed in an opening, and presto you have a product of pressed metal. Also the punch press added to the amazement. It is a process by which parts

bronze, copper, nickel, graphite, lithium, iron, and zinc stearate. With all this in the proper proportion, and the finished product, one small particle is taken from the pressed product and placed under a microscope to determine hardness. Another important factor is the balance or controlled weight. This is done to determine destiny of weight of the product. This set of scales weights 4 points behind the decimal point.

Mr. Edwards was most energetic about his operation. He stated that all his employees are local labor, and "I'm operating at about one-third of my capacity with a month's consumption of 69,480 KWH's." This process Mr. Edwards went on to say, of tooling, machine work, destiny, materials, and met-



Shown above is the finished press product.



Pictured are some of the presses in operation and soon to be in operation.

are punched out from stock materials. Next, we journeyed to the tool room. Here dies are made for the presses to be used in the manufacturing of the parts. Mr. Edwards stated that men who work for him often draw the design of dies to use on the presses. Mr. Edwards also stated, that approximately 1,000,000 parts are manufactured a month. If it weren't for "electricity," it couldn't be done.

After viewing other phases of the operation, we sat down a few minutes so I might gather additional notes, and additional questions, such as, what materials and other raw materials are used in your operation? We have named a few but the others are: Brass, steel, stainless steel, nacconal, tin,

allurgy all play a vital part in this work. "My biggest asset is being able to obtain people who want to work, learn a trade, and know what and when to do a job. If I ask them to figure the destiny or go read the dew-point, I don't have to worry, they know their job. With the aid of the vocational school, and Tennessee Tech close by, the men can obtain valuable knowledge. You might say, learn while you work. I often fluctuate their hours of work in order for them to go to school. On the job training and the schoolroom have proved successful," Mr. Edwards stated.

Mr. Edwards told me something that has left a lasting impression. He stated he would not take anything in the world for the people

who work for him or their attitude. They are the best people in the world to him. He also stated, "Without the community acceptance and participation and support, no project can be successful. This I am thankful that I have received." Well stated, Mr. Edwards.

We cannot tell of all your operation due to the allotted space. We can however, encourage our readers to visit your operation, and I'm sure they will be as amazed as I was on my visit.

We are proud of your success, the goals you are seeking, and the cooperation you have and will continue to receive from the community. The ideas you present, the goals you seek to accomplish, are immeasurable.



This electric furnace has a maximum heat of 2050 degrees.

Coach Beetle Is A Tough Competitor

By Harry E. Williams
Assistant Entomologist
University of Tennessee Extension

(Ed. Note: Mr. Williams welcomes questions and problems concerning insects. Address correspondence to The Tennessee Magazine, P.O. Box 7232, Nashville, Tenn. 37210.)

The annual "Vegetable Bowl" is always a very costly contest for both teams. "Bug U" always has an excellent game plan, a competitive spirit, and a lot of reserve strength. Coach Beetle is a shrewd strategist with an uncanny ability for getting the most yardage out of his talent.

When you enter the garden this spring, anticipate a real close game against a worthy opponent. Your efforts in the garden to control the bug will be more effective, economical, and safe if you have a well-balanced game plan. You can stop his attack with minimal yardage if you have a well-planned defense.

Anticipate a strong attack from the opening kickoff. When you begin preparation of the plant bed, remove all debris and plant material that shelter the bugs. Cultivate the plant bed and check the soil for bugs which live through the winter under the surface. Damage to seeds and seedlings can be prevented by incorporating your first line of defense into the top two to four inches of the soil during cultivation. Apply one ounce of actual diazinon, dieldrin, aldrin, or chlordane per 1,000 square feet of soil. Mix four fluid ounces of a 25 percent emulsifiable concentrate or its equivalent of one of these insecticides in two to three gallons of water. Spray this mixture on the surface and rake it into the top three inches. When



you transplant seedlings, mix two ounces of 50 percent diazinon wettable powder in 12½ gallons of water and use two-thirds cup of this mixture at the base of each plant. This type of preparation will prevent a lot of surprise attacks early in the game.

"Bug U" hits hard in the second quarter when your plants are in the seedling stage. Inspect your plants thoroughly at weekly intervals during this period. Look in the growing leaf whorls, under the leaves, on the stems, and in the soil surface at the base of the plants. Check closely for eggs, small worms, or egg-laying adults. Spray your vegetables at weekly intervals with malathion and sevin. These insecticides will give you effective control of a large number of the chewing and sucking bugs. The yield from your garden can be reduced considerably if the bugs are not controlled during the rapid growing period of the seedling stage.

Coach Beetle will spring an entirely new offense on you at the opening of the third quarter when your plants begin to bloom and set fruit. He will be at full strength with a lot of reserve talent available. If you think he has too many men on the field, you are right. The attack against the blooms and buds is ferocious. Many of these blooms are knocked right out of the game by the stinging blows they receive. Your vines may begin to wilt and die as the bugs bore in. Be alert for this attack. Check your plants frequently. Continue the weekly sprays when you see the bugs attacking your plants. Watch your squash vines for wilting. Open the wilting runners with a sharp knife and remove the borers and bury the injured vine

in moist soil. Spray the base of the plant with sevin, lindane, or malathion at weekly intervals to prevent further injury.

