

Backwoods



Home magazine

Jan/Feb 2001

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Mount Baldy
(Dave Duffy)



Head Flunky
(John Silveira)



Jackie Out Backie
(Jackie Clay)



Officer Friendly
(Massad Ayoob)

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Backwoods Home Magazine is written for people who have a desire to pursue personal independence, self sufficiency, and their dreams. It offers "how to" articles on owner-built housing, independent energy, gardening, health, self-employment, country living, and other topics related to an independent and self-reliant lifestyle.

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ABOUT THE COVER

Michael Hackleman shot this photo of a newly installed waterwheel at the EcoVillage outside Henderson, NC, while conducting workshops with the staff of the original *Mother Earth News* magazine in 1978-80. The site hosted campgrounds and solar heated showers for workshop attendees, a variety of projects, and a bookstore all curled up around a big lake with the waterwheel, whose power had not yet been harnessed, just below the dam. To turn the photo into the cover, we scanned it and put it through the "paint daubs" and "rough pastels" features of Photoshop, the program we use to process photos for the magazine.



FEATURES

Energy Works

64 Do-it-yourself hydro survey By Michael Hackleman

Are you a candidate for hydropower as your independent energy source? Michael Hackleman tells you how to survey your land to see if it's suitable for hydro and he hints you may even get financial help, through local wildlife and erosion control programs, to help defer your costs.

Farm and Garden

64 8 Tomatoes! What would we do without them? By Alice B. Yeager

Alice Yeager provides a brief history of the tomato and discusses several sinfully delicious varieties you won't find at your local market but which you can begin growing in your garden this spring.

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By building a simple and inexpensive greenhouse, Charles Sanders gets a head start on his spring garden by starting his plants inside, where it's still warm. And, when next winter rolls around, he'll still be picking succulent tomatoes Christmas Eve.

32 Garden seeds — a great winter pastime By Jackie Clay

Jackie Clay gives you tips for starting your garden while the snow is still on the ground.

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Goats can be a great asset to the homestead, but each has its own characteristics and Jan Palmer tells you how to choose among them to meet your needs.

Self-sufficiency

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What you don't know about cutting down trees can kill you. Don Fallick tells you how to take them down safely.

57 Get out of debt — stay out of debt By Darlene Campbell

Darlene Campbell offers some common sense and easy-to-follow advice that will get you out of debt and keep you out of debt.

Recipes

44 Dairy treats are easy to make with these low-tech recipes By Rev. J.D. Hooker

Yogurt, butter, cheese, and ice cream. Reverend J.D. Hooker tells you how to make each of these treats, simply and inexpensively, and provides plans so you can make a simple butter churn and a low-tech ice cream maker.

49 Make hard cider By Richard Blunt

Roaming the New England countryside Richard Blunt tells how he finds varieties of apples you're not going to find in your supermarket and fresh sweet cider from which he makes that all-American brew — hard cider.

Country living

43 Death of a farm By Hugo De Sarro



Publisher's Note

Two new anthologies

We've printed two more anthologies of our back issues: *The Eighth Year* and *The Ninth Year*, which include all the issues from 1997 and 1998, minus the ads.

The price, including shipping, is \$14.95 each, which is really inexpensive considering they are 8.5 x 11 inches and 384 pages. They are shown at right and can be ordered by calling our toll free number at 1-800-835-2418, or just mail payment to BHM, PO Box 712, Gold Beach, OR 97444.

Big changes on the newsstand

Big changes are coming to our presence on the newsstand. We will disappear from many newsstand locations, but will reappear in many others. We've decided to switch distributors for certain newsstands, plus we are bringing much of our distribution in-house and selling directly to stores.

So far we are sure we'll still be in most of the big book stores, such as Walden, B. Dalton, Borders, Crown, and others serviced by Ingram Distributors. This is the one major distributor we are keeping. You can call them at 1-800-627-6247, x33501, to find the location of a store near you.

Also, OneSource Magazine Distribution of Denver, Colorado, is putting us in a lot of natural food stores. For a location, call them at 1-303-394-4114.

If you are a wholesaler or retailer who can handle at least 100 copies of the magazine, call us for distribution information at 1-541-247-8900. Ask for Dave Duffy or Ron Graham.

The newest *Backwoods Meatball* – *Officer Friendly*, aka Massad Ayoob

This issue introduces our newest *Backwoods Meatball*. It is *Officer Friendly*, who is a caricature of Massad Ayoob, our Gun Editor. Mas chose the name.

The ad on the inside front cover explains how you can get a *Backwoods Meatball*. It's kind of a kooky idea I cooked up last issue, but already there is a good deal of talk that they make a nice collectible toy, sort of like a Beanie Baby. But these are better than Beanie Babies because they actually have a utilitarian use—as a monitor cleaner.



Officer Friendly
(Massad Ayoob)



Our two new anthologies. Each is 384 pages, 8½ x 11 inches. Cost is \$14.95 each.

When we introduced them last issue, we somehow neglected to say that the primary function of a *Backwoods Meatball* is as a monitor cleaner for your computer or TV. Although the body of the meatball is stuffed with acrylic, the bottom is made of soft flannel and contains a small flat pouch that is stuffed with lentils that allows it to wipe smoothly along your monitor surface. I keep a *Jackie Out Backie* (Jackie Clay) on top of my computer monitor, and I use a *Head Flunky* (John Silveira) to throw into my trash can basketball hoop.

CD-ROM goes on special

We sure couldn't go to print with this issue without some sort of dynamite special, so we've dropped the price of our CD-ROM, which contains all the issues from years 7 to 10, to \$19.95. The ad for it is on page 98.

Backwoods Home Magazine T-shirt

Page 62 of this issue has a picture of the new *Backwoods Home Magazine* T-shirts. They are silk-screened on Hanes Beefy Ts made from 100% pre-shrunk cotton. These are very good quality. Note we've printed *self-reliance.com* on them. It points to *backwoodshome.com* on the Internet.

The physics homeschooling series

I had high hopes for writing the homeschooling physics series that I began last issue, but there seems to have been a collective yawn from the readership. Unless I hear otherwise from enough readers, I'll continue the series on our web site at www.backwoodshome.com, rather than in this paper issue.

We're still making a commitment to providing homeschooling articles, but they'll be a bit less technical.

— Dave

My view

Goodbye TV, hello constructive time

About six months ago the satellite dish for my family's TV stopped working. Because we are too far from cable TV and an antenna does not bring in a signal, we've had no TV for all that time. My kids can still watch a video if they want, and I can get whatever news I want on the Internet.

We missed the Olympics, which my wife thought was a shame, and we missed the race for President, which I thought was great. My kids hardly complained at all; they learned to play chess, read a lot, and shot the bull with me and mom. It was great!

Now, I'm not one to advocate the return to a simpler life, as I'm a committed user of technology like computers and the Internet, but it sure is nice having the ubiquitous presence of the idiot box totally out of the family's life. No idiot sitcoms, no idiot politicians talking to idiot news anchors, and no idiot movie stars talking about their sex lives.

I spend much of my newfound time reading, writing, and chopping wood, which are my three primary pursuits anyway. Even when I'm real tired at night, there is no opportunity to plunk myself down on the couch to catch Jay Leno's monologue, so instead I'll grab a book on astronomy or history and pretty soon I'm engrossed in a very satisfying explanation of something I had not known before. My wife loses herself in one of these *huge* novels she likes to read. I don't even know what they're about, but every now and then she'll smile and exclaim, "Wow!"

I've even begun doing some writing, which was the primary reason I founded *BHM*—so I could write for a living. What I've become, instead, is a busy magazine publisher who must organize hundreds of details and deal with dozens of people to get each issue out. Not that I mind that; in fact, I love publishing *BHM* and wrestling with and solving each issue's considerable challenges. But now I'm finding time when magazine concerns are left behind, and I've begun writing something besides the occasional commentary, like this, that goes into each issue of *BHM*. It has become a wonderful adventure for me, as I begin to reexamine my potential and reexplore book ideas that I had put on the shelf. Sometimes I step out of myself and, with great satisfaction, watch my slow but steady progress.

The extra time has also allowed me to both exercise my body and relax my mind at my woodpile, which occupies, on average, about an hour of my time a day. I am sort of a fanatic at my woodpile because, at my core, I must be organized in everything I do. So with my woodpile—or should I say woodpiles because I have four of them—everything is arranged for the most efficient use possible. White oak and madrone are the heavy woods here, so they are in one neatly stacked pile. Fir is the most available medium wood, so that



Split enough wood and you eventually have to replace the axe handle.

is neatly stacked in a nearby pile. Since I have two wood stoves, at opposite ends of the house, I have two sets of perfectly stacked piles. My kindling is the same, divided into two classes—regular and pitch-laden so that I can quickly grab a handful of each.

I approach woodpiles like other people approach their shrinks. Splitting wood and chopping kindling have become healthful mental exercises involving four axes—a double-edged one, a fireman's axe, and two lighter ones with long and short handles. Each, I have decided, is perfect for the intended piece of wood. Chopping wood is my version of transcendental meditation: the alertness and precision with which I bring down the axe is transformed into a release of stress, sort of like flexing and releasing your muscles in isometric exercises. An hour of chopping and I am physically and mentally energized.

My two wood stoves have become part of my mental ritual; they are ready to go, always. The fires must be struck with one match, so I build them carefully, layering with paper, pitch-laden kindling, ordinary kindling, and fir logs. I'm like a scientist preparing a laboratory experiment; nothing is left to chance. I am not an expert in wood, but I know *my* wood, and I control the fires' temperatures fairly precisely with my intermixing of hard and soft logs.

All these useful things—the reading, the writing, and the chopping—take time, but it is time I have gained from the absence of the TV, which sits unused, except for the kid's occasional video. I don't envision using any of this newfound time to repair the satellite dish. Δ

Tomatoes!

What would we do without them?

By Alice Brantley Yeager

Winter is a good time to think about summer tomatoes. Summertime at our house is heralded by the first ripe tomato we discover in our garden. We enjoy our earlier vegetables, but that first tomato is something special. We spot it as soon as it begins to show some color and we watch it until it's just the right time to lift it from the vine. This tomato may not be as highly flavored as some that will come on

later, but it ushers in the season and assures us that TLC pays off.

One of my favorite cool snacks is to lightly spread mayonnaise on a slice of toasted homemade bread and add a slice of a large juicy tomato like a Beefmaster sprinkled with a bit of white pepper. I prefer tomatoes unchilled, as there's something about chilling them that seems to diminish their flavor. Accompany this with a tall glass of cold Coke or iced tea and

I freely admit that good things from the garden don't get any better than this. Simple fare and simply great!

With the start the tomato had in our "civilized" world, you'd never think that it would ever have reached the point of being the most popular vegetable of our time. From being an oddity the tomato has risen to culinary heights that are astounding. Recipes calling for tomatoes are endless and page after page is devoted to tomatoes in seed catalogs. Almost every year there are new must-try varieties all the way from cherry type tomatoes to the hefty robust ones. They now come in many colors besides red, including white, green, yellow, orange, pink, multi, purple, and even black.

The tomato industry is huge. From the seed sellers, to the greenhouses producing six-packs for spring planting, to the commercial growers with their large fields of tomatoes, it's hard to estimate just how big-time the tomato has become. There are canning factories, produce truckers, supermarkets, roadside stands, juice bars, and restaurants—a ripple effect from those fields.



Photos by James O. Yeager



Plenty of canned tomatoes, including fish pickles, will be pure pleasure to use over the winter season.

We home gardeners are right in there with all the rest, just on a smaller scale, but guess whose tomatoes have the best flavor and who gets the bigger kick out of picking that first tomato! Only we can raise those plump juicy varieties that don't ship well but are just downright sinful in taste. The tomatoes grown for commerce have to be able to stand long distance hauling, so firmness takes precedence over taste and quality.

The tomato actually had its humble beginning somewhere in the Andean Mountains of South America where it is still found growing wild. However people in the area did not cultivate the tomato. Cultivation came about when seeds made their way to Central America where the pre-Mayan people domesticated the plants. The name *tomatl* or *xtomatl* was given to the tomato by the Aztecs who were apparently the first people to take things a step further and actually eat tomatoes. Those fruits did not look anything like our hybrids of today. They were small, more like cherry tomatoes and they had a wrinkled appearance.

The explorer Hernando Cortez and his men were said to have first found tomatoes at an Aztec market in about 1520 and brought some of the seeds home to Spain. Italy was under Spanish rule at the time and it is believed European cultivation of the tomato began in Naples, Italy. Unfortunately, botanists put the tomato in the nightshade family, which includes many poisonous plants such as Jimson-weed. Naturally, people were wary of eating the fruit. The plants made the rounds of many gardens being grown as ornamentals because of their bright colored fruits. Somewhere along

the way the name "Love-apple" was attached.

As plants were exchanged back and forth between Europe and the New World, it was natural that the Love-apple would eventually come to America. Thomas Jefferson even raised some of the plants, but not to eat. Colonel Robert Gibbon Johnson has been given credit for dispelling the myth about the fruit being poisonous. In Salem, New Jersey in 1820 the colonel, who must have been among the daredevils of his day, stated he was going to eat some tomatoes in front of the local courthouse to prove that the fruits were not deadly to man. This had all the fascination of a public hanging and a sizable crowd gathered to watch the man die. His own physi-

cian had a dire prediction about foaming and frothing at the mouth and doubling over with appendicitis. For good measure he stated, "If the wolf peach (another name for the tomato) is too ripe and warmed by the sun, you will expose yourself to brain fever."

Needless to say, Colonel Johnson survived much to the disappointment of some of the crowd who had come to see a gruesome spectacle. The tomato was slowly accepted as a food item and by 1835 the fruits were available in produce markets and recipes had sprung up all over. Catsup, pickles, and preserves were the most popular canning items. Some cookbooks stated tomatoes should be cooked for no less than three hours to get rid of the raw taste.

By the late 1800s there was excitement building as breeding companies introduced improved varieties of tomatoes. W. Atlee Burpee's 1888 Farm Annual catalog listed 22 varieties and in 1949 Burpee gave the world the first F1 Hybrid tomato. It was bred by Dr. Oved Shifress and named Big Boy. Since then many hybrid tomatoes have been introduced and we gardeners can thank the breeders for built-in resistance to nematodes and various diseases that previously made tomato growing somewhat risky.

Notice that at the beginning of the tomato section of most seed catalogs there will be a paragraph explaining the initials shown with names of tomato varieties. For instance, if you're having trouble with nematodes be sure to select nematode resistant varieties so noted by "N." Same with a disease like verticillium wilt, noted with a "W," and so on. Unless you have perfect growing conditions, you'd be



There's always the tomato that is slow to turn red, but it will come on later.



Left: A slice of beefsteak type tomato will easily cover a piece of toast. **Right:** There's nothing like fresh tomatoes for salad. It doesn't matter if they are large or small—just as long as they are fresh from the garden.

wise to avoid varieties that do not display initials as they are likely to succumb to something just about the time the plants are loaded with fruit. A prize tomato plant with a case of wilt is not a pretty sight and researchers have yet to come up with anything that will restore an ailing plant to good health.

In the case of climatic conditions affecting plants, in our own garden we try to grow only varieties that will tolerate hot, humid weather. In the good old summertime we're very seldom

bothered with too much rain. Last summer our celebrity tomato plants that ordinarily bear well went under one by one due to Southern Blight, a soil-born disease that produces a white cotton-like mass on the stem at soil line and quickly kills the plant. The University of Arkansas advises to spray with Terraclor 75WP (wetttable power), but this has to be done within 3-7 days after transplanting when plants start to grow.

Our Sweet Million cherry tomatoes have slowed down on production, but

show no sign of disease. The best performers have been Beefmaster and Better Boy, both indeterminate tomatoes. They are tolerating the heat and continuing to bear although their leaves are curling in the sun despite mulch and watering. If our remaining plants manage to live through the heat, we'll no doubt have a delicious fall crop. Cooler weather and showers will make all of the summer effort to bring them through the drought seem worthwhile.



Left: Tomatoes come in lots of colors besides red. Here's a hefty pink German Head fruit that's in the beefsteak category and considered an heirloom variety. It has a delectable old-time flavor. **Right:** Some tomatoes are just gaining color when frost is predicted. Harvest them and let them redden spread out on newspaper on a cool floor indoors. Make fish pickles out of the ones that are green and not likely to turn red soon.

Fish pickles

- 2 gallons green tomatoes cut in bite size chunks
- ½ gallon sweet peppers, coarsely chopped
- ½ gallon white onions, coarsely chopped
- 10 Jalapeno peppers cut in rings (optional)
- ¾ cup salt
- 8 cups sugar
- ½ gallon apple cider vinegar
- 1 tablespoon crab boil OR mixed pickling spices
- 1 teaspoon whole cloves

Put vegetables in a large stainless steel or porcelain container. (Do not use aluminum.) Sprinkle with the salt and let stand about 3 hours. Drain well. Do not rinse.

Dissolve sugar in vinegar and bring to a boil. Put spices in a clean cloth bag or large stainless steel tea ball and add to vinegar. Add drained vegetables and simmer until all are hot and onions are clear. Remove spices. Pack mixture into hot, sterilized jars and seal. Cover hot jars with a light cloth and let stand in a draft-free place for several hours or until cool.

Before storing in pantry, check jars to be sure they are sealed. Simply press down on middle of jar cap. If cap is not depressed and is puffed, simply reheat contents to boiling and try again OR put jar in refrigerator. Fish pickles will keep indefinitely when refrigerated just like any other pickle.

This is a good way to make something delicious out of those green tomatoes that otherwise would be useless after frost touches the garden.

the varieties that are recommended for southern gardens. We rotate all of our vegetables each year so that they are not grown in the same spot time after time. This cuts down on the disease factor.

We have converted our garden to raised beds which is to say instead of rows, we now have 4 x 8 foot beds enclosed by landscape timbers. Depending on the varieties, we average two rows of tomatoes to each bed placing plants about 18-24 inches apart. All varieties are grown in cages to give them good support. The indeterminate types (tall growing) are given tall cages made from concrete reinforcing wire and the determinate ones (limited in height and production) are given regular tomato cages.

Our transplants are usually about a foot high when set in the garden. We dig holes deep enough to accommodate about a third of the plant's height. Well rotted compost is filled in around the plants and plenty of water is used to eliminate any air pockets around the roots. Wherever the soil touches the

Generally speaking, tomatoes are a real pleasure to raise and enjoy. Temperature plays an important part in the transplanting of tomatoes. Since we're in the southern part of Zone 8, we don't have to employ some of the methods gardeners farther north use in order to have early tomatoes. Because of a shorter growing season, northern gardeners will often have to use something to protect their tender plants from late frosts—milk jugs, hot caps, cloches, row covers, etc. It's well to pay attention to official frost dates, but weather itself will be the determining factor in the long run.

We grow our own transplants, harden them off by gradual exposure to outdoor conditions and, when we decide the ground has "warmed up," transplant them to the garden. By growing our own plants, we can experiment with many varieties not available from local nurseries. We also discover which ones will do best in our garden and we particularly notice

Chili for a crowd

- 7-8 pounds lean beef coarsely ground for chili
- 2 quarts tomato juice
- 2 pints stewed tomatoes
- 2 pints tomato puree
- 4 1 oz. packets chili seasoning (We use Williams brand.)
- 6 medium onions, coarsely chopped
- 1 medium clove garlic, minced
- ½ cup brown sugar (optional)

Sauté meat in heavy iron skillet until lightly browned and thoroughly cooked. Combine with rest of ingredients in large stainless steel or porcelain pot. Cover and bring to a boil. Lower heat and let simmer for thirty minutes. Stir occasionally to prevent any sticking. If mixture needs thinning, add more tomato juice.

Some folks like beans with their chili, so we have a Crock Pot of cooked and seasoned kidney or pinto beans ready for those who want to add beans to their bowl of chili.

If there is chili left over, it may be frozen in airtight containers and thawed out in a double boiler at a later date. Sometimes we make a half batch of this recipe and put cartons of chili in the freezer for quick meals.

This recipe serves 20-25 persons, depending on extra food served with the chili.

main trunk, roots will form, providing good anchorage and nourishing the plant.

All plants have their likes and dislikes when it comes to location and soil. Tomatoes like a sunny spot, but if you live in an area where temperatures soar in summer, it doesn't hurt to have some afternoon shade on the plants. Just don't expect them to be heavy producers if they get less than 6-7 hours of direct sunlight.

Like many plants in the garden, tomatoes require a soil with pH 6.0-7.0 which means the soil is slightly on the acid side. If you're not sure of the pH factor, ask your county extension agent to run a soil test for you. This information will certainly be useful as the agent can then advise you as to what to add to your soil if anything is lacking—for instance, limestone. Most additives should be dug into the soil several weeks before planting.

Garden soil should be easy to work and not heavy as is the case with soil containing a good deal of clay. Sandy loam is ideal as it is crumbly, easy to cultivate, and full of nutrients. Even clay may be converted, over time, to desirable gardening soil by the addition of plenty of organic matter mixed with elbow grease.

At the time of planting, we also put down a light organic mulch of leaves, grass clippings, etc. This helps to keep the ground from crusting after heavy rains and keeps dirt from splashing up on plants. In order to keep moisture from evaporating, we add more mulch as the season progresses. As a fringe benefit, earthworms are attracted. These friends of the gardener eat their way through the organic matter leaving behind their excrement or castings as fertilizer. Their constant tunneling opens up air and water passages for roots. Who could ask for better tillers and who could ask for cheaper laborers? Despite the mulching, however, we have to resort to watering when hot, dry conditions prevail if we expect plants to survive until cooler weather and to produce a fall crop.

We don't use pesticides on plants except under extreme conditions such as an onslaught of flea beetles on egg-plants. The main culprit we watch for on tomato plants is the tomato hornworm. They can do immense damage stripping leaves and chewing into tomatoes. Hornworms are easily seen. They're the light green, striped, 2-3 inch long, fat fellows with a horn on the tail. Hand-picking is the safest way to eliminate hornworms.

Some folks have trouble with cutworm when plants are young and tender. How disheartening to come out in the morning and find cutworms have been at work while you have been sleeping. If you know you have cutworms in your garden, put a tiny bit of 10% Sevin Dust at the base of plants when you transplant them. This will eliminate cutworms, but use Sevin Dust sparingly as it kills earthworms.

If your plants survive the summer and the season is drawing to a close, harvest your tomatoes ahead of Jack Frost's first visit and extend the season. The tomatoes closest to ripening may be laid on newspaper on the floor in a cool room where they will slowly turn red. Maybe they won't taste quite the same as if they had ripened on the vine, but they will beat the ones in the supermarket. As to the firm green tomatoes that will require more time to ripen, try making fish pickles, so called here in the South as we usually enjoy this condiment with our fried catfish. (Recipe on page 11.)

Winter is the time we gardeners like to rest from our labors and relish what we have harvested. It's a time for get-togethers with family and friends and oftentimes we have chili suppers serving chili made with freshly canned tomato products from the garden. Everyone has a favorite recipe. One that I've used will feed about 20-25 people, depending on how many other dishes (salads, desserts, etc.) are served with it. (Recipe on page 11.)

Tomato seed sources

Tomato Growers Supply Co.
P.O. Box 2237
Fort Myers, FL 33902

Totally Tomatoes
P.O. Box 1626
Augusta, GA 30903-9323

Gurney's
110 Capital Street
Yankton, SD 57079

Even though we modern-day cooks are not using wild xtomatls in our recipes, we are linked to the wild ones by a long line of plant breeders, researchers, and explorers. When we are eating a plump nutritious tomato from the garden, do we ever think about the folks who have made it possible for us to enjoy the Love-apple at its peak of perfection? I doubt it. We're too busy relishing our own harvests and inventing new ways to use the Love-apple. Δ

Winter Dances

Outside on the line the clothes hung stiff
in distorted shapes as if
some Halloween witch
had taken her pleasure there:
struck them in outrageous poses —
knees bent backward to the waist,
sleeves right-angled to the collar;
zapped them with a quirky finger,
filmed them with a sheet of ice.

We brought them in —
shirts, pants and dresses
stiffer than any death we'd known;
picked our favorites one by one
and danced them around the kitchen.

On winter nights when toes are stones
and knees ice caps between the sheets,
inside I am all bright with frost,
ten years old in the crackling air,
and dancing, dancing around the room
with my daddy's frozen shirt.

Mary M. Durel
Bandon, OR



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Read Jackie Clay's Q&A column
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Cutting

DANGEROUS trees

By Don Fallick

The basics of cutting down a tree are fairly simple, but some problem trees are so risky that a beginner has no business messing with them. The techniques presented here are NOT for beginners. Using them, I have safely cut dozens of dangerous trees, but I cannot guarantee them. They are dangerous. These are techniques for reducing risk. They cannot eliminate all the danger. This article is addressed to the practiced woodsman, one who already has the tools and experience to safely cut most trees. I assume that you

know and follow the rules of basic logging safety, and are skillful with ropes, chainsaw, bow saw, and felling axe. If this does not describe you,

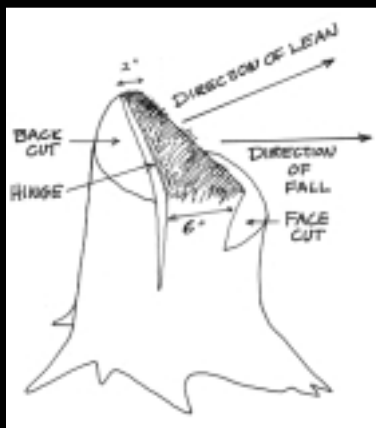
do not attempt these techniques without experienced help.

Every tree is different, and every situation is, too. No knowledge I can give you can substitute for your own experience and on-the-spot observation. Nevertheless, dangerous trees can be classified into five main types: leaners, very large trees, “hung” trees, standing deadwood, and overhanging trees. Quite often, a tree will present multiple dangers, but we will consider them separately for clarity.

Leaners

No trees grow perfectly straight. They all have a “preferred” direction that they “want” to fall. But some trees lean so far out of plumb that it becomes dangerous to cut them, because they can fall on you before you are ready. To reduce the danger, use the “top and lop” method. Before you drop the tree, cut off the top and lop off the limbs. This reduces the weight and spring tension on the tree, helps you to see when it starts to move, and lessens the chance of it hanging up.

Never make a deep face cut on a leaning tree. The purpose of deep face cuts is to lean



Aiming a leaner by tapering the hinge

the tree in the direction you want it to fall. If the tree is already leaning, a deep face cut is unnecessary. Don't neglect the face cut entirely, though. The face cut also makes the tree "break" cleanly where you want it to, providing a hinge that controls the tree while it is falling.

Make the face cut very shallow—no more than 25% of the tree's thickness. The back-cut will be correspondingly deeper. That's OK. A deep back-cut gives you a better chance to see the tree begin to move, as you notice the cut start to widen. You can keep all your attention on the back-cut, where it belongs. As the kerf begins to spread, you can get your saw out quickly and leave. A logging partner stationed at right angles to the expected direction of fall can watch the leaner's top for first motion. Whether or not you detect movement, get out if your partner yells "Timber!" A badly leaning tree is already partway down, so you will have less time than normal to escape.

Severe leaners are a real pain to deal with. Saw cuts can pinch your saw, causing chainsaw kickback, and embedding crosscut or bow saws tightly in the wood. On trees no more than two feet in diameter, it may be easier to make your face cut with a felling axe. The great advantage of an axe is that it almost never sticks in the tree. Even if it does, you can easily free it by sawing a kerf next to the axe head to relieve the pressure of the wood. A bow saw works really well for this, as it is unlikely to damage the axe head, and bow saw blades are cheap to replace.

The great disadvantage of an axe in this situation is its "handedness." You must either stand under the tree to chop out the far side of the face cut, or go to the other side of the tree and chop "wrong-handed." Just when you are worrying about the tree falling on you, and concentrating on chopping, is not the time to be learning how to be a switch-hitter with an axe. Make the "switch" part of the cut first. It helps

to outline the cut by scoring the bark before you start. You will still have to go back and forth between the two sides of the tree several times if it's a big one. Plan your work so the final part of the face cut is done from the "right" side of the tree, without having to stand under it.

Of course, you need not drop any tree, even a badly leaning one, in the exact direction it is leaning. You can make a normal face cut facing any direction up to 90° left or right of the direction of lean. You can even fall it more than 90° by driving magnesium, plastic, or wooden wedges into the back cut. Never use steel or iron wedges on a cut where you are using a chainsaw. If you hit a steel wedge with the saw, it can snap the chain, or make it dangerously dull.

You can also aim the tree by angling the back-cut to make a tapered hinge. As the hinge "breaks," the thinner end breaks first, causing the falling tree to twist on the stump, toward the thick end of the hinge. If you angle your back cut so the hinge is wider at the right end than at the left, the tree will turn as it falls, landing to the right of where it would otherwise have hit.

These tricks can be handy for avoiding other trees that might cause the falling "leaner" to hang up, but they have their limits. If you make the narrow end of the hinge less than two inches thick, you risk having it break too early, leaving you with a free-falling, out-of-control tree. If you



Parts of a cut: 1=side cuts, 2=face cut, 3=back cut, 4=back stop, 5=hinge.

make the other end of the hinge too thick, it may not break at all. The tree can twist on the stump without falling, leaving you with a hair-trigger tree that can drop any direction in an instant. I won't go any wider than six inches at the wide end, or any narrower than two inches at the narrow end, for a two-foot diameter tree.

Making a badly leaning tree fall at a very great angle to its direction of lean can be dangerous, no matter how you do it. Spring tension on the wood can reach immense proportions. As the tree falls, the tension releases, causing it to behave unpredictably. Snapping wood under such tension can strike with the force of a bullet. If you cut the "hinge" too thin, it can break entirely, allowing the butt of the whole tree to snap back at you with the speed and force of an artillery round. I have seen such a tree flip suddenly in the air, hitting the ground with the crown next to the stump and the butt where the top should have been. It happened in an eye-blink—much too fast for me



Rig for three-tree hang-up: helper number one keeps you from falling. Helper number two keeps your chainsaw from falling and services it as needed.

to have escaped if I had not done so already.

To prevent such things, make absolutely certain that the tree stays on the stump, all the way down. Keep your hinge relatively thick. Make your back cut in small increments, pausing after each cut to see if it's going to fall. If not, deepen the cut a little and check again. Make your face cut as low as you safely can, and your back cut higher than usual. This creates a tall, thick backstop to keep the butt from snapping back at you if the hinge does break. My rule-of-thumb for bad leaners is to make the backstop height about equal to the tree's radius. A long, flexible hinge is less likely to snap unexpectedly than one that is short and stiff.

Monster trees

Giant trees behave just like smaller ones, but there is a difference: they are a lot bigger! Many experienced woodsmen quail at the thought of cutting a forest giant, even a dead or dying one. Their fear is not entirely unjustified. Normal chainsaws cannot cut all the way through the trunk of a very large tree. Sure, you can make the face cut by burying the bar up to the handle, but how can you make the back cut all the way across at once? If you don't make the back cut even, the tree will twist as it falls. Professional loggers use chainsaws with 48-inch bars, but most homesteaders do not own such a saw. If you cannot purchase a long bar to fit your saw, rent or borrow one. If none of these options is possible, make the tree narrower by cutting side cuts (see illustration) before you make the face cut and back cut. Then drop the tree just as you normally would.

The only added difficulty is to make the tree balance in the direction of your cut. You don't want the "side cuts" to inadvertently become face cut and back-cut. Take care to determine the tree's direction of lean, and plan to drop it as close to that direction as is practical. Use a plumb bob, comparing

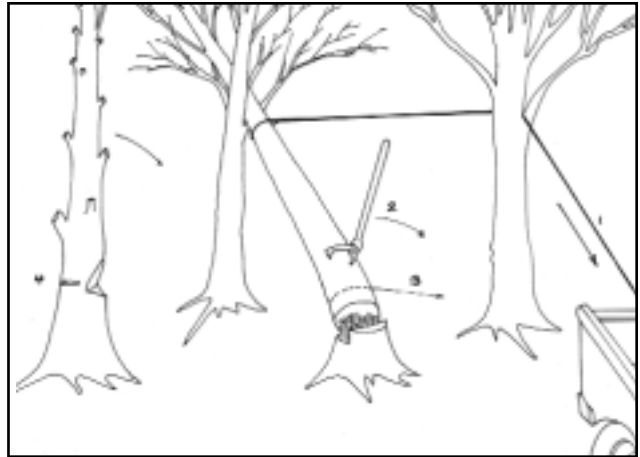
the string to the centerline of the trunk. Check for lean from all four directions. Very large trees even have one advantage. They do not often hang up on smaller ones. Once a large tree gets moving, it develops so much inertia that nothing but solid earth can stop it.

Hung trees

Normal-size trees do sometimes become entangled with other trees while falling. When they stop part-way down, they are called "hung trees." Any hung tree bigger than a sapling must be considered extremely dangerous. There are four main ways to deal with a hung tree: pull it down, cut down the tree it's hung on, shoot it down, or hammer it down with a third tree. Some people may advise you to leave it to the wind and weather. This is certainly safest for you, but probably endangers children, livestock, or passing strangers who may be in the area. Since you created this mess, you have the responsibility to remove it. Before you start, remember that there is no entirely safe way to deal with a hung tree. They are all dangerous.

Is there a stout branch sticking out of the trunk, low enough that you can reach it? Tie a rope to the branch and pull sideways from a safe distance, twisting the trunk away from the trunk of the tree it's hung in. "Rock" the hung tree by alternately pulling and releasing rhythmically. This will often cause the tree to fall, especially if it's hung in the side of a tree (not a direct hit). No branch where you need it? Use a peavey or cant hook, driving the hook into the trunk with the butt of your axe. Tie a rope to the peavey handle and rock the tree from the side.

Pulling down a hung tree is another way to fix the problem, but it is not



Four strategies for dealing with a hung tree: 1. Pull it down from the top with a truck, tractor, etc.; 2. Rock from the butt with a peavey; 3. Cut through the butt and repeat 1 & 2; 4. Cut a hammer-tree.

always feasible. You need a L-O-N-G, stout rope, block-and-tackle or a come-along, a jeep, tractor, or mule, and guts. The hard part is tying the rope to the top of the hung tree. Do not walk under the hung tree or climb on it. Tie a weight on the end of a long clothesline rope and throw it over the tree. Reach for the end of the rope with a long stick. Use the clothesline to pull a heavier rope over the treetop. Use a new, one-half-inch rope, at least fifty feet long. Tie a slip-knot in it and from a distance, pull it tight on the tree.

Use a tree twenty-five to fifty feet away from the hung tree as a pulley. If the rope snaps, the flying end can be dangerous. By using a tree as a pulley, you change the direction of the pull, so the flying rope end doesn't hit you. Using a real pulley attached to the pulley tree will help. So will a block-and-tackle or a come-along if you have one. If not, pull with a jeep, tractor, four-wheel-drive truck, or mule. Be ready for the rope to snap when the tree falls.

Some people think it's less dangerous to cut through the butt end of the hung tree and rock it or pull it down from there. I don't. Once the butt is cut through, there is nothing to control the fall of the tree. If it's under spring tension, the butt can shoot back at you

with the force of a battering ram when you cut it free. It can lash out sideways. There is no way I know to predict what the butt of a hung tree will do on its own. The entire tree can twist, landing far from its predicted spot, or even hanging up worse. If you absolutely must pull a hung tree by the butt end, chain the butt to two other trees before you cut it free, and make sure your insurance is paid up.

Once the butt is cut free, try rocking it again. If this doesn't work, pulling it down is probably safe. The best way is to pull straight away from the hang-up, in line with the trunk. One problem with cutting the butt free is that, if it's not successful, it makes other strategies for dropping a hung tree even more dangerous. Before you take this step, consider cutting down the tree it's hung on, if you are sure you can do so without the hung tree dropping on you. Often, there are ways to make this less likely. Suppose the first tree is hung on the north side of the second one. If you can stand to the south of the second tree, and drop it to the north, the weight of the first tree will probably pull both trees to the north as they fall, giving you 180° for your escape route. If the tree is hung up near a dead center, or on the "wrong" side of a leaner, you might be tempted to fall the second tree directly away from the first. Not a good idea! That would require you to stand directly beneath the first tree while cutting its only support out from under it. The best hard-hat ever made cannot protect you from that.

If a tree is so badly hung that there is no safe way to get close to it, try shooting it down. I have never tried this myself, but my friend, Ed Towne, has done it successfully. Pick out limbs bent under the weight of the hung tree and shoot into them repeatedly, using a 12-gauge shotgun with slugs or a high-powered rifle. This weakens the limbs until they can no longer support the weight of the hung tree, and it comes crashing down. Stand a safe distance away from the

tree. All the rules of safe shooting apply. Be especially wary of rock chips and ricochets. If you're shooting up, remember the slug can travel a long way if you miss.

Hammer trees

If you can't cut it down or pull it down, maybe you can knock it down. Look for a really massive tree positioned just right to drive the hung tree out of the second tree's branches. Loggers describe this technique as using a "hammer tree." Use a large tree as a hammer tree. It must possess enough inertia to smash the two hung trees apart. It helps to strip the hammer tree to a trunk and stub limbs. You can aim it better without interfering branches, and there is less chance of it getting hung up too. The hammer tree must be just the right distance from the hung tree. Too close, and the hammer tree will not fall far enough to develop sufficient inertia before it hits the target trees. Too distant, and it may push them together instead of apart. I don't know any rule-of-thumb for figuring hammer trees. Just study the situation, figure the angles carefully, and pray.

If you fail, you end up with three hung trees, a hideously dangerous situation best left to wind and weather to cure. If this is not feasible, get an explosive expert to blast the trees for you. As a last resort, you may have to top and lop from above to untangle the mess. This is not only dangerous, it is an unbelievable hassle. Here's one way that has worked for me:

String a strong cable or very stout rope between two trees on opposite sides of the tangle, so the cable passes directly over the worst part. Throw another long rope, sufficiently strong to support your weight, over the cable. If you happen to have a climbing harness or parachute harness, use it. Otherwise, tie a bowline knot in one end of the rope. A bowline won't slip and tighten up on you, as a slipknot would. Put the bight (the loop) of the bowline under your arms, and have an

assistant hoist you and your chainsaw into the air above the tangled trees. It's OK to take some weight on your feet, as long as no branches are positioned to crush your leg if you slip or the trees fall.

Try to stand on parts of the tree that are unlikely to fall or move, as you cut hung-up limbs away. Your assistant needs to wrap several turns of the rope around an anchor tree, then constantly adjust the line tension as you move around. Have him keep the line taut, so you cannot fall, while still allowing you enough freedom of motion to work safely. When the trees finally separate, he can lower you to the ground.