Do not let up in the fourth quarter when you are harvesting your vegetables. You can still defend your crop with sevin, malathion, or naled right up to the day or week of harvest without excessive residues. "Bug U" will shift the attack to the late varieties as the early varieties begin to drop out of the game. Some of the bugs can be expected to play the entire game and will inflict injury on a variety of plants during the season. Late-harvested plants will receive a severe attack from a large number of different bugs.

Always read the label thoroughly. Use the exact amount of insecticide recommended. If in doubt about the pest, contact your county agent. One insecticide will not control all bugs. Select the insecticides you need according to the bugs infesting your garden. Store the insecticides in a locked cabinet out of the reach of your children. Keep pollution reduced to the necessary minimum by correct spraying and disposal of insecticides and their containers. Do not pour excess spray mixtures into sewage systems or water sources. Observe all of the safety rules when using insecticides.

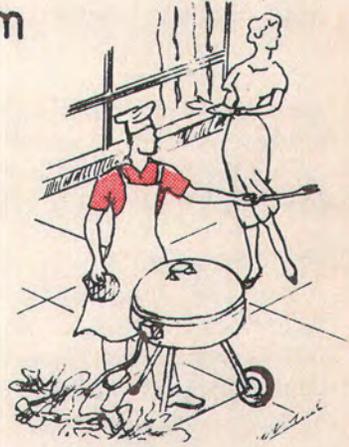
Coach Beetle will have his entire team back this year to make devastating runs through your garden and shred your plants. Some of his star performers are Corn Earworm, Cabbage Looper, Cutworm, and Squash Vine Borer. Be ready to stop these bugs for a loss behind the line this growing season. You can do it effectively, economically, and with reasonable safety.

Relax
in
71

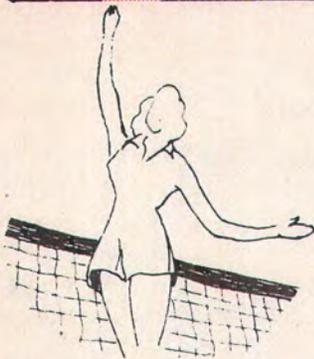


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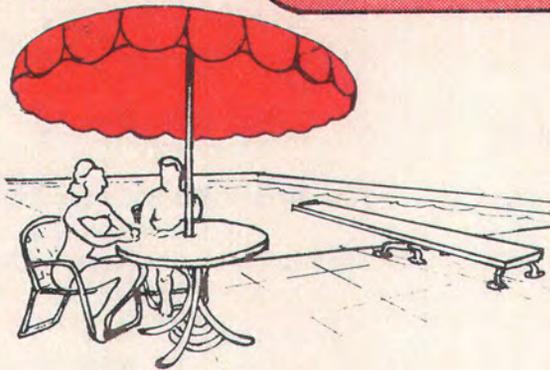
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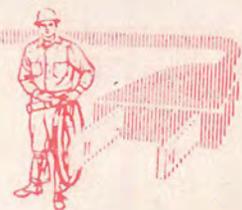


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What's right about light?

Is it a "light bulb" or a "lamp?"

Folks who sell them prefer to call them lamps. Maybe they're afraid of being confused with the tulip business. But did anybody ever give you a tulip when you were asking for a light bulb? Actually lamp is a more confusing word than bulb, because it makes it difficult to differentiate between the bulb by itself and the bulb planted in the fixture with the switch on it that you flip when you want to see something. If you ever have any trouble getting what you want when you ask for a light bulb, then switch to lamp. Meanwhile do as you please, but bring money.

How does a light bulb work?

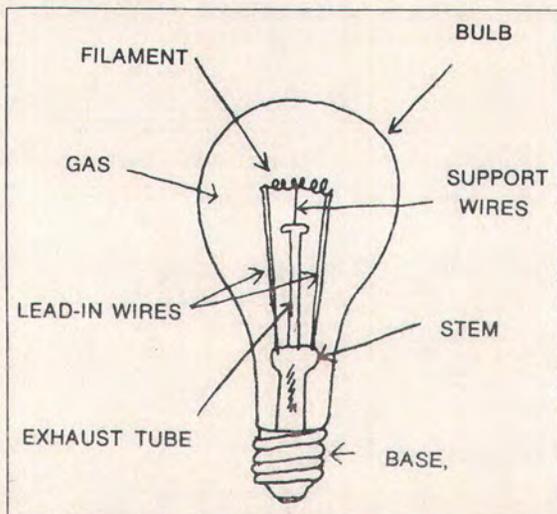
Just like your toaster. There's a wire inside that resists the flow of electricity. This resistance causes the metal filament to heat up. The filament in the light bulb has more resistance than the toaster wire so it gets hotter and brighter. So hot and so bright that a vacuum bulb (or one filled with inert gas) is needed to prevent the filament from burning up. The filament is so tiny that a 150 watt bulb contains over 26 inches of it.