Have two lightweight ropes tied to your chainsaw, controlled by a second assistant. One rope over the cable allows him to raise and lower the saw and keeps you from losing your saw if you drop it. The other rope allows him to retrieve and refuel the saw, so you don't have to do it while suspended from a cable.

The trees will probably separate several times, each time falling into a worse tangle, before you get them on the ground. The work will go very slowly, and it will take a long time just to get the trees down. If you have enough sense to shovel manure, you will be terrified the whole time. Even after the trees are safely down, you will still have a huge, dangerous mess to clean up. Avoid this scenario!

Standing deadwood

Loggers call standing dead trees "widow-makers" or "fool-killers," because they can drop heavy limbs on your head without any warning. The limbs are dead, and may be rotten. The vibration from sawing or chopping is often sufficient to shake such a limb loose. Such trees look deceptively safe. Do not be fooled! Any standing, dead tree must be considered extremely dangerous. Here are my personal guidelines for cutting widow-makers:

1. Look for signs of recent life. If there are still leaves on some branches, those branches are not completely dead. The roots are the last part of the tree to die. You can chop or saw into a root without vibrating the whole tree, so test the state of the wood by cutting into a major root. If the wood is sound, continue. If the roots are rotten, the rest of the tree is certainly rotten too. Leave it alone!

2. Species is important. Nearly all of the dead trees I have dropped were conifers. Douglas fir and most pines do not usually drop major limbs until the entire tree is rotten. Also, the branches of most cone-bearing evergreens are so thickly spaced that a falling upper branch is unlikely to drop without giving you plenty of time to escape. And evergreens' branches are much smaller than those of other species, though they can still be big enough to injure you. Avoid trees whose lowest branches are out of reach.

3. On trees with very large, major limbs, like oak or ash, remove the limbs first, then fell the trunk. You will have to climb the tree and cut the limbs from the top down. See the section on "tree surgery" later in this article for details.

4. Safety practices and personal protection gear are absolutely imperative. NEVER attempt to cut a widow-maker without help, or without a hard-hat. ALWAYS have several escape routes planned. You do not know which limb may drop.

5. Consult your paranoia. If everything does not seem perfect, PASS. I have been laughed at for passing up a widow-maker when things just didn't seem right to me. Usually, I cannot say what feels wrong. But no tree is worth my life.

6. If the tree must come down, and there's no other way, get someone who knows explosives to blast it down. It won't be much good for firewood, but it won't fall on you.

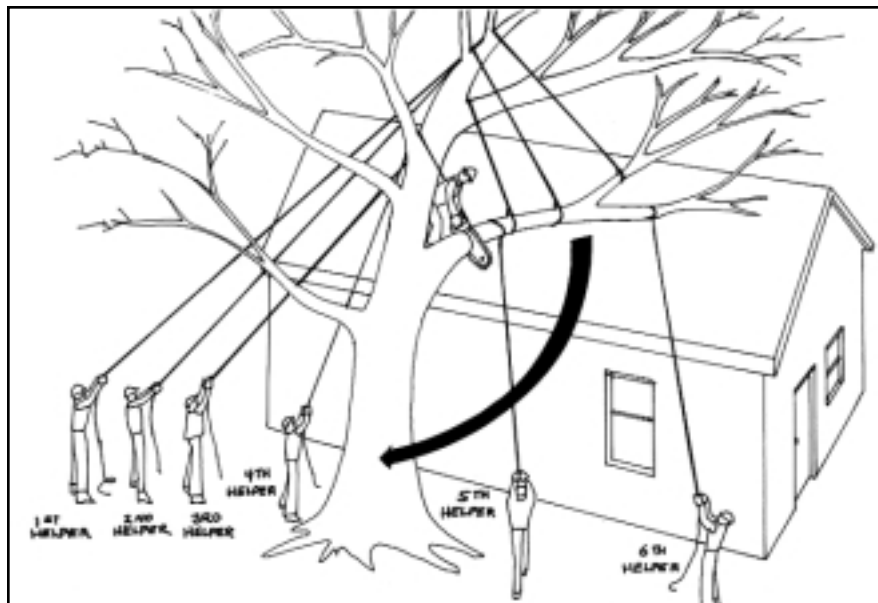
Overhanging trees

The most obviously dangerous kind of tree is one that is overcharging a house, barn, or some other structure that needs protection. The tree may be leaning toward the house, may be right next to it, or it may actually be above the house. An added problem is that the situation is likely to be urgent, or you wouldn't even be attempting it. It may be diseased, lightning-struck, or it may simply be in the way of construction. Whatever the reason, leaving the tree as-is will probably not be an option.

In the easiest case, the tree is sound, and is just too close to the house for comfort. Standard falling techniques will work fine; you just need to take a few extra precautions. Cut your back-stop high, to eliminate any chance of the butt kicking back through a wall or window if it comes off the stump. You may not be absolutely certain which direction the tree is going to fall. Or you may need to use wedges in the back-cut to force the tree in the proper

direction, but lack sufficient room behind the tree to swing a sledge.

Use rope instead. Tie a long, strong rope between the tree top and a fence post, stump, or other immovable object, and take up some tension with a come-along or block-and-tackle. Pulling the tree down is not necessary. Just give it a nudge in the right direction. If you can see the thick part of the trunk move when you take up the slack, that is enough tension. If you pull with a car, use a pulley and pull at right angles to the direction of fall, from a safe distance. Do not use another tree for an anchor. Estimating the height of a tree is very difficult. Sometimes, you have no choice. If you really need to know the exact height of a tree, use Archimedes' method: wait until your shadow is exactly the same height as you are, then measure the tree's shadow. Use the resulting measurement to decide where it is safe to drop the tree. Use shadow measurements to find the width of the tree, too. In laying out



Rig for tree-surgery on an over-hanging tree:

Helpers 1, 2, & 3 support limb and lower it to the ground after it is cut. Helper 4 secures and services your chainsaw. Helpers 5 & 6 pull the cut-off limb away from the house and guide it to the ground. You stand above the limb you are cutting, so it can't hit you no matter which way it swings. If there's no convenient branch to stand on, spike a block to the trunk temporarily, use a climbing belt or harness and climbing spikes, etc.

your “safe” landing area, allow about ten percent extra, just to be sure. Maybe Grandad could drive a tent stake with a falling tree, but how much are you willing to bet on your ability?

Sometimes there is nothing sufficiently massive where you need to anchor your come-along or pulley. Make a “dead-man” by setting a fencepost there, at an angle like a tent peg. If one fence post is not strong enough, set two, about ten feet apart. Connect them with a length of rope for a yoke, and anchor the come-along to that. Even if the tree is leaning over the house, you may be able to pull it vertical. Since the tree is under spring tension, treat it as a leaner, and it will come right down. It's a good idea to place a sheet of plywood between the tree and the house, just in case some splinters fly as the hinge breaks.

Tree surgery

If the tree is leaning over the house so far that it cannot be straightened, or if it has large limbs that may hit the house on the way down, you will have to take it down in pieces. If at all possible, rent or borrow a “cherry-picker.” It gives you a safe place to work, and a “sky hook” to support cut-off limbs. You may not be able to get a cherry-picker where you need it. In that case, you'll need four or five helpers, plenty of strong rope, and a powerful but light chainsaw.

To cut a major, over-hanging limb, use a higher limb or the trunk as a pulley, suspending the limb in such a way that it will not hit the house when you free it. The idea is to lower it slowly, using come-alongs or helpers with ropes, to guide the limb down without hitting the house.

Often, there is no way to suspend such a large limb. You'll have to dispose your ropes in such a way that the limb swings away from the house. One or two ropes, thrown over higher limbs, can be held by your assistants. They can lower the limb to the ground quickly before it swings back. A rope

or two tied to the ends of the limb allow other helpers to pull the limb away from the house and control it as it descends. All helpers need to be heavy and strong, and wear thick leather gloves to prevent rope burn. See the drawing.

Look at the tree from all angles, figuring how the limb will move if you tie it and suspend it in different places. Make sure all helpers understand exactly what they are to do. Once you complete your cut, there are no second chances. It has to work right the first time. You will not have time to shout instructions.

Use a fifth rope and assistant to secure your chainsaw. With all those people below you, you don't want the saw to go far if you drop it. Make sure it is powerful enough to cut through the limb, but no heavier than necessary, as you may have to run it one-handed. Remember, you will be up in a tree while all this is going on, with no escape route. It wouldn't hurt to rehearse your crew two or three times before you start cutting wood.

A special situation is telephone or power lines running through a tree. ALWAYS notify the utility company first. They will probably insist on cutting it down for you. The cost of removing the tree is nothing compared to the potential havoc if the line is broken. If they won't do it for free, and you simply cannot afford to pay their charges, at least get them to turn off the power before you start work.

Common sense

Your tools for reducing danger and safely logging dangerous trees are common sense, paranoia, experience, safety gear, and an experienced partner, plus the usual logging tools: saw, axe, chainsaw, wedges, peavey, and rope. Notice that the first two tools are attitudes. Never attack a dangerous tree without these tools! Common sense tells you when a tree is too big for you. It tells you when a situation is beyond your ability and experience. Often, the best approach to dropping a

dangerous tree is to get help, or just leave it alone. Only your common sense can tell you when this is the right thing to do. Here are some common sense rules for approaching dangerous trees:

Make sure you have help, and that someone knows where you are. One of my neighbors broke his leg cutting a dangerous tree alone. He had to crawl two and a half miles home, because no one knew where he was.

Never work in wind. Dead calm is vital for coping with dangerous trees. Wind not only can blow a falling tree in the wrong direction, it can mask or conceal the tree's movements, robbing you of precious seconds to escape from danger.

Clear several escape routes, in different directions. Your great plan may not work, or the tree may come down on you anyway. Be sure that no matter what happens, you have somewhere to go. It is easiest to run downhill, but remember that the tree may fall that way, too.

Be prepared to abandon your tools. Don't hesitate. No chainsaw is worth your life.

Avoid unnecessary stress. Do not attempt to log a dangerous tree when you are tired, sick, worried (about something else), or hurried. Stress causes accidents. Accidents with dangerous trees cause funerals.

Take your time. Examine the tree and plan your approach. Know exactly what you are going to do during all phases of the operation before you start.

Clear the area. Make sure there is nothing loose under foot, no over-hanging branches to catch your axe, etc. As the situation develops, you may need to work from the other side of the tree, switch-handed. So clear all possible work areas.

Paranoia

Paranoia is the feeling that something is out to get you. Whether or not you believe that trees truly are conscious, malevolent entities, you will

be much more successful if you act as though you believed it. Expect the tree to do the worst possible thing at the worst possible time. Even though the tree may not be actively working against you, it is certain that tons of falling wood have no mercy. You are attempting to control something that outweighs you by a hundred times or more. If you weren't a little bit scared you would not be sane.

Fear is useful. It makes your brain and muscles work over-time. You are stronger, you can think faster, and time seems to slow down. Paralyzing fear is no good, but a reasonable amount of fear is natural and beneficial in combat. Dropping any dangerous tree is a combat situation. It calls for planning, training, proper equipment, good logistics, and fear. Like any form of combat, the planning and training phases occupy much more time than the actual operation, but it's the fear that gives you the edge.

Logging tools

Sharpen your cutting tools before you start. Half-way through an operation is not the time to be sharpening your chainsaw! It's a good idea to bring at least two chainsaws with you, in case one gets stuck or the tree falls on it. At least bring a spare chain and bar for your chainsaw. If one gets pinched in a cut, and you cannot get it out, you can detach the motor, install the spares, and continue cutting. Keep your spares, gas, and oil far enough away from the tree that no matter which way it falls, you will still be able to reach them.

Take a good felling axe with you. Remember that an axe that is dull enough to bounce off wood is still sharp enough to cut through your leg. If you can shave the hair on the back of your hand with it, the axe is sharp enough. You may need to use your axe "switch" handed. Lefties are often better prepared for this, because they are used to coping with a world that is wrong-handed for them. Practice "switch-hitting" axemanship on a

Tying a bowline knot

Use a bowline (pronounced BO-lin) knot for an improvised safety harness. It forms a loop that will not slip. Here's how to tie one:

1. Make a small loop about three feet from the end of your rope. The end part of the rope passes **IN FRONT** of the standing part (the long part of the rope).

2. Bring the end through the loop, passing **BEHIND** the lower half of the loop and **IN FRONT** of the upper half. Allow about three feet for the bight (the large loop) thus formed.

3. Pass the end **BEHIND** the standing part, then bring it around **IN FRONT** of the standing part and insert it into the small loop.

4. Adjust the bight so it's just big enough to encircle your chest, and pull the knot tight. Slip it around your chest below your arms. It will not tighten around you, no matter how much weight you put on it

Thin rope will hold your weight, but ½" diameter or larger rope feels a lot more comfortable under your arms. If thick rope is not available, double the end of the rope and tie a bowline in the doubled portion. This form of the bowline knot is called a bowline-on-a-bight, and is used in making slings for rescue work.



small, easy tree. Work on perfecting dead-level strokes, throwing the axe into the wood with your left hand (if you are normally right-handed) and pulling the butt of the helve with the right hand to add momentum. Check your stance when swinging the axe normally, then duplicate it in reverse for "switch" felling. You may use up several small trees before you feel comfortable.

Safety gear

While you are checking your other tools, make sure your safety equipment is up to snuff. Plastic, industrial hard hats are just not good enough for serious logging. You need the kind that looks like an aluminum safari helmet, with a brim all the way around to ward off falling branches while still giving you good eye shade. Wear logging boots, too. Steel safety toes are important, but so are deep-gripping soles and high, ankle-supporting tops. But don't expect your boots to ward off chainsaws. Even a small chainsaw can cut right through a steel-toe boot in an instant. If you're going to do any tree climbing, get a climbing belt and spikes. Ask your local utility company lineman where he gets his, or check

with an outdoor sports company like R.E.I.. Check your ropes, too, and discard any that are frayed, or at least cut out the frayed parts and whip or melt the ends.

The techniques described here have worked for me many times. I have dropped dozens of dangerous trees without injury, but that does not mean that I couldn't be seriously hurt next time. Your most important safety tool is your brain. Think before you act. Plan out exactly what is supposed to happen every step of the way in detail. Even a slight deviation from plan should set alarm bells ringing in your head.

Any of the techniques in this article could hurt or kill you. They are not for beginners or over-confident know-it-alls. If any technique is new to you, you must consider yourself a beginner as far as that technique goes. The dumbest woodsman is the one who thinks he can do everything. Be wise. Ask for help when you need it. Δ

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Ask Jackie

Canning tomatoes, peppers, beets, and pumpkin, solving canning problems, castrating calves, and more

(Jackie Clay invites *BHM* readers to submit questions on any facet of low-tech, self-reliant living. Send questions to *BHM*, P.O. Box 712, Gold Beach, OR 97444. E-mail: jackie@backwoodshome.com)

I tried canning fresh pack tomatoes for the first time. I followed the directions exactly, but when I took them out of the canner, the fruit was at the top of the jar and the liquid was all at the bottom. Is this normal? I want to make sure that I did not do something wrong.

Karen
garaoke@earthlink.net

When you cold pack tomatoes or other fruit, it floats to the top of the jar. This is why home canners who vie for prizes at fairs always hot pack tomatoes and other fruit; it stays evenly distributed in the juice in the jar. It is "prettier." I often cold pack tomatoes when I'm in a hurry, but I usually mash them in tightly. When they're left to their own space, too much juice floats them badly. They're still great to eat, just have more juice than "meat."

Help! I have just finished canning my first bunch of tomatoes of 2000. I pack the jars tightly, at least I think I do, get the air bubbles out, add salt and lemon juice, process them in a hot water bath 45 minutes for quarts, right? The USDA says 85 minutes. Which is correct? But after I remove them from the kettle, the liquid and tomatoes have separated and on some

jars, the liquid is down 3 inches. What am I doing wrong?

Cindy
aces@spiritusa.net

See the above reply for "floating tomatoes."

And about the juice, which has boiled out? It could have been that the tomatoes were a little too fully packed in the jars or that water did not entirely cover the jars while processing. Check for both, next time. Also hot packing tomatoes results in less of this. At any rate, the tomatoes are perfectly okay to eat, providing the jars are sealed.

I process my quarts of tomatoes for 45 minutes in a hot water bath.

I pickled garlic recently and several of the cloves turned a blue/green. I was told that they were perfectly ok to eat and in fact they were. However, it doesn't look very nice and I am wondering how to pickle garlic without the cloves turning dark or blue/green.

Susan Fleming
susan.fleming@ualberta.ca

If it was just the top layer of the pickled garlic that turned unappetizing blue green, I'd suspect that they touched the lids. Simply fill the jars less full with cloves of garlic and pickling solution.

If the color persisted throughout the jar, I'd suspect one of these: minerals (especially iron) in the water or iron cooking utensils, perhaps a cast iron pot in which the garlic and pickling



Jackie Clay

solution was heated in, or perhaps spices-vinegar reacting to the garlic. If it is minerals in the water, simply use water without iron (filtered or bottled) for your garlic pickling. It really makes a difference sometimes.

My wife and I have a 50 x 100-foot garden with a lot of habaños, serrano and cayenne peppers. How do you can them?

Jay Helton
helton@netins.net

I prefer to dry cayenne peppers, then powder them to use in recipes as you use very little of them at one time. You can do this with habaños as well, but I'd seed them first as they are fire to eat with seeds.

I like to pickle jalapeños and serranos, and you might like to do that with habaños, too. That way, you can use the peppers in recipes, salads, as a snack, and use the vinegar, which becomes spicy and flavorful, too. And they sure are pretty in the jars. Just be sure to use plastic or rubber gloves when working with them as your fingers, especially under the nails quickly begins to burn, and you can't put the fire out.

Pickling hot peppers is easy. Cut slits in each pepper with a small, sharp

knife. Over four quarts of peppers, pour four quarts of water, into which 1½ cups of canning salt has been dissolved. Let this stand, covered, overnight in a cool place. In the morning, drain and rinse. Combine in large saucepan: 10 cups vinegar, ¼ c sugar (optional), 2 cups water and bring to a boil. Pack the peppers into hot, sterile jars, leaving ¼ inch of head space. Pour the boiling liquid over peppers, just covering them and leaving ¼ inch of head space. Wipe the rims and seal. Process pints for 10 minutes in a boiling water bath, quarts 15 minutes. (Adjust the time if you're over 1,000 feet above sea level.)

I have lots of terrific pumpkins this year and would like to make pumpkin pie from the real thing. Do you have a recipe that would tell me how to prepare the pumpkins to use instead of what you buy in a can? I would appreciate any advice you have.

Jill Danielsen
jdanielsen@excite.com

Like everything else, "real" pumpkin pie always tastes better than who-knows-where-it's-been store pumpkin. First of all, you need to cook a raw pumpkin. You can do this by slicing the pumpkin into manageable pieces, peeling it, then simmering it until tender in barely enough water to keep it from scorching on the bottom. You will need to stir from time to time. Or you can cheat and simply remove the seeds and pop the pumpkin in the oven at 350 degrees till tender, as if it were a squash.

Whichever method you choose, scoop up the pumpkin meat and mash it through a sieve. A food mill is easier, but the process is not difficult.

When you have a lot of pumpkins, why not simply can your own pumpkin? Just fill hot jars with mashed pumpkin and process in a pressure canner. Follow any recent canning book. It's simple, and you'll have pumpkin pie any time you want.