Why do light bulbs sometimes turn black inside before they burn out?

Even in a vacuum, there is some oxidation of the filament. The black coating on the inside of the bulb consists of particles of tungsten from the filament.

How does a three way light bulb work?

It has two filaments, and a special switch enables you to use them separately or in combination. Dim setting uses just the small one, next setting turns on the big one and the next flip turns on both.



Do three-ways give as much light as one-ways of the same wattage?

No. A combination of two filaments will not reach as high a temperature as a single filament of the same wattage. This is true whether the two filaments are in a single bulb or in two separate bulbs.

Why do some light bulbs last longer than others?

There are different types of filaments. The filament in a flash bulb is so flimsy and reaches such a high temperature so quickly that it is destroyed almost as soon as it is turned on. "Long life" bulbs are at the other extreme. But they use more electricity to produce the same amount of light. For the difference in life between two identical light bulbs we cannot account.

How much more light does a fluorescent light give than an incandescent light of the same wattage?

About three times as much according to some estimates. But it may be more. According to a General Electric pamphlet on lighting for studying, a student should have 200 watts of incandescent light or 40 watts of fluorescent light.

Does it pay to turn off lights when you're leaving a room for just a few minutes?

Yes, especially if the room is lighted with incandescent lights. These are not adversely affected by being turned off and on. Fluorescent lights, on the other hand, have a life calculated in terms of starts – roughly three hours per start.

How much light is needed for studying?

The equivalent of 70 footcandles – and according to our source, mentioned above, that's

INCANDESCENT light is produced as simply as the heat in your toaster, except that the part that resists the flow of electricity is encased in vacuum to keep it from burning up.

200 watts incandescent or 40 watts fluorescent. Just as important as the amount, however, is the way the light is spread around. If the student is reading a book and taking notes, for instance, the light on the paper should be the same as the light on the book, so that the eyes do not have to adjust every time they transfer from one place to another. General room illumination should also be good for the same reason.

How can I be sure of getting a good study lamp?

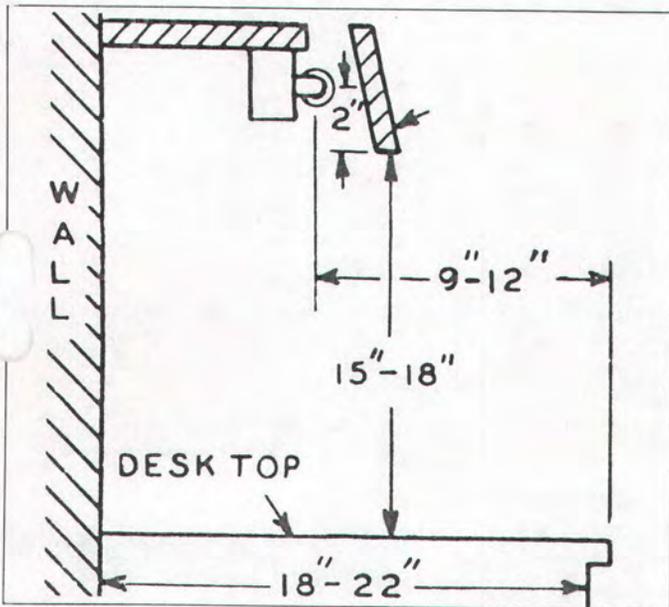
Look for a BLBS tag indicating that the lamp has been approved by the Better Light Better Sight bureau. We're not quite sure what that is but we have seen desk and floor lamps bearing the BLBS tag, and we can say that they are far superior to most other lamps we have seen. Or perhaps we should say *other lamps we have seen by*. Some of them are not things of great beauty.

But they do give light and they give it right.

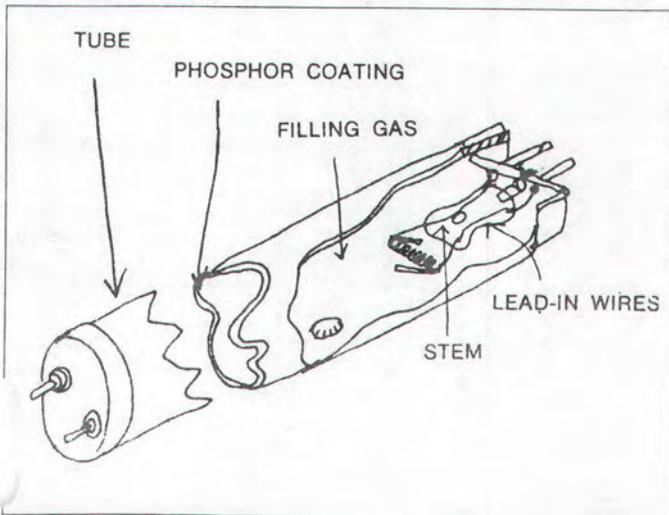
When buying a new shade for an old lamp, what should I look for to make sure the lamp will give the best possible light?

Look for a shade that slants outward at the bottom; avoid a straight-sided shade. And it should be translucent; it should let some light through. Floor and desk lamps aid general room illumination by sending light upward to bounce off walls and ceiling, by letting some light through the shade, and by light reflected from the work surfaces for which they are intended. But they should do it without allowing the light bulb to shine directly into your eyes.

The more pleasant you can make student homework, the better. Even with the best of light, plenty of excuses can be found for not doing it.



FLUORESCENT LIGHT comes from more surface than similar amount of incandescent light. Consequently, shades and other diffusion devices are not as important. However, be sure eyes are shielded from direct glare of lamp. Here's recommended arrangement for desk-top illumination.



FLUORESCENT light is more complicated. Tungsten electrodes set up an arc through gas in tube. Invisible ultraviolet light results from this arc. It becomes visible when it reacts with phosphorous coating on inside of tube.

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FLOWERING SHRUBS—1 or 2 Years Old					
Crepe Myrtle—Red, Purple, Pink White, 1 to 2 ft. \$69 ea. Spiraea Van Houttei—White, 1-2 ft. 29 ea. Spiraea Reensiana, 1 to 2 ft. 29 ea. Weigela—Red or Yellow, 1 to 2 ft. 29 ea. Weigela—Var. or Pink, 1-2 ft. 29 ea. Althea—Red or Purple, 1 to 2 ft. 29 ea. Althea—Pink or White, 1 to 2 ft. 29 ea. Forsythia—Yellow, 1 to 2 ft. 29 ea. Pink Spirea, 1 to 2 ft. 29 ea. Pink Flowering Almond, 1 to 2 ft. 59 ea. Tamarisk—Pink, 1 to 2 ft. 29 ea. Bush Honeysuckle—Red, Pink, White, 1 to 2 ft. 29 ea. Red Flowering Quince, 1 to 2 ft. 29 ea. White Flowering Quince, 1 to 2 ft. 29 ea. Persian Lilac—Purple, 1 to 2 ft. 39 ea. Old Fashion Lilac—1 to 2 ft. 49 ea. Bridal Wreath Spirea, 1 to 2 ft. 49 ea. Hydrangea P.G., 1 to 2 ft. 49 ea. Oak Leaf Hydrangea, 1 to 2 ft. 29 ea. Deutzia—White, 1 to 2 ft. 29 ea. Deutzia—Pink, 1 to 2 ft. 29 ea. Mockorange—White, 1 to 2 ft. 29 ea. Sweet Shrub, 1 to 2 ft. 29 ea. Rose of Sharon, 1 to 2 ft. 29 ea. Red Ozier Dogwood, 1 to 2 ft. 29 ea. Pussy Willow, 1 to 2 ft. 29 ea. Pussy Willow, 4 to 6 ft. 69 ea. Russian Olive, 1 to 2 ft. 39 ea. Russian Olive, 2 to 3 ft. 89 ea. Red Barberry, 1 to 2 ft. 49 ea. Jap Snowball, 1 to 2 ft. 49 ea. Red Snowberry, 1 to 2 ft. 29 ea. White Snowberry, 1 to 2 ft. 29 ea. Spiraea, Anthony Waterer—Red, 1 to 2 ft. 39 ea. French Lilac—Red, White, Purple, 1 to 2 ft. 98 ea. Scotch Broom, 1 to 2 ft. 29 ea. *Hypericum, 1 ft. 19 ea. Spice Bush, 1 to 2 ft. 29 ea. Butterfly Bush—Purple, 1 to 2 ft. 49 ea. Butterfly Bush—Pink, 1 to 2 ft. 49 ea. Vibex—Purple, 1/2 to 1 ft. 39 ea. Green Barberry, 1 to 2 ft. 29 ea. Azalea—White, Purple, Red or Pink, 1/2 to 1 ft. 59 ea. *Rose Acacia, 1 ft. 39 ea. *Red Chokeberry, 1 to 2 ft. 29 ea. *Black Chokeberry, 1 to 2 ft. 29 ea. *Hydrangea Arborea—1 to 2 ft. 29 ea. Spiraea Thunbergii, 1 to 2 ft. 29 ea. Winter Honeysuckle, 1 to 2 ft. 39 ea. Arrowwood Viburnum, 1/2 to 1 ft. 29 ea. *Beaujeu Berry, 1 to 2 ft. 29 ea. Caryopteris—Blue Mist, 2 years—98 ea. Witchazel, 1 to 2 ft. 29 ea. *American Elder, 1 to 2 ft. 39 ea. *Opsson Haw, 1 to 2 ft. 69 ea. False Indigo—Purple, 1 to 2 ft. 29 ea.					