Pumpkin pie

1 raw pie crust

Filling:

3 eggs
1½ cup mashed pumpkin
½ cup brown sugar
½ cup sugar
½ tsp. ground cloves
½ tsp. nutmeg
1 tsp. ginger
1 tsp. cinnamon
1 cup milk
2 tsp. melted butter
1 Tbsp. flour

Beat the eggs. Add pumpkin, sugars, salt and spices. Mix. Add the milk and mix. Add the flour and melted butter. Mix well.

Place in pie crust. Bake for 15 minutes at 400 degrees. Turn down heat to 350 degrees for 45 minutes or until a straw inserted in the center comes out clean.

Remember, there's also pumpkin bars, pumpkin cookies, pumpkin milk shakes...mmm! See the next letter.

I want to make and can pumpkin butter, but am having problems. I'd charge ahead with my own "recipe," but have safety concerns with the long term preservation aspect of it. The recipes I have found suggest pumpkin butter be made with commercially canned pumpkin puree. I would like to start with a fresh pumpkin. But other recipes I have found state that pumpkin should not be canned. So I'm hesitant to make pumpkin puree add the sugar and spices and then hot water bath it. Do you know if that'd be safe? We were wondering if perhaps the commercial canning process does something to kill off bacteria, etc. that we couldn't do so well at home. Or if the pumpkin lacks the natural acidity to kill off things for itself. What about using apple juice?

I feel a little stuck between being a child of modern commercially packaged everything and a would be do-it-

yourselfer. We currently try to live a simple lifestyle, gearing ourselves up for the day we do it full-time. I've said to my spouse a couple of times that I think it would be fun to spend a few days with you just to take the mystery and awe out of the self-sufficient lifestyle. Let me know if you ever open a guest house or start weekend seminars!

Becky Erickson
Colorado Springs, CO

We never thought much about our lifestyle as having much mystery or awe about it. Some days there's so much to do that we have a hard time convincing our half-century plus bodies to get up in the morning.

The more you live it, the more natural it becomes, I guess.

Okay, to your pumpkin butter. Yes, you can home can pumpkin anything. I can it every year in glass jars. Okay, here I get into trouble; my recipe for pumpkin butter does *not* require pressure canning. It's from a 1975 Kerr book. To be safe, I suppose you can pressure can your butter as per pumpkin, but I've used the "unsafe" method for several score of years and am still kicking. Here's my recipe, which I am *not* advising you to use. Spices can be adjusted to preference.

Pumpkin preserves:

4 pounds pumpkin
2 lemons
sugar
½ tsp each, cloves, cinnamon, nutmeg
pinch salt

Mash the pumpkin and lemon meat in preserving kettle. For every cup of pumpkin, add ¾ cup of sugar and a pinch of salt. Add the spices. Mix and let stand overnight, refrigerated. In the morning, boil slowly, stirring well. Pour the mixture into sterilized half-pint jars to within ½ inch of the top. Put on a cap, screw the band firmly tight, and process five minutes in a boiling water bath.

Do *not* attempt to make pumpkin butter with less sugar if water bathing it, because pumpkin is low-acid. Otherwise, it requires pressure canning to be safe from bacteria. In the above recipe, the sugar acts as a preservative. And *no*, commercially canned pumpkin is in no way better than home-canned, nor do they add anything to kill bacteria. To be safest, you probably should pressure can your pumpkin butter for 30 minutes (for pints) at 10 pounds pressure—just in case.

I am a small farmer and raise a few calves to keep the pasture cleaned up. I saw where you revised the Veterinary Guide for Animal Owners. I keep steers and sometimes I buy bull calves and have to have them castrated. I would like some information on castrating calves; the best method and so on. I would like to be able to do this myself.

Larry C. Estel
Gate City, VA

There is no reason you can not learn to castrate bull calves yourself. After spending over 20 years as a veterinary field technician, I much prefer using a Burdizzo. This is a totally bloodless, relatively painless method of castration. There is no chance of infection and quite easy, when done right.

The Burdizzo is basically a large pinching clamp with long handles to increase leverage for the operator. With the calf adequately restrained, the testicles are taken in one hand, while the Burdizzo is held in the other. The operator makes *sure* the clamp only is placed over the cord leading to *one* testicle. *Never* clamp across the septum, the division between the testicles. Likewise, never include a portion of the testicle in the clamp's jaws. Carefully position the Burdizzo above one testicle, cord in the center, well away from the center division, then close the handles, completing the clamp. Hold the Burdizzo in this position while you count to ten,

then release. Repeat the process with the other testicle.

When you are finished, the only sign of the castration will be a slight indentation where you clamped. It is wise to check, as the few "slips" (failed castration) I've seen with the Burdizzo were often because the operator clamped the same testicle twice.

You might pick up a copy of A Veterinary Guide for Animal Owners sold by *BHM* for illustrations and information on this subject.

I have a complaint that I would like addressed in your forum. Ball and Kerr are owned by the same company. They no longer use rubber around the inside of the lid from what I have been told by the company. It is a synthetic product. For the last few years I have called them and complained. They send a form to fill out, listing all kinds of reasons why my jars didn't seal. I have been canning for over 30 years and know exactly why a jar didn't seal. Now I am being told that I should let my jars sit for 24 hours. By that time the food is not fit to eat and if I reprocess it right away, I end up with mush. I am so angry about this I could scream. I feel sorry for new canners who find that their jars don't seal and are convinced that it was something that they did. It sure would discourage me from trying again. All of that time and money wasted.

My main problem is with pressure canned foods. The lids seem to seal well in a hot water bath. They will also seal if I leave the jars in the pressure canner over night without opening it. There is a definite problem here. I am losing four or five quarts out of seven. The old lids were so forgiving.

Please address this problem.

Colleen Mysliwiec
myscolleen@hotmail.com

Colleen, I really sympathize with all your troubles. As canning is such a huge part of our self-reliant lifestyle, I can imagine how frustrated you must

be. Two years back, I also had trouble with Kerr lids, but the problem was a crease which formed in the lid after pressure canning chiefly meats and poultry which require longer processing time. But the lids *did* seal, albeit peculiarly.

I've canned hundreds and hundreds of jars in the past few years and can truthfully say that I've not had more than about one percent that did not seal. I'm not thrilled that Ball and Kerr are now owned by the same company, but I don't blame the lids on your failure, though I can sure see why you would. But let's see what could be happening.

I had a bunch of quarts of cold packed, pressure canned sweet corn that didn't seal once. I was literally canning a pickup full of corn and was in a real hurry, using two canners, going 24 hours a day. And I was in too much of a hurry.

I didn't let my canners get hot enough, after putting all those jars of cold corn in them. When steam sputtered out the exhaust vents, I shut them and went on. Not good enough. The vents should have had a steady stream of steam exhausting before they were closed. The canner simply didn't get hot enough, even with the pressure built up. Subsequently, the jars sealed poorly. Even some that appeared to seal later spoiled when the seal broke during storage. It was a big lesson for me.

A good friend had trouble with her jars not sealing. I went to her house during canning to find out why. Everything went great until she went about wiping the film off the jar lids while they were still hot. A big *no-no*. The jars need to be left totally alone until cool to the touch. When she did this, every jar sealed fine.

I would check the gasket on your canner, if it has one, to make sure it is pliable and not cracked. Also have the gauge checked, if your canner has one instead of the jiggling weights. I'd strongly suspect that something was wrong with the pressure during pro-

cessing, caused by a faulty gasket or pressure gauge, as you don't seem to have any problems with water bath canning.

Another thought: you're not "helping" the pressure return to zero by manually letting off a little pressure are you? I've been tempted to do this a couple of times when I was in a deadly hurry to get the jars out of the canner and had a few jars not seal. They can also break if you do this.

Still another way a few friends have caused jars not to seal is to retighten rings *after* processing. This often breaks the seal already in place. They thought that because the rings seemed loose, and the directions said "complete the seal" that this is what they should do. It sounds reasonable, but that "complete the seal" is for old-fashioned lids and rubbers, and just confuses things today, when few folks use them.

I know this may seem banal, but let's go through the basics in pressure canning. It might help someone who has not canned much and may strike a chord with you. (Some of us who have canned for years occasionally take shortcuts and ax ourselves by doing so.)

- Fill clean jars with prepared food, according to directions. Wipe the rim with a moist, clean cloth.
- Place the boiled lid in place.
- Screw ring down snugly, without force.
- Place jars in canner.
- Tighten down lid evenly all around.
- With petcocks open, turn on heat.
- When steam exhausts steadily, close petcocks.
- When pressure builds to desired pressure, begin timing. Keep heat even, adjusting minutely to keep at desired pressure.
- When time is up, turn off heat and wait till pressure returns to zero.

- Carefully open petcock to release any remaining steam.
- Open the canner and remove the jars at once to a clean, dry place, out of drafts, padded by folded dry towel.
- Leave alone until cool, then wash and remove rings.
- Store in cool, dark, dry place.

I'm really sympathetic towards your problems. If you can't resolve them, let me know and I'll call you and see if we can't work this out. I want you happily canning.

I have a very good sweet pickle recipe (icicle pickles). They are very tasty and always make a big hit with everyone we serve them to. I do have a problem and I am wondering if you could help solve it for me. Some of the pickles get somewhat shriveled during the two weeks of processing them. Could it be the alum? I always keep them totally covered from the beginning stage of salt water throughout the final stages of pouring the hot syrup over them. They taste just fine but some of them just are not attractive for serving. What can I do different to prevent this problem.

Jeanne Ver Hage
jverhage@powercom.net

Shriveling in pickles usually can be traced to four causes. The most common is using pickles that have been picked too far in advance of actual processing. Use very fresh cukes. Placing cucumbers in too strong a pickling or brine solution can cause shriveling, so always follow directions exactly. Using too sweet a pickling solution is my usual pickle-shrivelor. This is why we usually increase the sugar slowly as the pickling process goes on. Shortcutting here by adding too much sugar really wrinkles those little gems quickly. I hope your pickles soon come out plump and smooth.

I would like to know where I can find recipes for sugar-free canning. I love to can but hate all that sugar. I

presently can jam using only honey, but I need some varied recipes with no sugar.

CntryHrts2@aol.com

Any fruits can be canned sugar-free, using only fruit juice and the fruits' natural sweetness. Sugar does nothing regarding canning keepability. As for sugar-free jam and jelly recipes, check out a box of any sugar-free pectin product at your supermarket. There are a lot of recipes listed, and best yet, they're pretty good, too.

We have a good sized crop of jalepeño peppers to preserve. We've made plenty of salsa. What are some ways to preserve jalepeños other than jelly and pickling?

Michael Varnes-Epstein
varnese@mw.net

Peppers are my passion and salsa's just a start. Have you ever tried salsa verde, made with jalepeños and tomatillos? This is a green salsa with a different taste.

Then there's roasted, dried jalepeños. Roast them on your outside grill until skins are black. Pop them in a paper sack until cool, then peel and seed. Lay in a single layer on a dehydrator or cookie sheet in a cool oven until dry. Store in a jar, ready to use, either whole or powdered. I like to grill them on mesquite for a smoky taste.

I also love to can these smoked peppers. Simply pack in a jar and process for 35 minutes at 10 pounds in a pressure canner. You can also can them in ½-pint jars to use later in nacho dips or fried with eggs.

You can also dehydrate raw jalepeños and grind them to use in your own spice mix. I usually stem them and cut them in half to help dry them as they are thick meaty.

Then there's meat stuffed jalepeños, canned jalepeño rings, etc. Δ



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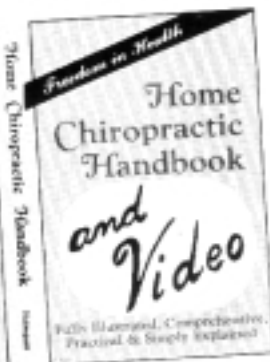
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The homestead greenhouse

By Charles A. Sanders

For those of us living close to the land, the production of a dependable and healthful food supply is a primary objective. To that end, some consideration will likely be given, at one time or another, whether to construct a small greenhouse for homestead use. A greenhouse can provide countless hours of enjoyment and a steady supply of wholesome food. The benefits of producing your own healthy plants and crops, extending the growing season, and even the possibility of helping to heat your home are certainly possibilities when utilizing the homestead greenhouse. We have also been able to make several varieties of our own favorite garden plants available for sale to neighbors in the community.

The greenhouse itself comes made in as many styles and of as many materials as there are homesteaders. Each seems to build—or grow—their own personality into their greenhouse structure. From elaborate metal and glass pre-manufactured sun-rooms to inexpensive plastic film stretched over a crude frame, greenhouses run the gamut in design and construction. Yet, each fulfills the same basic purpose of extending the growing season for those of us who depend upon producing as much of our food as we can.

Building our greenhouse

Our own greenhouse is a combination of recycled and new materials. The frame was obtained from a friend who runs a commercial greenhouse. The 1-inch metal conduit had served as the ribbing for a Quonset-style greenhouse until it was replaced by a larger structure. I obtained a supply of the pre-curved metal tubing and constructed the greenhouse frame, lean-to

fashion, on the side of the garage/workshop. First, a treated 2 x 4 was bolted onto the exterior wall of the garage below the eaves. The foundation consisted of short 4 x 4 posts set in the ground 12 feet from the wall. Treated tongue and groove 2 x 6s were secured to the posts to allow for some leveling which was necessary on the slight slope. Two by four plates were applied, and holes were bored in both the top wall plate and the base plate to accommodate the conduit. As each rib was set in place and fine tuned to the correct arc, a small hole was drilled in each of the plates, through the conduit, and a galvanized nail was used to secure the rib. Next, the door and window openings were framed, using measurements to accept the used door and window frames that I had obtained for a few dollars at a recent auction. Caulking was applied to the door and window trim as each was set in place to help to seal the fixture.

The greenhouse covering was a result of some experimentation. First, some ordinary 6-mil clear plastic film

was applied, but could not withstand the onslaught of the elements. It gave way in about eight months. There are other heavy plastic films specifically made for greenhouses. Those are the types that my friends in the greenhouse business use. Another friend, who raises herbs for drying, grows her plants in a greenhouse using this type of thick plastic film stretched over a frame made of white PVC water pipe. It works well.

The plastic currently covering our own structure is designed for greenhouse use and was obtained from a supplier of the material strictly for homestead-type greenhouses. It consists of a 7-mil woven plastic “fabric” with a 1-mil layer of solid plastic bonded to each side. The woven texture gives much resistance to ripping or tearing and the solid layers bonded to each side help greatly in the weatherproofing. Further, the whole fabric is treated to resist ultraviolet degradation, a factor which normally contributes to the short life-span of plastic films in greenhouse applications. For more information on this rugged woven plastic covering, try contacting Northern Greenhouse Sales, Box 42, Niche, ND 58265.

Inside the greenhouse, scrap lumber was used to build the benches. Heavy



The author's greenhouse is attached to his garage. In cold weather heat from a wood stove inside also heats the greenhouse through an open garage window.



The benches in this greenhouse hold trays of plants already sprouted from seeds.

wire shelves that had been discarded by a local grocery store were also added to hold more trays of seedlings. The germination bed was constructed by first framing up the sides with 1 x 6-inch lumber. A sheet of foil-backed foam insulation board was cut to fit the bed (made just slightly wider than the seed germination trays are long). Next, a one-half inch layer of sand was spread over the foam board. An electric heat cable was arranged on the sand, and was then covered with about an inch more sand. The cable does a nice job of heating the seed trays and the sand acts as a heat sink, absorbing and distributing the heat.

The thermostatically controlled heat cable maintains a good germination temperature for most varieties of vegetables we grow. Along the front wall, we placed short stacks of used tires and filled them with sand. Atop each stack was placed another tire with the sidewall removed. Cutting the sidewalls from the tires was surprisingly easy, using a utility knife. It greatly increases the amount of available planting area in each tire stack. The top tire was then filled with compost and soil, then seeded in lettuce, spinach, or whatever. They also make

a fine planter for an extra-early or late tomato plant. The dark color of the tires serves to absorb heat, and the sand contained in each stack helps to store it. We have not made use of the greenhouse the entire year around, but have had great success extending the growing season. Since it is attached to my garage and shop, I utilized an existing window opening, the wood stove in the garage, a window fan, and a timer to add heat to the greenhouse. By keeping a fire going in the garage, which I often do anyway, and timing the fan to turn on as the day begins to cool, we have been able to pick the last tomato off of the vine on Christmas Eve.

Starting plants

For starting seeds and transplants, the greenhouse is hard to beat. We start by using some of the black plastic flats that stores and nurseries display their containers of plants in. The local grocer saved a bunch of them for us. They are great for filling with planting mix and starting seeds in. I attached some wooden ribs to a suitable piece of plywood, added a handle, and can quickly make rows in

flats of soil mix. The planting board speeds things up when planting seeds.

The seeds sprout quickly on the heated bed. Once they grow large enough to move into separate containers, they are gently lifted, one by one, and transplanted into ordinary styro-foam cups. I prepare the cups by poking two or three small holes in the bottom of each to allow water to drain. This can be done, a stack at a time, by shoving a long heavy wire down through the cups. A friend also saved us a large grocery sack full of used plastic yogurt cups that worked well too. We have also used commercial-type plant containers which held six plants each. Any of these containers will work fine and I'm sure you can come up with ideas for other suitable plant cups as well. Anything from tin cans to boxes will work.

Building and working in your own small greenhouse is a very rewarding way to spend some time. Remember, there are as many ways to build a greenhouse as there are homesteaders. The main thing is to use what you have or can readily obtain, adapt the structure to your own circumstances, and then use the dickens out of it. If you are working towards selling plants, you will find an eager market waiting. In any case, you will be rewarded with fresh vegetables nearly year-round, healthy and vigorous garden plants, and the satisfaction of knowing that you're another step closer to self-sufficiency. For more information, I'd recommend the following publications:

[The Food and Heat Producing Solar Greenhouse](#), by Bill Yanda and Rick Fisher, John Muir Publications, Inc., P.O. Box 613, Santa Fe, NM 87501.

[The Solar Greenhouse Book](#), edited by James C. McCullagh, Rodale Press, Box 6, Emmaus, PA 18099-0006

[The Guide to Self Sufficiency](#), by John Seymour, Hearst Publications, New York. Δ

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Garden seeds — a great winter pastime

By Jackie Clay

Start your garden this year while the snow is still on the ground. I start all of my own plants from seeds. One of my favorite winter pastimes is reading through my many seed catalogs and making choices for my spring garden. And when I've made those choices, I'll order a bit at a time to ensure that no one supplier runs out of a *must have* variety.

You can learn a lot from seed catalogs. Most offer a bounty of gardening tips, from dealing with late spring frosts to ways to deer-proof your garden. Read them from cover to cover, then make your seed lists up, while snow lies deep on your garden plot.

Do you live in a short-season climate? There are now lots of varieties of short season vegetables available. There are even a lot of open pollinated vegetables, which allow you to save your own seed for the future.

Do you live in the south or arid southwest? There are varieties that will take both heat and drought. I've found that many Native American vegetables excel in these difficult climates.

Do you have virus or fungal problems in your garden, especially with peppers, cukes, and tomatoes? There

are multi-resistant varieties to take care of that.

Starting seeds

The general order in which I start my plants from seeds, both the seeds I've saved and the ones I order, is peppers, tomatoes and eggplant, cabbage, cauliflower, then broccoli. I usually give the peppers 10 to 12 weeks, from planting to setting out time. They germinate and grow fairly slowly. The tomatoes and eggplant get from 6 to

a tiny harvest instead of a normal large head.

Plant your seeds in containers that are at least 2 inches deep. I've seen a lot of seeds wasted by planting them in shallow trays such as pie pans, etc. Most will quickly dry out and die, and the survivors' roots will have no room to grow deeply.