SHADE TREES—1 or 2 Years Old					
Silver Maple, 3 to 4 ft. \$39 ea. Silver Maple, 4 to 6 ft. 79 ea. *Sourwood, 2 to 3 ft. 69 ea. Yellow Buckeye, 1 to 2 ft. 59 ea. Downy Hawthorn, 1/2 to 1 ft. 59 ea. Dwarf White Buckeye, 1/2 to 1 ft. 69 ea. Red Flowering Dogwood, 1 ft. 129 ea. Red Flowering Dogwood, 2 ft. 249 ea. Red Flowering Dogwood, 3 to 4 ft. 398 ea. 5-N-1 Flowering Oak, 3 to 5 ft. 398 ea. Red Leaf Peach, 2 to 3 ft. 89 ea.					
NUT TREES—1 or 2 Years Old					
Early Harvest Apple, 2 to 3 ft. 89 ea. Early Harvest Apple, 4 to 6 ft. 149 ea. Red Rome Beauty Apple, 2 to 3 ft. 89 ea. Red Rome Beauty Apple, 4 to 6 ft. 149 ea. Red Jonathan Apple, 2 to 3 ft. 89 ea. Red Jonathan Apple, 4 to 6 ft. 149 ea. Lodi Apple, 2 to 3 ft. 89 ea. Lodi Apple, 4 to 6 ft. 149 ea. Grimes Golden Apple, 2 to 3 ft. 89 ea. Grimes Golden Apple, 4 to 6 ft. 149 ea. Yellow Transparent Apple, 2-3 ft. 89 ea. Yellow Transparent Apple, 4-6 ft. 149 ea. Yellow Delicious Apple, 2 to 3 ft. 89 ea. Yellow Delicious Apple, 4 to 6 ft. 149 ea. Early McIntosh Apple, 2 to 3 ft. 89 ea. Early McIntosh Apple, 4 to 6 ft. 149 ea. 5-N-1 Apple—5 Varieties on each tree, 3 ft. 398 ea. Montmorency Cherry, 2 to 3 ft. 149 ea. Montmorency Cherry, 4 to 5 ft. 298 ea. Black Tartarian Cherry, 2 to 3 ft. 169 ea. Black Tartarian Cherry, 4 to 5 ft. 298 ea. Early Richmond Cherry, 2 to 3 ft. 169 ea. Early Richmond Cherry, 4 to 5 ft. 298 ea. Kieffer Pear, 2 to 3 ft. 149 ea. Kieffer Pear, 3 1/2 to 5 ft. 198 ea. Orient Pear, 2 to 3 ft. 149 ea. Orient Pear, 3 1/2 to 5 ft. 198 ea. Bartlett Pear, 2 to 3 ft. 149 ea. Bartlett Pear, 3 1/2 to 5 ft. 198 ea. Moopart Apricot, 1 to 2 ft. 98 ea. Moopart Apricot, 2 to 3 ft. 98 ea. Early Golden Apricot, 1 to 2 ft. 69 ea. Early Golden Apricot, 2 to 3 ft. 98 ea. Nectarine, 1 to 2 ft. 59 ea. Nectarine, 2 1/2 to 4 ft. 98 ea. Damon Plum, 1 to 2 ft. 59 ea. Damon Plum, 2 1/2 to 4 ft. 98 ea. Red June Plum, 1 to 2 ft. 59 ea. Red June Plum, 2 1/2 to 4 ft. 98 ea. Bruce Plum, 1 to 2 ft. 59 ea. Bruce Plum, 2 1/2 to 4 ft. 98 ea. Methley Plum, 1 to 2 ft. 59 ea. Methley Plum, 2 1/2 to 4 ft. 98 ea. Burbank Plum, 1 to 2 ft. 59 ea. Burbank Plum, 2 1/2 to 4 ft. 98 ea.					
EVERGREENS—1 or 2 Years Old					