Some "free" containers I've used include milk cartons, cottage cheese containers, plastic freezer boxes, old Tupperware containers scavenged from the dump, and two-liter soda bottles found here and there.

Don't waste time and money buying "potting soil," which is cheap but contains only acid peat moss. Seeds do not germinate and grow well in it. I know. I used it in my first greenhouse and lost a good portion of my seed.

Buy a professional seed starter for the best results. It contains milled peat moss, along with materials to keep the soil from com-

pacting and getting soggy.

You *can* use your own good compost, but you *must* cook this soil to kill bad bacteria, fungus, and mold. Place the fresh, well-decomposed compost in old roasting pans and bake it in an oven at 250 degrees for half an hour. It works; my mother and grandmother did it. But boy does it stink. I used to call it baking angleworms.

Before filling your containers with soil, poke a few small holes in the bot-



*Snow outside the window is one foot deep,
but the garden plants inside enjoy a southern exposure.*

10 weeks, depending on the variety and growing condition. (A shorter time in a hot greenhouse, a longer time in a cooler sunny back window.)

The cabbage family seeds should be planted no more than 6 weeks before being set out, because if they are too big when being set out the broccoli and cauliflower will "button," that is, make little heads way before they should and stunt the plant resulting in

tom with a sharp nail to allow them to drain. You *never* want soggy soil as it causes seeds to rot and plants to damp off.

Place enough planting medium in containers to fill comfortably. Then moisten it well, but don't get the soil soggy. One tip I've discovered is to use very hot water. This will cut your germination time down considerably, and also improve germination. And, no, it doesn't "cook" the seeds.

Now it's time to plant the seeds. When you look into a pack of tomato seeds, you'll see from 30 to 100 seeds on average. Don't plant them all. It's a waste and you don't need 20 to 90 tomato plants of the same variety under most circumstances. Figure out how many plants of that variety you actually need, and plant that many, plus a few more to allow for those which do not germinate or which die later.

You can save those extra seeds for next year. With very few exceptions, most garden seeds are good for years and years, if simply kept dry.

Plant the seeds in depressions you make with a pencil, about ¼ inch deep and about an inch or more apart. Then gently tamp the soil over the seed, eliminating all the air but not compacting the soil.

Mark each container with a permanent marker so you can keep track of each variety.

Water lightly with hot water, then place the container in a plastic mini-greenhouse. Use an old bread wrapper or other clear plastic bag. Close off with a twist tie and place in a warm spot where it can stay from a week to two weeks, waiting for those little seeds to germinate. Tops of refrigerators and sunny windows work well.

A plant-growing stand

If you have electricity, seriously consider making a plant-growing stand. This is basically a bookshelf with the shelves spaced 20 inches or more apart and 4½ feet long. From each shelf you can hang a florescent

shop light. These provide heat for seed containers when hung a few inches above the containers, and light for little plants when the seeds germinate. As the plants grow, you can move the lights higher and higher.

Your homemade plant-growing stand will grow strong, straight plants for your garden, year after year, at little initial cost. Grow lights are nice, but I've always been too broke to afford them. Mom had one in her stand, but I couldn't see any difference between the plants under the grow light and the ones under the \$9.99 shop light.

As the plants grow, you need to transplant them into new containers. I scavenge six-packs from the dumpster each year, clean them well with bleach water and soap so I always have plenty. You can use these or any other deep container. The point is to replant each plant, giving it new soil and plenty of room to grow. Transplanting also slightly slows the plant's growth, strengthening it as it begins to grow anew.

At transplanting, I feed each seedling with some weak manure tea or Miracle Grow.

Hardening off plants

Okay, it's spring and the birds are singing sweetly outside in your garden. You've got the itch to plant your gorgeous plants you've spent weeks raising. But wait. If you simply set out those tender plants, you will stunt and possibly kill them from the shock of meeting wind, cold, and heat that they haven't been exposed to in their protected environment.

To bridge this gap, you need to harden off your tender plants. On a warm day with no wind, bring them out into a protected spot for an hour. Repeat each day, then slowly increase the time you leave them outside. Watch to be sure they aren't wilting or drying out from the sun and breezes. As they tolerate a protected spot, slowly move them out into a less-protected environ-



*Jackie's favorite pastime:
sorting through seeds.*

ment more like they will have in the garden.

Hardening off usually takes about a week and a half, depending on the weather. Don't bring them out in really foul weather, cold, strong wind, or pounding rain.

Setting plants out

After the last (you hope) spring frost, and after the soil has warmed up, you are ready to set out your plants. The first to hit the garden are the cabbage family, as they can take more cold than can tomatoes, peppers, and eggplants. These are either set into rows, with the plants about 18 inches apart in each row and the rows about 20 inches or more apart. Or set them in beds 18 inches away from each other.

Where cutworms are a problem, make a little cardboard collar for each plant. I use old toilet paper and paper towel centers, cut down to two inches. As you plant each plant, slip one of these collars on it, burying all but ¾ inch below the ground. As cutworms chew off plants at ground level, the collar keeps them away without toxic chemicals.

Set the plants in just a little deeper than they were in the growing

container. In dry climates, set each plant into a little basin, which will help hold water. In wet areas, plant each row on a raised bed to keep the roots moist, but not wet. Few garden plants tolerate "wet feet."

The best type of frost protection for tomatoes and pepper plants is Wall 'O Water, a poly cylinder of tubes which you fill with water, making a tipi around your plant. I've had temps down to 18 degrees, with snow a foot deep for two days, and had the plants not only survive, but actually thrive.

Other frost protections are paper hot caps, milk jugs with the top cut off, and floating row covers. However, all offer much less frost protection than the Walls 'O Water.

Mulching new plants

At planting time I try to scatter a light mulch around each plant, only an inch deep at this time. This will help hold moisture and keep new weed seedlings at bay, but it is not so deep

that cutworms can chew the plant above the collar.

As the plants grow, increase the mulch until it is eight inches deep. Too shallow a mulch will let the weeds poke through and will not hold enough moisture to be of benefit.

Some of my favorite mulches are clean straw, pine needles, and rotted manure compost. *Never* use hay that has gone to seed before being cut. One of the worst weed messes I've ever had resulted after I used old loose hay from a barn hay mow as mulch in my garden. I had enough timothy to cut hay in my tomato patch.

Direct seeding

Luckily, not all seeds need be started ahead of time, in the house or in a greenhouse. In fact most vegetables are best seeded directly into the garden in all but growing zones 1 and 2.

When spring arrives and the soil warms up enough to be able to be tilled well, you may begin planting

your garden. There will be hard frosts to come, but there are many "frost-proof" veggies that will do well anyway. My usual order of planting goes like this: peas, onions, spinach, potatoes (from cut pieces of seed potato), carrots, lettuce, amaranth, parsnips, and beets. After the last expected spring frost, I finish planting all the tender vegetables that frost will probably kill if it hits those tender seedlings—beans, cukes, melons, squash, pumpkin, etc.

As you progress, you'll find that seeds are addicting. Right now I have more than two apple boxes full of them, just waiting for spring. No, I won't plant them all. Some I'll save for another year, some I'll give away to those in need, and some I'll trade for an interesting new acquisition.

But it is sure fun sketching out different gardens, using different varieties I have in that "magic box," as my son, David, calls it. I hope you'll join us this year. Δ

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see page 3

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Ayoob on Firearms:

Taurus plinking rifle: a blast from the past

When you were a kid, did you visit the shooting galleries on the boardwalks and at the carnival midways? If so, you remember an old-fashioned-looking .22 rifle with an exposed hammer and a pump action. The gun you fired there was probably a Winchester Model 62.

The shooting gallery is virtually gone from the American scene now. Winchester stopped making the Model 62 some 37 years ago. Still, it and its predecessor, the Winchester Model 1890, can be found at gun shows. Firearms are the most durable of durable goods, and hundreds of thousands of American families took this nice little rifle to their hearts and their hearths. Some 409,000 Model 62 rifles were produced by Winchester, according to authority William S. Snyder, writing in the 1988 *Gun Digest*.

Snyder also noted that in the mere quarter century, between 1890—when John Browning designed and Winchester produced the original model—and the year 1914, some half a million had been purchased. Of course, America was more rural then, and virtually every home contained firearms.

The Model 1890 and subsequent Model 62 were user friendly. They were very slim and light to carry, and easy for kids or petite females to hold on target. The short slide action didn't require much muscle to operate. And they were more than accurate enough to shoot rabbits and squirrels for the family pot, to keep predators out of the henhouse, and unwelcome furry foragers out of the family garden.

Bob Morrison at Taurus International was long a fan of the Winchester Model 62, and when his firm acquired the rights to some of the

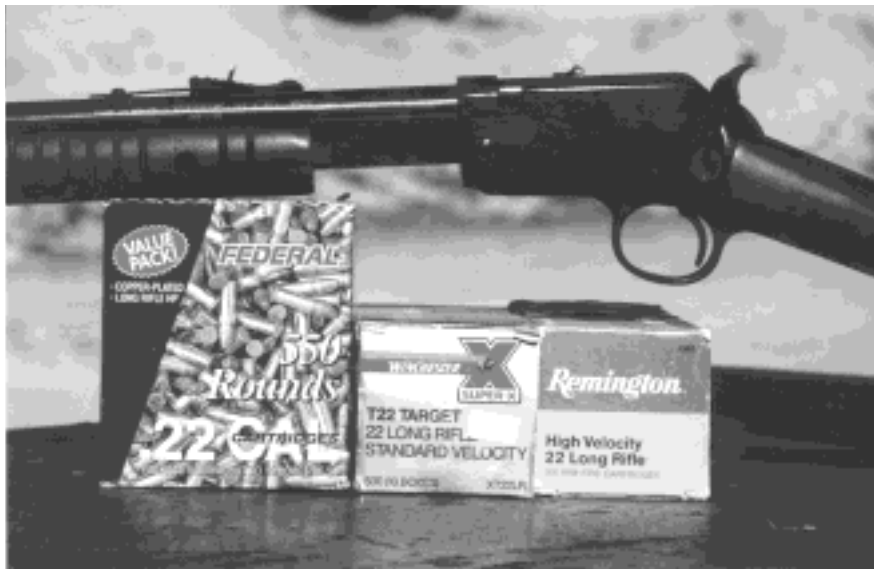


Massad Ayoob

designs of the Rossi firearms company, Rossi's cute little pump gun, styled to look like the old Winchester, became a pet project. Redesigned and very well executed thanks to the new Taurus state of the art machining, now comes the Taurus Model 62.

Its only significant difference in design is the addition of two safety devices. One is a 90-degree turning unit atop the firing mechanism, which will be awkward to reach in the field but which seems to be demanded by current trends. Another is the patented Taurus lock on the hammer, which allows the owner to lock the gun and keep the handy little key on his person. When there are visitors to the backwoods home who don't understand *Miss Manners' Guide to Firearms Etiquette*, this can be a comforting thing, and I for one like the hammer-locking feature.

But, to the point: how does it shoot? Very well, thank you, as numerous members of my gun club from kids to geezers discovered when I passed it around. The time-proven mechanism is very reliable. The only jams we experienced occurred when someone unfamiliar with the short stroke slide mechanism bobbled the movement. Each time that happened, the gun was



*Rifle was tested with three of the most popular types of .22 ammo.
Note the gun's slim, classic lines.*

quickly cleared. A few hundred .22 rounds downrange, and you'll be working the gun like a natural, and those human error problems will disappear.

The wood was good quality, well finished and well fitted to the gun. The blue finish was also very well executed. Still, for hard country handling, some would prefer the Taurus option of stainless construction. Ours was the rifle with 23-inch barrel, and again, some might prefer the even handier carbine with 16½-inch barrel.

The trigger was clean and crisp, and just the right pull-weight for an all-around .22, about five pounds. The sights were a solid post up front and a generous square notch in the rear, easy for old eyes to see. We tested it with ammo from the three major makers, encompassing the three most popular styles. Winchester T-22 is a solid lead, standard velocity load. It's good for target shooting and I know squirrel shooters who swear by it, saying it gives the ideal combination of stopping power and minimal meat destruction on that animal. In our gun it shot 5-round groups that were under two inches and always put its best three shots in less than an inch. The groups opened up slightly with Remington copper-gilded solids, which many trappers swear by for quick and merciful kills of small animals with minimum damage to the pelts. We got about the same with Federal hollow-points, the kind of load rabbit hunters favor in .22s. Shooting distance was



The Taurus 62 in its natural habitat: the hands of a responsible 14-year-old boy. Jarred Martineau is cycling the action and a spent casing is visible (in the white circle) above his head. Note proper use of ear and eye protection.

25 yards: the distance from porch to rabbit in garden, the distance from back window to rabid skunk approaching your dog.

Like the original, this Model 62 ejects spent casings from the top, which precludes mounting a telescopic sight there and occasionally gets a little annoying as the tiny shells land in your hair or down your neck. But they don't burn you or anything, and it becomes part of the fun. My friend Dick Metcalf secured a scope to the barrel of his to test for *Shooting Times* magazine, and got better accuracy than I did with my iron sight version. Still, the original look and feel are what sell this little gun to me.

As with the old Winchester hammer pumps, both rifles and shotguns, the new Taurus can rapid-fire if you hold the trigger back and pump the action. Shooters are divided as to whether this is good news or bad news. The bad news is, if you're not familiar with it and if excitement has locked your finger onto the trigger, the gun will go off unexpectedly when you pump a cartridge into the chamber. The good news is, if you do it deliberately, it's

way fun. We found it no trick emptying the entire 14 shots the rifle would hold in about four seconds. This is pretty close to what you can do with a semiautomatic.

The gun costs \$279 suggested retail. It's worth that for nostalgia value alone. It will serve as original Winchester .22 pumps have served without interruption on the family homestead for 110 years. That is, it will put succulent small game meat on the table, it will put small predators out of the livestock stealing business, it will make slaughter of meat animals more humane, and it will put rabid critters to sleep.

And, of course, no tin can will be safe from it. This rifle will provide hours of fun for every member of the family who understands the backwoods home lifestyle. If you're comfortable with a log on the fire, if it makes you feel good to read by a kerosene lamp, then this neat little blast from the past that Taurus calls the Model 62 will be a perfect fit over your fireplace. With the integral hammer block device, you won't even have to worry about a trigger lock. Δ

More on your rights and responsibilities with guns

Find more of Massad Ayoob's articles in back issues of *Backwoods Home Magazine*, in our printed anthologies, and on our CD-ROM, all of which can be ordered using the order form at the end of this issue. Or you can go to:

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Know your goat

By Jan Palmer

Goats are one of those animals that is either loved or hated. Usually the people who hate them have had a bad experience, often attributed to poor fencing/housing, poor quality animals to start with, or inadequate management techniques. If you are considering adding these characters to your home, you should consider all aspects of the animal.

Do not fall for the idea that all goats are the same. The different breeds not only have different physical characteristics, they often have different mental ones as well.

Six main breeds

If you're looking at purebreds, there will be six main breeds to pick from, each with its own advantages and disadvantages. These breeds are the **Toggenburg**, **Saanen**, **Alpine**, **Oberhasli** (all Swiss breeds), **Nubian** (Oriental), and **LaMancha** (American). Within each you will hear goat breeders use terms such as "purebred" and "American." A purebred can be traced to the first goats of that breed to come into the country. An American has another history—perhaps with a grade or mixed bred goat somewhere in her pedigree, or perhaps

somewhere along the line someone didn't transfer an animal's papers into their name. Often the Alpines are called French Alpine to designate purebred goats.

The **Toggenburgs** have varying shades of brown with white legs, face stripes, and ears. They are medium-sized goats of amiable temperament but they can be quite persistent in causing "trouble." All in good fun of course. Although many criticize the Toggenburg for not being good milkers, the overall milk leader is a Toggenburg. They are hardy, inquisitive goats.

The **Saanen** is an all white goat, often referred to as the "Holstein" of the goat world. They are large, normally heavy, milking goats. Commercial dairies often have Saanen or Saanen crosses in the milk string, although good goats of all breeds can be competitive in the milking arena.

The **Alpine** is found in several colors, perhaps the most popular being *cou blanc*—which is a black and white color pattern. *Cou clair* is another, while *chamois* is a brown and black pattern. The Alpine, whatever the color, is a medium sized, good milking goat.

The **Oberhasli** is sometimes thought of as from Alpine stock—said to be once called the rock Alpine. The Oberhasli is a rich bay color with black accents and is listed with the *American Livestock Breeds Conservancy* as a breed needing assistance. These goats are not as numerous as the other breeds and are not as heavy of milkers.

The **Nubian** is usually recognized because of the long, pendulous ears, a sharp change from the erect ears of the Swiss breeds. The Nubian also has a



"Challenge" is a grade Toggenburg of unknown heritage. She is a good milker from a well-attached udder. Although you may never show your goats, it pays to get udders like this in your goats. They're up off the ground, more sanitary and less likely to be bearing disease. Challenge was a rare bargain, found in a milking herd as one of several for sale because of too many milkers. She was bought for \$75.



This nice Alpine doe taught me a valuable lesson about “bargains.” She was bought as a bred doe, unregistered, as a good milker but dry doe for \$75. She was supposedly due in late December, but in fact did not kid until Valentine’s Day, and only when her udder filled up was it apparent why she was sold—she had an udder injury that included a small hole at the base of the teat, from what likely was a barbed wire fence. This big, productive looking doe produced a pint a day (not enough for even her kids) and had chronic mastitis. To fix the old injury would have cost \$100+ and involved major surgery. It would have been cheaper to just pay \$200 for a good producing doe to begin with.

Roman nose, and is a large breed. Often referred to as the Jersey of the goat race because of the high butterfat content, the Nubian comes in a myriad of colors and patterns, with none taking preference. They may be black with white spots, white with brown spots, reddish-brown with roan ears or solid black. Often criticized for not being heavy enough milkers, the Nubian has its share of good milking does—but you’ll have to look. Some

people brag about 1600 pounds per lactation—look for those from much heavier production backgrounds for family use and never mind show wins. (This is true regardless of breed). If there are show wins in addition to heavy milking ability great, but show wins do nothing in the barn.

The other breed noted for their ears—the lack of them—is the **LaMancha**. These have very small flaps of ears, usually bringing comments of having them cut off, frozen off, etc. This is a breed trait. Any color or pattern is accepted, and there are some good milking animals in this breed as well.

Then there are what the *American Dairy Goat Association* refers to as recorded grades. These can be animals that were sold without papers and two owners later you get her and want to work towards a registered herd. Or they can be animals of unknown pedigree, or even an “oops” (as when a Saanen buck jumped the fence and bred with a Toggenburg doe). There are also animals that don’t meet the breed standard—a Saanen with a body spot, a Toggenburg with too much white, a doe who is obviously Alpine, but without papers to prove a pedigree. This may be recorded as “native on appearance.” The value of a recorded grade lies in affordability with the opportunity to work towards a registered “American” herd by using purebred bucks.

Avoiding problems

For many homesteads one of the crossbred goats will suit as well as a purebred. But please do not go purchase her at the “local auction.” This is where reputable people dump the attitude problems, the chronic health problems, the poor producers, the disease carriers, and other problems. Put yourself ahead at the start and get a good, healthy animal. Check with breeders in your area or contact them at the county/state fairs for information.

Sometimes breeders have good animals for sale at reasonable prices for family milkers. These might be a five-year-old who can’t compete in a large herd situation, a yearling whose milk is fine but udder makes her unshowable, a kid from a top producer, or any number of other choices. If you live close to the breeder, see about breeding services with purchase of a doe. Don’t expect these services to be thrown in free, but paying the seller \$25 or \$50 this fall to breed to his/her buck is cheaper than driving all over the country looking for one. And much better than picking up a cheap buck at the sale barn. The good ones cost the same to feed as the clinks.

In general, it is cost effective and easier for you to keep two does as one. One bored and lonely doe can be quite inventive in finding entertainment



Registered Toggenburg showing typical markings of the breed. “Marissa” was purchased from another breeder cutting down select animals to make room for the top show string. As a second string animal, she still holds the genetics and milking potential of the showier animals. Purchased as a yearling milker, she was priced at \$200.



A very rare quality auction find, this doe is a good representative of the Toggenburg breed. With no tell-tale lumps or heat in the udder, no swollen joints and tattoos in both ears, it was puzzling as to why she was in a pen of assorted culls. In watching her at home I found she has a bad habit of nursing herself, something that she will probably never quite forget. Pictured with her is a young buck whose dam was not only top 10 at the national show but also from a family that milks well.

prospects, and it is just about guaranteed you won't find it quite so fun as she does. Unless you have a half dozen does or live totally away from other goat people, it won't pay to keep a buck. By the time you pay for separate housing, reinforced fencing, ancillary equipment, and a good buck (\$200-500 plus), it is cheaper (again) to pay someone else to breed your does. If you are near several people who own the same breed of goats, you might be able to go together and split the costs of a buck if you live too far from anyone who has one.

The benefits of goats

So what can you expect from a good dairy goat? Plenty of fresh milk. The opportunity to make your own cheese, butter, ice cream, and yogurt. (See Rev. Hooker's article on page 44.) To do this you need to start with a good goat. Expect to pay \$100-\$300 for a good milker with or without papers. If you pay more than that you're probably buying show blood that won't necessarily increase the milk level. Lower than that and chances are you'll be unhappy with her.

In some areas you may be lucky and find a solid, good milker without papers from a reliable herd for \$75. But again, avoid the auction barns. Unless you are fortunate enough to live near a commercial dairy dispersing or other reliable source, you could bring home all kinds of problems that you don't need to deal with. At best you could infect the clean goats. At worst you'll end up with a dead goat and be out the purchase fee.

Preparing for a goat

Before you bring your goat home you'll need to set up housing. This need not be expensive nor fancy. She'll need a shelter to get out of wind, rain, and cold. This can be anything from a large dog house to a calf hutch to a homemade shed to a corner of the barn. It should be dry and draft-free. Any equipment should be kept clean—water buckets, troughs, feeders, and such should be cleaned on a regular basis.

Hay feeders of a wide assortment can be used, from a wood framed feeder with panels the goat reaches through to get hay to steel racks and

tubs. Leaking sheep-sized water troughs work fine if you can keep the goats from lying in it. The rope hay bags used for horses are a danger to goats however. It is too easy to get a leg or head through it and get hung up resulting in a crippled or dead goat (this will usually be your best kid or favorite milker). Many people feed grain at milking so that each doe gets her full ration without competition from other goats.

Water should be offered free choice. This should be as clean as possible for maximum consumption. If you live in an area where temperatures are hot in the summer, offer fresh cool water at mid-day to encourage consump-

tion. (Keep in mind also that water = milk. If she doesn't drink she won't milk well.)

Feed top quality hay free choice. This should be clean, bright hay with no mold, dust, or debris. Contrary to popular myth goats will not eat virtually anything, and after you scrape up "dirty" hay (it touched the ground) you'll see that goats are the pickiest eaters in the barnyard. Grain gets stepped in? Nope, it's dirty. (And don't even think of scraping it off the floor and expecting her to eat it.)

A goat will enjoy browsing, and pasture, if it's available, will be relished. But don't rely on staking her out. There are several reasons for this. The least dangerous is once the grass is walked on she probably won't eat it anyway. She's also easy prey for dogs and the danger (again) of being hung on something is too high. I know there are people who have done it for years and never had a problem. I have gotten lucky with a few goats staking them out, but that was before I started seeing the dangerous state I was putting them in.

Cutting feed waste

One way to cut hay waste is to keep a lamb or two with the goats. Sheep are less picky about what's on the ground and can make use of wasted hay with no extra cost to your pocket-book. (And, if you're lucky, you can find cheap orphaned lambs to be raised on the bottle—so your goat milk gets put to use. When the lambs are freezer size, have another pair ready to move in.) A better way is designing feeders so the goat can't pull hay directly out.

One easy "alteration" I found is laying the flakes flat rather than upright like a row of books. The hay doesn't come apart as easily in long pieces and when the doe backs up there is less to fall on the ground (and most ends up in her mouth). Another method is to feed them all they can eat, in say an hour, a few times per day. You will have to watch them to find the right mix here. Sometimes, three goats will finish off a flake of hay in an hour while others can pile away three times that much.

For grain, it is essential to keep it stored where rodents, insects, cats, etc. can't get into it. It should be dry and covered up so that should a goat get loose she can't gorge herself. A relatively inexpensive way to store about 150 pounds of grain is in a heavy duty plastic garbage container. (New, the \$10-15 expense is worth your goat's health.) I have found these better and more waterproof than the galvanized metal ones, which often leak around the seams, handles, and edges.

If you can find a sheep-sized mineral feeder, use it for a good goat mineral—again, offered free choice. Another inexpensive free choice item is baking soda. This could be added to the grain also, but dumped into a small container is better.

Use a good 16% or higher feed for grain. This too affects production as well as growth of kids and body maintenance of does. Use caution on feeding cow-formulated dairy mixes.

Some contain what to goats are toxic levels of copper.

Fencing

Fencing for goats should be tight and at least five feet high. Goats are perhaps one of the most difficult of critters to fence. I have heard of people using three strands of electrified wire, but I have never had any luck with that. The best goat fence is six feet of chain link but few can afford such luxury. Standard livestock panels are good, as is woven wire providing it is stretched tight enough to withstand a goat standing on it. Some people recommend woven wire with a strand of "hot" wire inside to keep goats off the fence.

Goats can be very adept at finding ways out of (and into) places they feel

they should be. They will also jump onto 'toys'—large spools from power companies, sleeping benches and such, so be sure such toys are not near the fence to provide a handy step for them to escape. I have seen some clever youngsters climb on the top of a large hay bale and hop over a fence that kept in Thoroughbred horses.

First aid kits

With good feed, housing, and care, goats usually are pretty hardy animals. However, a first aid kit should be kept for minor ailments, routine care, and emergency situations (if only to buy time for the vet to get there). A sharp knife and scissors, bandages, Vetrap (horse bandages), gauze, cotton, tincture of iodine, hydrogen peroxide, drenching bottle, syringes and sterile



"Erin" is $\frac{7}{8}$ Saanen, $\frac{1}{8}$ Nubian and is an excellent example of a good, productive dairy animal. This doe has a long lactation curve but is not competitive in the show ring because of her less-than-perfect udder. At 4-6 quarts per day for 11 months, she is a good milker. Cost at purchase time was \$200.

needles, thermometer, foot trimmers (garden shears work great), baking soda, a goat blanket, pepto-bismol, tums, a baby kid stomach tube, penicillin, and whatever other items your veterinarian recommends. These can be kept in a locked cabinet or a fishing tackle box.

Milking

Milking comes with practice. Your efforts at finding a beginner doe will pay off here as you learn to milk. Most people reach under and pull the teat, and they are bewildered when the calm doe jumps all over. Instead of pulling, squeeze the thumb and forefinger together at the base of the teat. This traps the milk in the teat. Squeeze the rest of the fingers in succession and the milk is expelled, hopefully into your clean milk pail. Be sure you have the doe completely milked out.

I usually caution against getting two heavy milkers at the same time or

freshening several at once. It is easier on your wrists if you start with one at a time. (If you're buying two goats at once, consider getting a milker and a doeling or yearling.) If you can, go milk the doe before you buy her. This will let you know if she has the patience you need to learn or if she is too hard to milk. In one herd, for example, I could not get my hands around the teats to comfortably milk what would have been my first choice and the doe I bought I might have passed over had I not milked her.

When looking at a milker do not gauge production on the size of the udder. This is a common mistake. A better gauge is the milk vein on the under side of the belly. If she is clipped this should stand out. This vein should be noticeable. If you cannot see or feel this vein don't believe for a minute she is a heavy milker.

Feel the udder for hardness, lumps or swellings. Take a hands-on

approach. If the doe has not been milked yet (for how many hours?—ask), the udder should be firm but not hard or excessively hot. Either is an indicator of problems that are cheaper to avoid than treat.

See if the doe will allow you to pick up her feet. If she stands willingly she'll be easier to trim when the time comes.

Look, read, ask questions and prepare in advance for your goats, whatever breed they may be. Be prepared if necessary to accept the imperfect doe providing that she is healthy. But above all enjoy them. Spend time with them. Watch them and get to know their habits. This will be invaluable in detecting sickness before they are really sick in many cases. Do they dive into feed with vigor or always eat slowly? If she eats five or six bites of hay, then gets a drink and keeps a pattern doing this, is it something unusual? If it is, look further for a cause.

Recently, I had a large Saanen-cross doe who kidded, expelled the placenta, and ate hay with good appetite. But when put on the milk stand and given grain she picked at it. Knowing she normally tears into her feed and that her production wasn't what I would expect even at that stage, I began looking for what else. I offered baking soda, and while most of the does took a lick or two, this doe began eating it. That day she began eating her grain. And within a day of that, her production started increasing as it should. This doe was not sick but was uncomfortable with an acid stomach, which the baking soda relieved. This in turn made it easier for her to face a pan of grain.

Often little things like that can prevent big vet bills and/or the loss of a good doe. When a large herd loses an animal there are others to take up the slack. When you have three and one dies, you lose a third of your herd. It pays to pay attention.

Take care of your goats and they'll take care of you. Δ



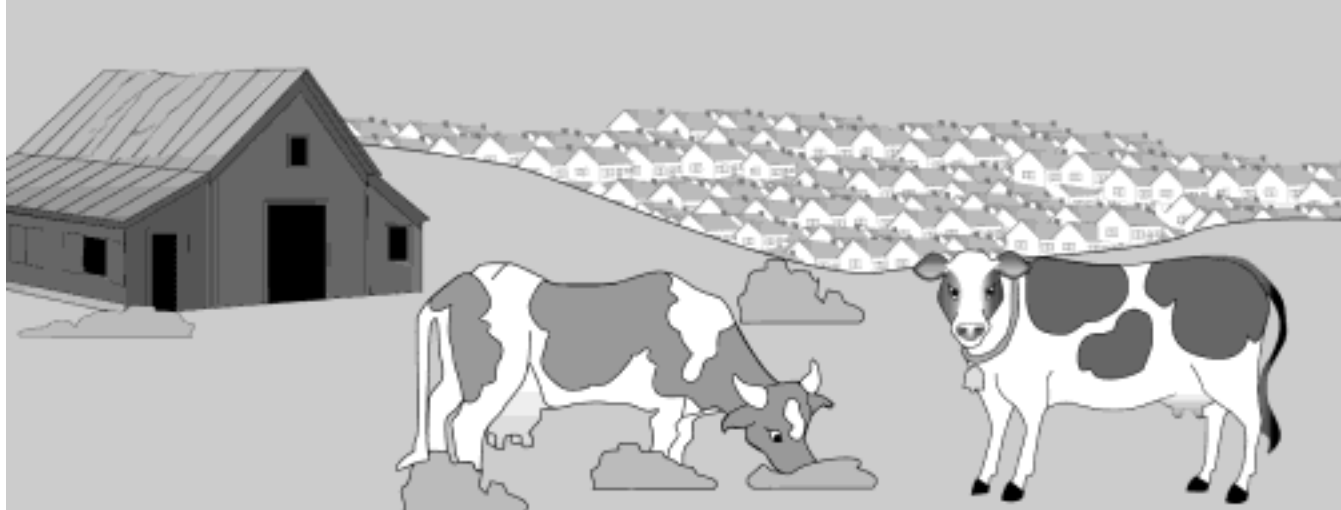
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Death of a farm



By Hugo De Sarro

Bill Jones trimmed his dairy herd down to two Guernsey cows. The farm, set back from the highway behind some trees in a small eastern Pennsylvania town, looked the same with the herd gone. The sagging red barn and shed didn't look any different. The manure spreader and tractor were still parked in the yard, and the lights still went on in the barn at night at milking time. But Jones wasn't shipping any milk.

Jones gave up serious farming several years ago. It didn't pay. He had only a few acres of grazing land, and hay and grain were expensive. And the neighbors didn't help any. They objected to the flies and the smell of manure. They took him to court. He had 50-odd milking cows back then. They tried to shut him down, but he beat the rap. He told the court he was there first and that the neighbors moved in on him.

It cost him a bundle of money for lawyers' fees. Money he couldn't afford to spend. The case was in the courts for several years. But he didn't

care. He would have spent every penny he had and even borrowed money, if necessary. It was a matter of principle. He wasn't about to let anyone tell him that he couldn't farm any more. He would have put another mortgage on the property, if he had to. When he sold off all the cows but two several years ago, it was different. It was his decision. It wasn't crammed down his throat.

It was quiet and lonely on the Jones farm with the herd gone. The two remaining Guernseys stayed close together. They stood by the red barn in the evenings, scarcely moving, a woe-begone look about them, as if they missed the crowding and confusion.

Two cows provide too much milk for a small family. Last spring, Jones got rid of one of his two cows. Now there's only one cow standing motionless by the barn. It doesn't take long to feed and milk one cow. Bill Jones has time on his hands. He has become active in town affairs. He is serving on several town committees. He takes things easy. He has had to learn to slow down and pace himself. Chances are, he'll be selling off his last cow one of these days.

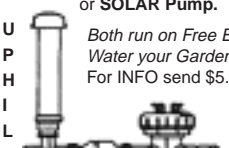
As dairy farms go, Jones had a small operation. He was on a busy street, close to the center of town. He had little grazing land. His soil was rocky and he was hemmed in by neighbors. He had a lot against him. But there are people in town who were sorry to see the herd go. Not long ago there were several farms in the town. Now, there aren't any.


It's more than just the death of a farm. Towns in the area are changing. You can see and feel the change. There is an increase in residential and commercial construction. City people are moving into the area. Some of the townspeople are uneasy.

They don't want to see their town become a suburb. Perhaps they will look back someday and say that they lost more than just a farm when Bill Jones sold off his cows. Δ

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Dairy treats are easy to make with these low-tech recipes

By Rev. J.D. Hooker

Many folks have put off raising their own dairy animals because they envision themselves winding up with too much milk. After all, dairy goats average a gallon a day over a 10-month lactation period. The majority of milk cows give more than double even the best goat's output. That really is a lot of milk.

Using only a minimal amount of home-built equipment and a few time proven low-tech methods, you can use up all that milk and enjoy yogurt, butter, cheese, buttermilk (buttermilk pancakes!), homemade ice cream, and other dairy delights, in addition to having fresher milk than money can buy.

Yogurt

The easiest home produced dairy treat you could come up with, using the minimum amount of equipment is homemade yogurt. All you need is milk, a large insulated cooler, some bowls or jars with lids, a large jar or two, and a single serving container of unflavored yogurt from the grocery store.

First, simply allow both the milk and the container of yogurt to come to room temperature, then mix them together really well. Pour the mixture into the bowls or jars and set the lids loosely on top. Fill the large jar with hot water and set it in the middle of the cooler, arranging the bowls or smaller jars around it before closing the lid on the cooler. About every eight hours or so you'll need to replace the hot water to keep the cooler's interior nice and warm.

Every time you replace the hot water, try stirring your brewing yogurt with a spoon. Once it seems to have

reached the same consistency as store bought yogurt, it's finished and ready to refrigerate. Fruit and other flavorings can be stirred in to taste just prior to enjoying each helping.

You'll want to reserve a cup or so from this first batch to use as a starter for later efforts. We've found that yogurt cultures do seem to run down over time, so after roughly 10 or 12 months, you'll need to make another trip to the store to obtain another serving of plain unflavored yogurt.

While yogurt can be made from whole or skim milk with equal ease, I

really can't taste the difference between the two types. We usually stick with skimmed milk for our own family's yogurt production, reserving the cream for other uses.

Separating the cream

For most other sorts of dairy products, you will need to separate the cream from the milk as a first step. Probably the easiest method for doing so is simply to let the milk sit in shallow containers for 12-24 hours in some nice cool place (like a refrigerator), after which the thicker top layer of cream is readily skimmed off, leaving the thinner milk behind.

Because it's naturally almost homogenized to start with, goat's milk can take a pretty long time to separate using this method. It will all too readi-



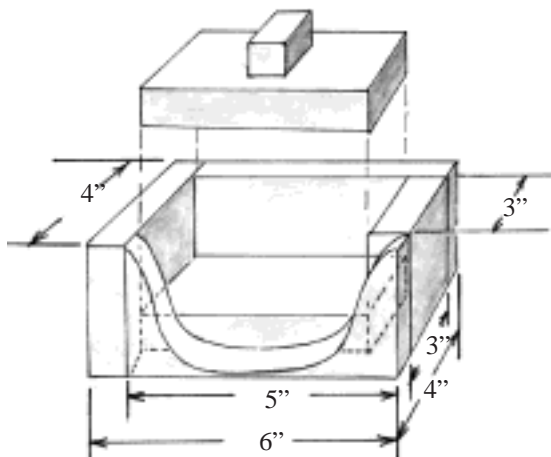
ly absorb the flavors and odors of every other sort of food in the refrigerator while you're waiting. While I've met a few folks who've gone to the expense of obtaining a mechanical separator for use with goat's milk, my wife uses another method entirely.

The cream my wife skims off using her technique whips and churns just as well as any other, and her method sure is fast. She pours about an inch of milk into a shallow baking pan, and sets it on top of the stove over low heat. Several minutes later the surface of this milk thickens and starts getting a shiny and crackly appearance. Using a slotted spoon, she skims the warm cream off the top and places it in a separate container to cool.