Glossy Abelia, 1/2 to 1 ft. \$29 ea. *American Holly, 1/2 to 1 ft. 29 ea. *Rhododendron, 1/2 to 1 ft. 49 ea. Pfitzer Juniper, 1/2 to 1 ft. 69 ea. Cherry Laurel, 1/2 to 1 ft. 29 ea. Nandina, 1/2 to 1 ft. 49 ea. Boxwood, 1/2 ft. 39 ea. Irish Juniper, 1/2 to 1 ft. 59 ea. Savin Juniper, 1/2 to 1 ft. 59 ea. Red Berry Pyracantha, 1/2 to 1 ft. 49 ea. Yellow Berry Pyracantha, 1/2 to 1 ft. 49 ea. Burfordi Holly, 1/2 to 1 ft. 49 ea. Dwarf Burfordi Holly, 1/2 to 1 ft. 69 ea. Wax Leaf Ligustrum, 1/2 to 1 ft. 39 ea. Colorado Blue Spruce, 1/2 to 1 ft. 39 ea. *Mountain Laurel, 1/2 to 1 ft. 29 ea. *Canadian Hemlock, 1/2 to 1 ft. 19 ea. *Short Leaf Pine, 1 ft. 19 ea. Slash Pine, 1/2 to 1 ft. 19 ea. *Red Cedar, 1/2 to 1 ft. 19 ea. Hetzl Holly, 1/2 to 1 ft. 59 ea. Japanese Holly, 1/2 to 1 ft. 59 ea. Foster Holly, 1/2 to 1 ft. 49 ea. Helleri Holly, 1/2 to 1 ft. 59 ea. East Palatka Holly, 1/2 to 1 ft. 59 ea. Chinese Holly, 1/2 to 1 ft. 69 ea. Andorra Juniper, 1/2 to 1 ft. 59 ea. Cedrus Deodara, 1/2 to 1 ft. 59 ea. Jap Yew, 1/2 to 1 ft. 79 ea. Baker Arborvitae, 1/2 to 1 ft. 59 ea. Berkman's Arborvitae, 1/2 to 1 ft. 59 ea. Globe Arborvitae, 1/2 to 1 ft. 59 ea. Greek Juniper, 1/2 to 1 ft. 59 ea. Gardenia—White, 1/2 to 1 ft. 59 ea. Camellia—Red, 1/2 to 1 ft. 79 ea. Norway Spruce—1/2 to 1 ft. 59 ea. *Short Leaf Pine, 1/2 to 1 ft. 29 ea. Euonymus Radican, 1/2 to 1 ft. 29 ea. Euonymus Manhattan, 1/2 to 1 ft. 29 ea. Euonymus Pulchellus, 1/2 to 1 ft. 39 ea. Euonymus Dupont, 1/2 to 1 ft. 39 ea. Austrian Pine, 1/2 to 1 ft. 29 ea. Mugho Pine, 3 to 5 inch—39 ea. Scotch Pine, 3 to 5 inch—19 ea. Western Yellow Pine, 3 to 5 inch—19 ea. White Spruce, 1/2 to 1 ft. 29 ea. Serbian Spruce, 1/2 to 1 ft. 29 ea. Douglas Fir, 1/2 to 1 ft. 39 ea. Cleopatra Japonica, 1/2 to 1 ft. 49 ea. Elaeagnus Fruticandus, 1/2 to 1 ft. 49 ea. Thorny Eleagnus, 1/2 to 1 ft. 49 ea. Hetzl Juniper, 1/2 to 1 ft. 59 ea. Sargent Juniper, 1/2 to 1 ft. 69 ea. Shore Juniper, 1/2 to 1 ft. 49 ea. Yupon Holly, 1/2 to 1 ft. 59 ea.					
BERRIES, FRUITS AND HEDGE—1 or 2 Years Old					
10 Rhubarb, 1 year Roots \$15.00 10 Asparagus, 1 year Roots 2.00 25 Strawberry—Blakemore or Tenn. Beauty 1.00 25 Gen Everbearing Strawberry 2.49 25 North Privet, 1 to 2 ft. 2.49 25 California Privet, 1 to 2 ft. 2.49 25 Multiflora Rose, 1 to 2 ft. 2.49					
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Collected from the Mountains 5 Lady's Slipper, Pink Flowers \$1.19 6 Blood Root, White Flowers 1.19 6 Dutchman Breeches, White 1.19 4 Jack-in-the-Pulpit, Purple 1.19 3 Dogtooth Violet, Yellow 1.19 2 Hardy Garden Violet, Blue 1.19 3 Partridge Berry 1.19 3 Passionflower 1.19 6 Bird Foot Violet, Blue 1.19 6 Trilliums, Mixed Colors 1.19 6 Blue Bells 1.19 6 Maiden Hair Fern 1.19 8 Hayscented Fern 1.19 10 Christmas Fern 1.19 4 Cinnamon Fern 1.19 3 Royal Fern 1.19 6 White Violets 1.19 6 Hepatica, Mixed Colors 1.19 4 Solomon Seal, White 1.19 3 Trailing Arbutus, Pink 1.19 4 Sweet Williams, Pink 1.19 4 Star Grass, White 1.19 4 Golden Seal, White 1.19 6 May Apple, White 1.19 6 Cardinal Flower, Red 1.19					
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Floradora, Orange \$.89 ea. Red Pinocchio, Red 89 ea. Goldlocks, Yellow 89 ea. Summer Snow, White 89 ea. Pinocchio, Pink 89 ea.					
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Don Juan—Red, Pat. No. 1864 3.00 ea. Golden Showers—Yellow, Pat. No. 1557 3.50 ea. Queen Elizabeth—Pink, Pat. No. 1615 3.00 ea.					