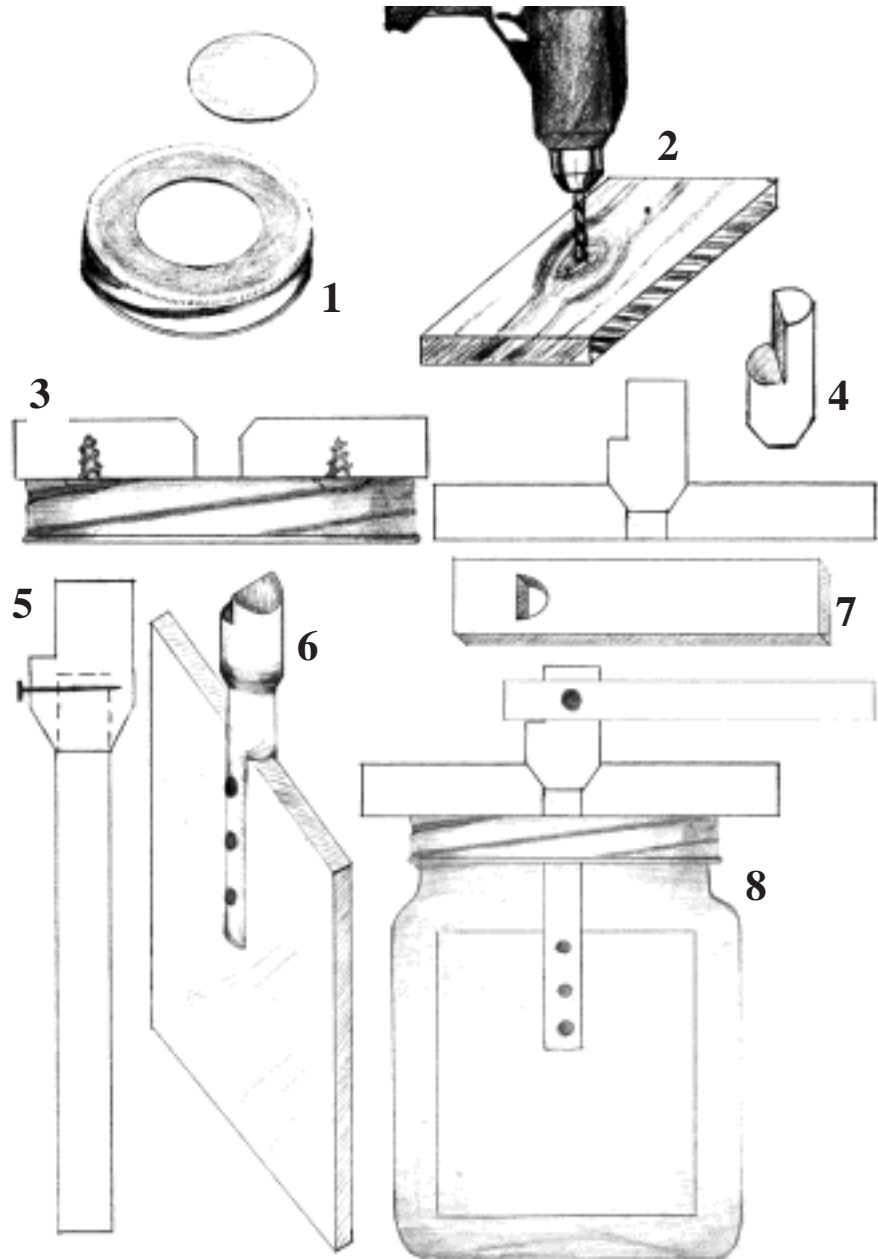
Butter

However you opt to separate the cream from the milk, you'll want to allow it to reach a temperature of around 60° before trying to churn butter from it. Illustrated you'll find the method I used to fashion my wife's home-built butter churn. This works as well as anything else she's ever tried, so well in fact that our smallest grandchildren routinely churn butter themselves.

Fill your churn about a third of the way with cream. If you're using goat's milk you might want to add a few tablespoons of carrot juice or yellow food coloring at this time. If you don't your butter will taste just fine, but it will turn out pure white and look just like canned shortening.



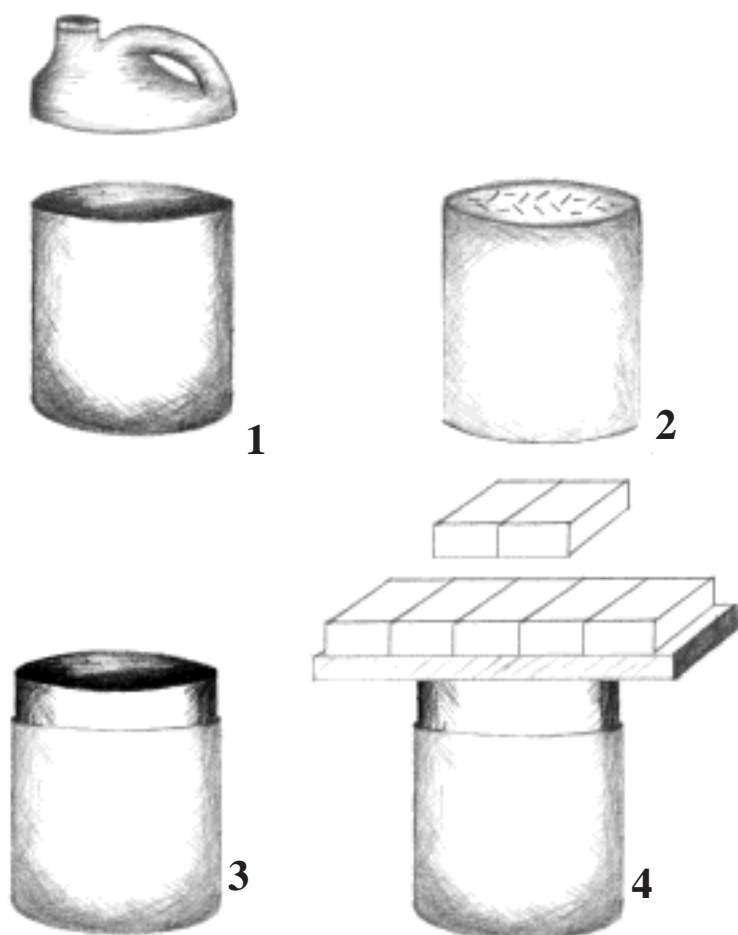
Build your own **butter mold**.



Butter churn. 1. Remove center from metal lid of 1 or 2-gallon glass jar. 2. Find a piece of 1" pine lumber with a large knot, and drill a 1/2" hole through center of knot. 3. Countersink hole and screw to metal lid. 4. Taper 3" piece of 1" dowel to fit countersunk hole and notch top of dowel. 5. Drill 1/2" hole in end of 1" dowel and insert piece of 1/2" dowel. Hold in place with a small brad. 6. Cut away half of lower portion of dowel and attach a piece of 1/4" plywood. 7. Cut half moon shape in piece of 1 x 3". 8. Slip in place over end of notched 1" dowel. Nail in place. Screw lid onto jar to use churn.

Crank the handle around for about 10 revolutions, then open the lid to allow the pressure to escape. Put the lid back on and churn for another 30 seconds or so before opening the lid one more time to let the pressure off.

Now just keep cranking away. After about 20 minutes at 60 or 70 cranks per minute, you should be able to feel the butter thickening and hear the kernels of pure butter splashing around inside. If using cow's milk these ker-



Cheese press. 1. Cut off top of plastic 1-gallon vinegar or bleach bottle. Wash and rinse well. 2. Punch several holes in the bottom with a knife. 3. After placing cheesecloth wrapped curds inside, force empty 2 pound coffee can into cut off jug. Fill can with water. 4. After two hours add more weight.

nels should be visible as well. Keep churning for another 20 or 30 minutes, then stop churning and pour the whole mixture through a cheesecloth-lined colander.

Save the light buttermilk that runs through the strainer. This is the stuff that gives buttermilk biscuits, breads, and pancakes their wonderful flavor.

Leave the grains of butter inside of the cloth-lined colander and place them under cold running tap water. Allow the water to run through the strainer until it appears clear as it drains out.

Once the rinse water runs clear, dump the kernels of butter into a bowl, and use a spoon or a rubber spatula to press all of the water out of your butter. If, like most folks, you prefer

lightly salted butter, you'll want to add about ¼ tsp. of salt per cup of butter at this point. That way while you're working the water out, you'll work the salt in at the same time.

Shape the butter into a ball and wrap it with plastic wrap or tin foil before refrigerating it, or press it into canning jars, used margarine bowls, or better yet, press it into the homemade butter mold illustrated, then wrap it in waxed paper.

Cheese

My favorite dairy product is the cheese my wife makes from the milk left after the cream has been skimmed off.

Pour two gallons of whole or skimmed milk into a large pot and

allow it to come to room temperature. Set the pot on the stove over very low heat for half an hour or so, stirring every once in a while.

Now dissolve two "Junket" rennet tablets in one cup of cold water. If you don't want to go to the grocery store, you could substitute a thumbnail sized piece of dried calf's stomach. It works just as well, but the "Junket" tablets are quicker and cleaner. Then thoroughly stir the water in the warmed milk, remove it from the heat, and let it sit for about 45 minutes.

Once the curd has "set" enough that a knife can be used to separate it from the side of the pan easily, it needs to be sliced up. Use a clean sharp knife to make slices about ¾" apart across the coagulated milk. Repeat, making a second set of slices at right angles to the first ones.

With a wooden spoon, very gently stir these sliced up curds around for 10 to 15 minutes or so. Place the pan back on the stove, over the same low heat for about an hour or so, stirring gently every few minutes.

Allow to cool for about 25 minutes, then strain through a colander lined with cheesecloth. Reserve the yellowish whey that drains out, and stir about six teaspoons of table salt into the curds remaining in the colander.

Place the curds inside one of the homebuilt cheese presses shown, and apply weight or pressure as illustrated. After 2 hours, increase the pressure, or add more weight, and leave to drain for about 18 to 20 hours. Then remove the finished cheese from the press, rub the surface with salt if desired, and dip in melted paraffin or wrap in plastic wrap. Allow to age in a cool place for at least a month before enjoying.

The whey left after this cheese making process can be used in baking or for fattening pigs and other livestock. However, before using it up, a little bit more of a different type of cheese can be coaxed from this same liquid. Ricotta is actually an Italian word that means "cooked again." With some heat and a little vinegar, a little more

cheese can be drawn out from this same batch of whey.

Heat 2½ gallons of whey until the surface seems to thicken a little. Then stir in a pint of whole milk. Increase the heat to a simmer, stir in ½ cup of vinegar, and immediately remove from the heat. Pour through a cheese-cloth lined colander and allow to drain for several hours before refrigerating. This process only yields a cup or two, but it's excellent old world style ricotta cheese.

Now, the remaining whey can be used to replace the liquid in any of your regular baking recipes.

Ice cream

To our daughters and grandchildren, nothing is better than homemade ice cream, especially when the youngsters get to make it themselves. Even though we do have a really nice store bought ice cream freezer, they much prefer using what they believe to be a superior method. I have to admit that watching them do it their way is a lot of fun. You might want to try it. You'll need:

1 plastic 5-gallon bucket with a couple dozen ½-inch holes drilled through it

1 1-gallon plastic jar

6 cups fresh cream (With the high butterfat content in the milk from our Nubians we'll often use whole milk instead.)

1½ cups sugar (more or less to taste)

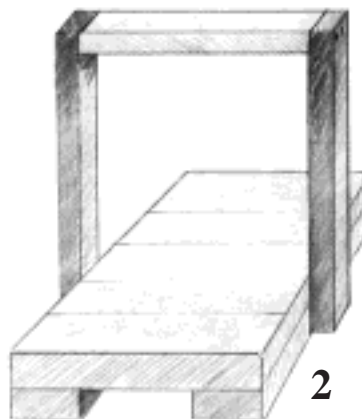
1½ tsp. vanilla extract



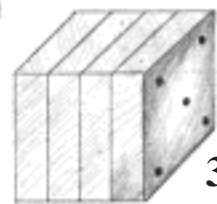
The grandkids version of an ice cream freezer.



1



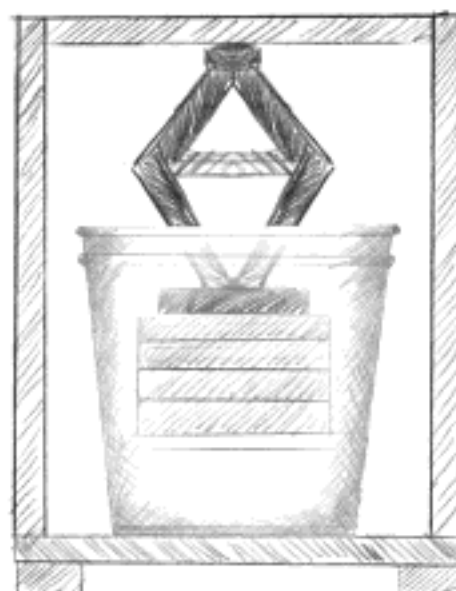
2



3



4



5

Cheese press. 1. Drill a lot of 1/8" holes in bottom of 5-gallon bucket.

2. Build sturdy wooden framework. 3. Nail together 4- 2x8"s as a follower.

4. Cut plywood disk to fit loosely inside bucket. 5. Insert cheese cloth covered curds into bucket, followed by plywood disk and wooden follower.

Use automotive jack to apply pressure.

1 pinch table salt

1½ cups pureed fruit or 3 oz. semi-sweet chocolate (optional)

crushed ice

rock salt

Heat the milk or cream until it starts to boil. Stir in the other ingredients. Refrigerate for a couple of hours, then pour into the 1-gallon container.

Place 2 inches of crushed ice inside the 5-gallon bucket, and sprinkle ¼ cup of rock salt on top of it. Now center the gallon jar on top of this layer of ice, and fill the bucket with alternating

layers of 2 inches of crushed ice and ¼ cup of rock salt.

Make sure both lids are on securely, then let the kids roll the bucket around on the ground for half an hour or so. Open the bucket, remove the jar, and watch their faces light up as they enjoy the fruits of their labor. That by itself is reason enough for keeping dairy animals. Δ

**Visit our website at:
www.backwoodshome.com**

THE IRREVERENT JOKE PAGE

(Believing it is important for people to be able to laugh at themselves, this is a continuing feature in *Backwoods Home Magazine*. We invite readers to submit any jokes you'd like to share to BHM, P.O. Box 712, Gold Beach, OR 97444. There is no payment for jokes used.)

"Wake up, son. It's time to go to school!"
"But why, Mom? I don't want to go."
"Give me two reasons why you don't want to go."
"Well, the kids hate me for one, and the teachers hate me, too!"
"Oh, that's no reason not to go to school. Come on now and get ready."
"Give me two reasons why I *should* go to school."
"Well, for one, you're 52 years old. And for another, you're the principal."

A man walked into his back yard one morning and found a gorilla in a tree. He called a gorilla-removal service, and soon a serviceman arrived with a stick, a Chihuahua, a pair of handcuffs and a shotgun.

"Now listen carefully," he told the homeowner. "I'm going to climb the tree and poke the gorilla with the stick until he falls to the ground. The trained Chihuahua will then go right for his, uh, sensitive area, and when the gorilla instinctively crosses his hands in front to protect himself, you slap on the handcuffs."

"Got it," the homeowner replied. "But what's the shotgun for?"

"If I fall out of the tree before the gorilla," the man said, "shoot the Chihuahua."

A young woman shopping at the grocery store goes to the express lane with the following items:

- 1 pint of milk
- 1 short loaf of bread
- 1 small jar of peanut butter
- 1 grapefruit
- 1 pack of single-serving canned tuna
- 1 box of instant soup mix
- 1 small jar of spaghetti sauce
- 1 frozen dinner

The young man at the register scans each of the items and says to the young lady, "Well, I guess you're single, aren't you?"

With a blush and a smile, she rolls her eyes wistfully and says, "Gee, how could you tell?"

"Because you're ugly."

STRESS DIET

This is a specially formulated diet designed to help people cope with the stress that builds up during the day.

Breakfast:

- 1 grapefruit
- 1 slice whole wheat toast
- 1 cup skim milk

Lunch:

- Small portion lean, steamed chicken
- 1 cup of spinach
- 1 cup herbal tea
- 1 Hershey's Kiss

Afternoon tea:

- The rest of the Kisses in the bag
- 1 tub of Hagen Daas Ice Cream with chocolate chip topping

Dinner:

- 4 bottles of wine (red or white)
- 2 loaves of garlic bread
- 1 family-size Supreme pizza
- 3 Snickers bars

Late night snack:

- Whole frozen Sarah Lee cheesecake (eaten directly from the freezer)

Diet rules:

1. If no one sees you eat something, it has no calories.
2. When drinking a Diet Coke with a chocolate bar, the Diet Coke cancels out the sugar in the chocolate bar.
3. When you eat with someone else, calories don't count if you do not eat more than they do.
4. Food used for medicinal purposes does not count (for example, hot chocolate, toast, cheesecake, and vodka.)
5. If you fatten up the people around you, you are automatically thinner by comparison.
6. Movie theater foods have a zero calorie count as they are part of the entertainment package and not counted as food intake. This includes popcorn, Snow Caps, and ice cream.
7. Cookie pieces have no calories because breaking the cookies up causes calorie leakage.
8. Foods licked from spoons and forks have no fat if you are in the process of cooking something.
9. Anything eaten while standing has no calories due to gravity and the density of the calorie mass.
10. Food consumed from someone else's plate has no fat as it rightfully belongs to the other person and will cling to his or her plate.

And remember: **STRESSED** spelled backwards is **DESSERTS**.

contributed by Muriel Sutherland

Make your own hard cider

As I write this column the New England fall apple harvest is all in. The apples available, at all orchards and many supermarkets, are not the chalky summer varieties, best for making apple sauce and jelly. These are the late season apples, firm, sturdy-fleshed varieties that give your mouth a slight pucker as you savor their balanced sweetness, crisp texture, and full flavor. All of these apples, with the exception of a few astringent types used solely for making cider, are excellent eating, and their juice can be blended to make a wide selection of sweet and hard ciders.

On many fall weekends during my motorcycling years I would pack up my BMW R69S touring bike and head west on Rt. 2 through Massachusetts' apple country. There was never a need to pack food because the many orchards and restaurants between Boston and Williamstown, which lies in the northwest corner of the state, offered a host of apple delicacies that could not be had at any other time of the year. On these weekend tours I was also fortunate enough to sample some of New England's finest sweet and hard cider.

These ciders were made from the juice of the finest of eastern apples, and carefully crafted to excellence by people who understood apples. Most of these master cidermakers are also orchardists that operate clean and efficient cider mills. Along with their crafted ciders, they sell a seemingly endless variety of late season apples: Northern Spy, Macoun, Roxbury Russet, Macintosh, Cortland, Baldwin Winesap, and Golden Russet, just to name a few.

I found many foods made from the firm-fleshed culinary apples like Golden Delicious, Braeburn, Rome, Rhode Island Greening, and Gravenstein. A hungry weekend wanderer could, at an affordable price, dine on apple curry, omelets made with sautéed apples, beef short ribs braised in an apple barbecue sauce, or Normandy style pork chops topped with a pan sauce seasoned with hard cider and apple brandy, then topped with sautéed apples. You could also find a host of apple desserts and confections too numerous to mention.

How many kinds of apples are there? At the end of the Civil War there were more than 800 distinctly different apple varieties listed by American nurseries, and nearly 7,000 listed worldwide. But today 80 percent of the U.S. apple crop consists of eight varieties: Red Delicious, Golden Delicious, Granny Smith, Jonathan, Macintosh, Rome Beauty, Stayman Winesap, and York Imperial. During most of the year the supermarket shopper is offered a very limited variety which, on occasion, may include some of the newer varieties like Fuji and Mutsu.



Richard Blunt

In apple growing regions this all changes during the fall months when local orchard stands sell many other varieties. These stands often sell apples that have long disappeared from supermarket shelves. Northern Spy, Roxbury Russet, Gravenstein, Spitzenberg, York Imperial, and the many varieties of Pippin can be found by an ambitious and persistent apple lover. It is a shame that variety shopping for one of the world's favorite fruits is so difficult in a country that has so many places to purchase food.

The apple is second only to the banana as the world's most popular and best loved fruit. When the juice is squeezed from this high ranking member of the rose family, tannins in the fruit oxidize and the juice becomes dark and somewhat opaque. The rest of the world simply calls it apple juice. In the U.S. we call it sweet cider.

When encouraged through carefully controlled fermentation, the sugar in this juice or sweet cider is converted into alcohol. Around the world the now alcohol-laced juice is called cider. In America we call it hard cider.

Unpasteurized, preservative-free sweet cider is a wonderful, refreshing drink that equals the world's best non-alcoholic beverages in aroma, taste, and diversity. Next to a glass of pure, spring fed well water it is the finest thirst quencher on the planet. When this fresh juice is properly fermented, the modest amount of alcohol created adds a complexity of additional qualities that can further stimulate the most discriminating palate. When properly made, both drinks encourage quaffing as part of the enjoyment.