BERRY PLANTS, ETC.—1 or 2 Years Old					
Black Raspberry, 1/2 to 1 ft. \$29 ea. Red Everbearing Raspberry, 1/2 to 1 ft. 29 ea. Dewberry, 1/2 to 1 ft. 29 ea. Blackberry, 1/2 to 1 ft. 29 ea. Gooseberry, 1/2 to 1 ft. 98 ea. Figs, 1 to 2 ft. 98 ea.					
BULBS AND PERENNIALS—1 or 2 Years Old					
3 Pampas Grass—White Plumes—\$1.19 12 Hibiscus, Mallow Marvel 1.19 in Mixed Colors 1.19 8 Hollyhocks, Mixed Colors, Roots 1.19 10 Cannon Red, Pink, Yellow 1.49 20 Iris—Blue or Purple 1.39 20 Day Lilies, Roots, Orange Flowers 1.19 8 Creeping Phlox, Pink, Blue, White and Red 1.39 6 Fancy Leaf Caladium, Red, White 1.39 50 Gladiolus, Mixed Colors 1.98 8 Alyssum, Gold Dust 1.19 8 Anthemis, Yellow 1.19 8 Carnation, Red, Pink, or White 1.19 8 Coreopsis, Sunburst Dbl. 1.19					
DWARF FRUIT TREES—1 or 2 Years Old					
Dwarf Elberta Peach, 2 to 3 ft. \$1.98 ea. Dwarf Elberta Peach, 3 1/2 to 5 ft. 2.98 ea. Dwarf Red Haven Peach, 2 to 3 ft. 1.98 ea. Dwarf Red Haven Peach, 3 1/2 to 5 ft. 2.98 ea. Dwarf Belle of Georgia Peach, 2-3 ft. 1.98 ea. Dwarf Belle of Ga. Peach, 3 1/2 to 5 ft. 2.98 ea. Dwarf Golden Jubilee Peach, 2-3 ft. 1.98 ea. Dwarf Golden Jubilee Peach, 3 1/2 to 5 ft. 2.98 ea. Dwarf Red Delicious Apple, 2-3 ft. 1.98 ea. Dwarf Red Delicious Apple, 3 1/2 to 5 ft. 2.98 ea. Dwarf Yellow Delicious Apple, 2-3 ft. 1.98 ea. Dwarf Yellow Delicious Apple, 3 1/2 to 5 ft. 2.98 ea. Dwarf Winesap Apple, 2 to 3 ft. 1.98 ea. Dwarf Winesap Apple, 3 1/2 to 5 ft. 2.98 ea. Dwarf Early McIntosh Apple, 2-3 ft. 1.98 ea. Dwarf Early McIntosh App., 3 1/2 to 5 ft. 2.98 ea. Dwarf Jonathan Apple, 2 to 3 ft. 1.98 ea. Dwarf Jonathan Apple, 3 1/2 to 5 ft. 2.98 ea. Dwarf Lodi Apple, 2 to 3 ft. 1.98 ea. Dwarf Lodi Apple, 3 1/2 to 5 ft. 2.98 ea. Dwarf Cortland Apple, 2 to 3 ft. 1.98 ea. Dwarf Cortland Apple, 3 1/2 to 5 ft. 2.98 ea. Dwarf Northern Spy Apple, 2-3 ft. 1.98 ea. Dwarf Northern Spy Apple, 3 1/2 to 5 ft. 2.98 ea. Dwarf Yellow Transparent Apple, 2 to 3 ft. 1.98 ea. Dwarf Yellow Transparent Apple, 3 1/2 to 5 ft. 2.98 ea. Dwarf Montmorency Cherry, 2-3 ft. 2.49 ea. Dwarf North Star Cherry, 2-3 ft. 2.49 ea. Dwarf Bartlett Pear, 2 to 3 ft. 2.49 ea. Dwarf Kieffer Pear, 2 to 3 ft. 2.49 ea. Dwarf Burbank Plum, 2 to 3 ft. 2.49 ea.					
VINES—1 or 2 Years Old					
Red Scarlet Honeysuckle, 1 ft. \$29 ea. Wisteria—Purple, 1/2 to 1 ft. 29 ea. Bittersweet, 1 ft. 29 ea. *Clematis Vine—White, 1/2 to 1 ft. 29 ea. Grapes—Littell or Niagara, 1/2-1 ft. 49 ea. Grapes—Concord or Fredonia, 1/2-1 ft. 49 ea. Grapes, Delaware or Catawba, 1/2-1 ft. 49 ea. Kudzu Vine, 1/2 to 1 ft. 29 ea. Gold Fame Honeysuckle, 1 ft. 29 ea. *Trumpet Creeper, 1/2 to 1 ft. 29 ea. Yellow Jasmine, 1/2 to 1 ft. 59 ea. *Vince Minor Clumps 69 ea. Halls Honeysuckle, 1 ft. 19 ea. English Ivy, 4 to 8 inch 29 ea. Boston Ivy, 4 to 8 inch 29 ea. Euonymus Coloratus, 1/2 to 1 ft. 19 ea. Ajuga Bronze Ground Cover, 1 yr. 19 ea. Euonymus Kewensis, 1/2 ft. 19 ea. Virginia Creeper, 1/2 to 1 ft. 29 ea.					
FRUIT TREES—1 or 2 Years Old					
Belle of Georgia Peach, 1 to 2 ft. \$49 ea. Belle of Georgia Peach, 2 to 3 ft. 79 ea. Belle of Georgia Peach, 3 to 5 ft. 119 ea. Elberta Peach, 2 to 3 ft. 49 ea. Elberta Peach, 3 to 5 ft. 119 ea. Elberta Peach, 3 to 5 ft. 119 ea. J. H. Hale Peach, 1 to 2 ft. 49 ea. J. H. Hale Peach, 2 to 3 ft. 79 ea. J. H. Hale Peach, 3 to 5 ft. 119 ea. Hale Haven Peach, 1 to 2 ft. 49 ea. Hale Haven Peach, 2 to 3 ft. 79 ea. Hale Haven Peach, 3 to 5 ft. 119 ea. Dixie Red Peach, 1 to 2 ft. 49 ea. Dixie Red Peach, 2 to 3 ft. 79 ea. Dixie Red Peach, 3 to 5 ft. 119 ea. Golden Jubilee Peach, 1 to 2 ft. 49 ea. Golden Jubilee Peach, 2 to 3 ft. 79 ea. Golden Jubilee Peach, 3 to 5 ft. 119 ea. Champion Peach, 1 to 2 ft. 79 ea. Champion Peach, 2 to 3 ft. 119 ea. Champion Peach, 3 to 5 ft. 198 ea. Maygold Peach, 1 to 2 ft. 49 ea. Maygold Peach, 2 to 3 ft. 79 ea. Maygold Peach, 3 to 5 ft. 119 ea. Blake Peach, 1 to 2 ft. 49 ea. Blake Peach, 2 to 3 ft. 79 ea. Blake Peach, 3 to 5 ft. 119 ea. Stayman Winesap Apple, 2 to 3 ft. 89 ea. Stayman Winesap Apple, 4 to 6 ft. 149 ea. Red Delicious Apple, 2 to 3 ft. 89 ea. Red Delicious Apple, 4 to 6 ft. 149 ea.					
FLOWERING TREES—1 or 2 Years Old					
Magnolia Grandiflora, 1/2 to 1 ft. \$49 ea. Magnolia Grandiflora, 2 to 3 ft. 98 ea. Magnolia Niagara, 1 to 2 ft. 139 ea. Magnolia Rustica Rubra, 1 to 2 ft. 149 ea. Mimosa—Pink, 2 ft. 29 ea. Mimosa—Pink, 3 to 4 ft. 49 ea. Mimosa—Pink, 4 to 6 ft. 89 ea. American Red Bud, 2 to 3 ft. 29 ea. American Red Bud, 4 to 6 ft. 79 ea. White Flowering Dogwood, 2-3 ft. 29 ea. White Flowering Dogwood, 4-6 ft. 129 ea. Pink Flowering Dogwood, 1 ft. 129 ea. Pink Flowering Dogwood, 2 ft. 198 ea. Pink Flowering Dogwood, 3 to 5 ft. 398 ea. Golden Rain Tree, 1 to 2 ft. 79 ea. Golden Rain Tree, 3 to 4 ft. 249 ea. Golden Chain Tree, 1 to 2 ft. 79 ea. Smoke Tree, 1 to 2 ft. 149 ea. Purple Leaf Plum, 1 to 2 ft. 59 ea. Purple Leaf Plum, 2 1/2 to 4 ft. 89 ea. Purple Leaf Plum, 4 to 6 ft. 198 ea. Flowering Peach—Red or Pink, 1 to 2 ft. 59 ea.—2 1/2 to 4 ft. 89 ea. Peppermint Flow. Peach, 2 1/2 to 4 ft. 89 ea. Dbl. Pink Flowering Cherry, 3-5 ft. 398 ea. Flowering Crab—Red or Pink, 2 to 3 ft. 98 ea.—4 to 6 ft. 198 ea. Chinese Red Bud, 1 to 2 ft. 49 ea. *Tree of Heaven, 3 to 5 ft. 69 ea. Dwarf Red Buckeye, 1/2 to 1 ft. 69 ea. Magnolia Soulangiana, 1 to 2 ft. 139 ea. Weeping Peach—Red or Pink, 1 ft. 69 ea. Weeping Peach, Red or Pink, 2-3 ft. 129 ea. White Flowering Peach, 2 to 3 ft. 89 ea. *White Fringe, 2 to 3 ft. 98 ea. Japanese Flow. Cherry, 3 to 5 ft. 398 ea. European Mountain Ash, 3 to 4 ft. 249 ea. Paul's Scarlet Hawthorn 449 ea. Red Blooms, 3 to 5 ft. 449 ea. *Big Leaf Cucumber, 3 to 5 ft. 169 ea.					

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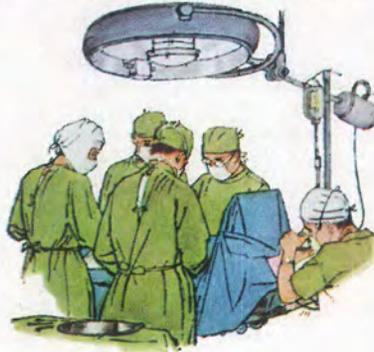
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