Friends tell me that once they started drinking a well-made sweet cider, it required all the discipline they could muster to stop. However, when the juice is carelessly

mixed, without concern for the differing characteristics of the apple varieties used, fermented without proper control, even sipping can be difficult. High quality, sweet or hard cider both require a balance of sweetness, tartness, aroma, and astringency to make a really good drink.

Unfortunately, much of the sweet cider on the market is provided by high-volume producers who buy cider grade apples in bulk. They then press and blend the juices without regard for balance, then they heat-pasteurize it and sometimes add preservatives to increase shelf life.

Commercial hard ciders offer a very different picture. They are all consistently well made, but most of them are similar in taste and quality. The most interesting and diverse commercial hard ciders, in my opinion, are made by small regional cideries and wineries. These smaller operations exist wherever apples are grown.

Most hard ciders are low octane with an alcohol content that ranges from about 2 or 6 percent, by volume. There are a few regional hard ciders, however, that sport an alcohol content of 11 percent, putting them on the fringe of being apple wines. All hard ciders, regardless of alcohol content, are not as filling as beer or ale, and they have a uniqueness of aroma, taste, and texture that can only be contributed by the almighty apple. With all of this in their favor, sadly both unpasteurized sweet and fermented hard cider have fallen into near anonymity over the past few decades. Sweet cider seemed to be holding its popularity until 1996, when a carelessly processed batch of unpasteurized apple juice was found to be the culprit in an *E. coli* outbreak. As a result of government overreaction to this unfortunate incident, all unpasteurized juices, including sweet cider, must sport an ugly warning label similar to the one found on cigarettes.

Faced with the possibility of expensive law suits and lost customers, many cider mills now subject their fresh cider to heat pasteurization. The process kills *E. coli* bacteria, but it also imparts a disagreeable cooked taste to this delicate beverage. Unfortunately, the endless varieties of denatured, boring foods and beverages that are stuffed onto the shelves and into the refrigerator and freezer cases of supermarkets have so circumscribed and redefined the tastes of many American shoppers that only a few seem to notice the change. Sweet cider has suffered the same fate as real sour cream, fresh butter, real buttermilk, and chickens that taste like...well, chicken. We seem to be so conditioned to accept appearance as a substitute for taste that many of us fail to notice many of the grim changes in the taste of the food that we buy and consume.

The good news is that, to date, there have been no *E. coli* infections associated with the brewing and the consumption of hard cider. Also, in 1978 former President Carter signed a bill that made the home brewing of wine and beer legal in the United States. This set the stage for the microbrew revolution of the 1980s, and it opened the door for the regeneration of both hard and sweet cider. It quickly became obvi-

ous to all that lovers of good food and drink were anxious for more variety and distinction in their wines and brews at an affordable price.

It seems that Americans are slowly but steadily redeveloping their taste for good cider. In 1990 cider consumption in the United States was down to a mere 271,000 gallons. By 1996 that figure had risen to 5.3 million gallons. Even the sale of unpasteurized sweet cider started to rise, in spite of the 1996 disaster.

In 1991 the *American Home Brewers Association* gave the cider revival a much needed shot in the arm when it gave formal recognition to home brewed hard cider. Local and national home brewing competitions now feature a category for hard ciders. It is too early to feel comfortable that this grass roots revival will continue. But I believe that if everyone knew how simple, inexpensive, and rewarding it is to make a high quality hard cider at home, the future of this very American craft would no longer be in doubt.

Origin of the apple

Apples as we know them are not indigenous to North America, but they have etched an important place in this country's history. In the limited space allowed, I am going to share with you some of this fascinating story. Also, I will give you an overview of the steps in fermenting hard cider. I will then suggest some interesting reading that will answer all of your technical questions about the details of the process. Perhaps you will also find the story of the rise, fall, and rebirth of hard cider in America and Europe interesting. I may even convince you that hard cider is a drink worth sampling, or even making a few gallons for yourself. Please know that like beer, ale, and wine, hard cider is fun to make, but compared to those others it is a lot less tedious.

In the recipe section I have included some interesting recipes that use fresh apples, French apple brandy, and apple cider as flavor and texture enhancers. My family and I experienced six months of apple ecstasy preparing and enjoying a variety of apple appetizers, beverages, entrees, and desserts. We visited over 30 apple orchards in New England and tasted fresh cider from the 12 orchards that produce their own. Also, my wife and I sampled and cooked with some of the popular commercial hard ciders from local cideries and worldwide manufacturers. I wish that I could include all of the recipes and share comments on all of the sweet and hard ciders. Perhaps at another time.

Cider

Who discovered cider or where in the world it was first made is not known. This is probably due to the longtime widespread distribution of apples throughout the earth's temperate zones. The apple, like most members of the rose family, is a hearty plant capable of thriving in a wide range of climate conditions. Paleolithic cave art dating between 35,000 and 8,000 BC clearly depict apples, and history indi-

cates that wherever the apple grows, cider is part of the gastronomical culture.

As the Romans were conquering northwestern Europe and Britain in 55 BC, Julius Caesar's soldiers recorded inhabitants of these areas were fermenting native crab apples into alcoholic beverages. The Romans brought with them a wealth of horticultural knowledge, along with several cultivated varieties of apples. Many of their orcharding techniques, like grafting and pruning, are still used today.

By the fourth century AD the Romans were also fermenting the juice of pears into a type of cider called perry. They had propagated over 30 varieties of pears and about 24 varieties of apples.

After the collapse of the Roman Empire in the fifth century AD, the Dark Ages followed. During this period the development of horticultural arts almost came to a complete standstill in western Europe. Fortunately the skills of fruit growing were preserved and enhanced by Islamic Moors in Spain and Christian monastic orders in other areas. During this period some of the classic high tannin apple varieties that today are used to make some of the richest and most distinctive ciders in the world were developed and introduced.

In spite of this substantial jump-start, cider drinking in northwestern Europe was slow rising to popularity. Before the 12th century cider remained a secondary drink to beer, ale, and other beverages brewed from grains and herbs. During the early 14th century, before the Hundred Years War between England and France, cider was gaining as much popularity in places like Normandy and Paris as beer and wine. The war slowed cider's growth in popularity in France as a result of heavy taxation, but rebounded again in the 16th and 17th centuries.

The dissolution of the Roman Empire had almost the same effect on the progression of apple culture and cider making in England as it did in others parts of Europe. This decline was reversed by the Norman Conquest in 1066. The Normans introduced many cultivated cider apple varieties, which quickly elevated cider to a favored drink second only to ale and beer. The introduction of hops to the brewing process early in the 16th century substantially improved the flavor and keeping qualities of ale. As a result cider lost some of its popularity. However, this dip was short-lived due to the introduction of some apple varieties from France that greatly improved the quality and scope of English cider.

During the 17th century technological advances led to further improving the taste and keep qualities of English cider. The introduction of strong coke-fired bottles dramatically improved cider's storage time. Before this innovation English cider was stored in wooden barrels and drawn off as needed. The problem with this barrel method of storage was the exposure of the cider to spoiling aerobic organisms as the cider was drawn off and air introduced into the barrel.

Cider also got a big boost in England when the burnable wood suddenly fell into short supply. Malting barley and boiling the wort, two essential steps in the beer making process, require heat and some type of heat producing fuel. Heat is not required when brewing cider.

The cider revival, in England, remained strong until the middle of the 18th century when the Industrial Revolution caused a massive movement of people from farms to the cities. Since the best cider was produced largely by this declining rural farming community, the quality and volume of English cider began to decline. To make matters worse, shady cider merchants started buying large quantities of unfermented cider and watering it down or adding water to the pumace (pulp left over after the first pressing) to produce a cheap and nearly unpalatable hard cider. Once again British ale was viewed by many to be a more healthful drink than most ciders and cider, unfortunately, quickly became a common beverage of the urban lower classes who simply considered it as a cheap way of getting drunk.

In the late 19th century, small regional cider making gave way to a centralized industrial system of production. These cider factories immediately started improving the quality of English cider. Today one factory, founded in 1887, H.P. Bulmer, Ltd. is the largest cider maker in the world.

Apples in America

The Pilgrims packed apple seeds and cuttings for their trip to the shores of the New World and wasted little time planting them when they arrived. They understood that foods and beverages made with apples could add a little zest and enjoyment to the arduous task of settling in this new and untamed world.

Fortunately, New England had a perfect climate and soil for growing apples, and it wasn't long before abundant apple harvests were common. In 1623 William Blaxton, a dissident Church of England clergyman, planted America's first cultivated apple trees on the Shawmut Peninsula in Massachusetts, which was later to become Boston. This first apple variety was named Blaxton's Yellow Sweeting. Another early variety accredited to him is the Roxbury Russet. This legendary fruit has become one of the world's most celebrated apples for eating out of hand and making cider. It is still being grown today in many parts of this country and in other apple growing regions around the world.

Apple trees, it was discovered, could be grown almost everywhere in America. These early settlers eventually planted apples from the New England Colonies to northern Georgia. Before the Civil War a Pennsylvania orchardist named John Chapman set out on a mission from his frontier nursery in the Susquehanna valley of Pennsylvania to see that every farm in the midwest had an apple orchard. He traveled as far as Indiana and Ohio with a sack of apple seeds on his shoulder, preaching and planting apple seeds.

He soon became an American folk hero and given the nickname Johnny Appleseed.

The immediate success of apple trees made it possible for early settlers to put to good use their long history of processing a variety of high quality hard and sweet ciders. They quickly made cider a common beverage to be consumed by all and, because the settlers often found the local water undrinkable and frequently polluted near large settlements, they drank cider for reasons other than enjoyment. Otherwise, without potable water, there was only milk and alcoholic beverages to drink.

Importing other traditional beverages like ale or wine from Europe was prohibitive due to the high cost of and unreliability of shipping methods, so hard cider quickly became a national beverage. By 1726 it is recorded that folks in Massachusetts were annually consuming cider at an amazing 35 gallons per capita.

Cider often played an integral part in early American politics. George Washington, during his run for the Virginia legislature in 1758, had one of his agents pass out over three gallons of beer, cider, rum, or wine to every voter. During the presidential campaign of 1840, William H. Harrison and his running mate, John Tyler, played to anti-immigrant sentiments by using symbols of the log cabin and a cider barrel to represent traditional values. Full barrels of cider were present at all Whig rallies. It is hard to say if cider helped to swing the election, but the Whigs won the election over the Democrats by a 174 electoral vote margin.

Unfortunately, as the 19th century progressed, cider's influence in American culture started to fade. Several unrelated forces contributed to this decline. After the Civil War the steady migration of workers to the cities and promised riches in the west left many established orchards abandoned. These small self-reliant farms represented the core of American apple growing and cider making. Their cider, which was unfiltered and unpasteurized did not travel well and was left behind. Also, a steady stream of immigrants from northern Europe sparked the development of many new breweries, which in turn increased the consumption of beer, especially in the cities.

In spite of all this, planting of apple orchards in the East continued, but damage to the trees caused by insects and disease also was on the rise. By the 1880s many farmers became discouraged and started cutting their orchards.

The fatal blow to hard cider in America was delivered by the rise of the Temperance movement. These folks considered cider to be little better than demon hard liquors. Cider makers contributed to this belief by adding additional sugar to the cider, during fermentation, to increase the alcohol content. Some even added cheap rum to their cider to increase the octane and give their cider more of a kick. Hard cider reached its lowest point when unscrupulous manufacturers started making it out of anything that would ferment and flavoring it with small amounts of apple juice. The

Temperance movement also found many farmers sympathetic to their cause. These farmers swore off alcohol and cut down their orchards. Others simply started pasteurizing their apple squeezings and marketing it as "sweet cider." If all of this wasn't enough, the unusually cold winter of 1917-1918 wiped out many orchards in the northeast. When Prohibition was enacted in 1919, hard cider production in this country was at a mere 13 million gallons, down from a high of 55 million gallons produced in 1889.

The first time I tasted home brewed hard cider was on a fall surf fishing trip with my friend Howard and a few other friends, on Cape Cod's Race Point beach. These guys were all part-time market fishermen and Howard was also a roving per diem chef who worked in several Cape Cod restaurants. We were sitting around Howard's portable Brinkman smoker, waiting for the tide to change, and for some of Howard's special Jamaican beef patties to finish cooking.

"Tonight," he announced, "I'm going to offer you guys a special treat. I have been saving a few bottles of my best home brewed hard cider. I even cut back on the chili peppers in the beef patties, so as not to overpower the subtle flavor of this wonderful drink."

In my innocence, the only association to hard cider I could make was Boons Farm and Thunderbird, two very nasty drinks that claim to be apple based. From the unpleasant look on my face, Howard knew I didn't have a clue about what he was offering us. So, without saying another word, he turned around and headed toward his beach buggy.

"I'll be right back," he said, shaking his head, and when he returned he had what appeared to be three bottles of Champagne.

He popped the cork and handed me the bottle.

"Get a clean cup and try some of this, it's real apple cider. A good tasting drink, low in alcohol and high on flavor and body just like a good German lager, but not nearly as filling. Plus, you don't have to be a chemist to make the stuff."

That was my first clue he had made it.

Well, after just one glass I wasn't really impressed.

Recognizing this, Howard said, "Remember guy, this isn't beer, ale, or some new type of wine; this is apple cider. To appreciate it you must think apple, not grape, barley, or hop."

To spite the convoluted nature of Howard's counsel, I tried another glass, focusing on what I was experiencing, rather on what I expected. What I discovered was a lightly effervescent drink with a somewhat dry tartness and a pleasant apple flavor and aroma. I was hooked.

Making hard cider

Just how complicated is it to make a batch of hard cider at home? What follows is a basic formula for fermenting a batch of sweet cider into a natural hard cider. This is the traditional no frills uncarbonated farmhouse cider that has been popular in New England and elsewhere since the 17th

century. The only difference is the addition of a commercial yeast to insure a quick start of fermentation. It is also possible to rely on the natural yeasts in the sweet cider for fermentation, but for the first batch, many experts recommend a reliable commercial yeast available in all brewing supply stores.

Before you run out to buy that sweet cider, you will need some basic brewing equipment, all of which is available at a beer and wine supply house in your area at a reasonable price.

Here is a list of basic equipment just to give you an idea of what it takes to get started. It isn't really necessary to make a list of this hardware. Just call your local beer and winemaking supply store and tell them what it is that you want to do and for less than 60 dollars they will sell you everything you need to get started.

1. For my first batch, I used **two one-gallon glass wine jugs**. I found them in recycling bins in my neighborhood. I figured that if the batch failed only two gallons of cider would be wasted and with two small jugs the operation required a minimum amount of space. Of course, many cider recipes are formulated to brew a five-gallon batch. If you do the small amount of homework that I suggest at the end of this column, successfully fermenting a five-gallon batch, without error, will be no problem. So, consider buying or acquiring two five-gallon glass carboys. You will use one for the primary fermentation and the other for the secondary fermentation.

2. **Fermentation locks**. At least four. The basic plastic types cost less than a dollar each and they work well. This essential piece of equipment prevents air from carrying contaminants into the fermenting jug and spoiling your cider.

3. **Four bored rubber stoppers**. These hold the fermentation lock in place and fit snugly into the mouth of the fermentation jug to form a tight seal. For gallon jugs a #5½ or #6 is required. Just to be sure that you get the proper fit, bring a jug to the store.

4. **A wine and beer hydrometer with test jar**. This is a simple tool to use and it comes with complete instructions.

5. A good **food thermometer**. All of us that cook should have one of these. If you don't, I suggest that you buy one for general use in the kitchen.

6. **A two-cup Pyrex measuring cup, a full set of plastic measuring cups, and a set of stainless steel measuring spoons**.

7. **A siphoning and bottling kit**. You can buy the components of this kit separately if you choose. When you buy the kit it contains a 5½-gallon heavy-gauge plastic bucket with lid, fermentation lock, bottom draw spigot, and about six feet of ¾-inch (inside diameter) bottle filling hose with tube and shut off valve.

8. **Two packets of a sanitize with the trade name "B. Bright."** When brewing any beverage good sanitation is

essential. B. Bright kills bacteria on contact, saving you a great deal of time.

9. **Beer bottles**. You can use 16 or 12-ounce sizes. Just make sure that they are not damaged and do not have the screw-off type necks.

10. **Carboy brush and a bottle brush**.

11. **Bottle capper and four dozen new crimp on-caps**. These neat tools are available at your local beer and wine supply, in several styles, at an affordable price.

There is lots of bell and whistle stuff that you can add to this basic list. But if you are a curious hobbyist like me, trying something new, the basic stuff is all you need to get started. If you enjoy the experience, and decide to further perfect the craft, you can indulge yourself in more of these craftsman-like tools.

Making hard cider is essentially a simple and straightforward process. However, books on the subject often discourage first-timers because of the numerous variables in the process. Don't let this happen to you. Consider that the ancient Celts and others were making hard cider over 2,000 years ago without knowledge of these seemingly complicated variables.

The reading that I suggest at end of this section takes a relaxed and easy to understand approach to cider making. All of the vital technical stuff is spread over a mere 50 pages and is written with the new cider maker in mind. Also, in the same space, the author jump starts you to an advanced level.

To give you an example of cider making simplicity, I am going to describe how simple a basic batch of hard cider can be made. Remember, a successful batch of cider, just like beer or wine, requires a clean and sanitized environment.

First you must find a source of unpasteurized sweet cider. This may be the most difficult step in the whole process. Unless you're making it in the one-gallon jugs, buy enough sweet cider to fill a five-gallon glass carboy or brew bucket with 4½ gallons. Also, have an additional couple of gallons to top off the cider as it ferments. This reserve cider can be frozen for at least three months without losing any flavor or character.

Mix a rounded cup of cane sugar into the cider. (Use ¼ cup for one gallon.) This will raise the alcohol level of the finished cider making it more stable. Add a packet of ale yeast that has been previously mixed in a starter solution. (Making the starter solution will be explained on the yeast package.) I suggest ale yeast for your first time because it works quickly. Lightly cover the neck of the carboy or the hole in the top of the brew bucket with plastic wrap. Set the whole thing in an area of the house that will maintain a fairly constant temperature between 55 and 65 degrees.

It's now time to hurry up and wait. In about a week, or sooner, the cider will start fermenting. Remove the wrap and allow the ugly sludge that is oozing from the hole to escape freely. This is simply the cider cleansing itself. Be

sure to wipe the outside of the container daily. This purging, or primary fermentation will continue for a few weeks, and then subside. When things calm down, clean the outside of the container and fit a fermentation lock in place.

This is the really tough part. Try to forget about your cider for about three months. It will take at least that long for the primary ferment to slow down and the cider to start clearing. At this point you will notice a layer of sediment on the bottom of the container. Cider makers call this the lees. The clearing cider should be separated from the lees by using the syphoning kit to transfer it to another clean and sanitized carboy or brew bucket and fitting the new container with another fermentation lock.

During the next eight weeks the cider will go through a secondary fermentation. It will continue to clear and the taste will start to mellow. Finally, the clear and smooth tasting cider will be ready for bottling and tasting. There are more details about each step that you should be aware of, but for the most part, that's the entire process. To help you with these details, Paul Correnty, one of New England's most knowledgeable cider masters has written a very informative, entertaining, and easy to read book titled The Art of Cidermaking. It is published by Brewers Publications Inc. of Boulder Co., ISBN 0-937381-42-X

The easiest and least expensive way to become acquainted with hard cider is to go to your local liquor store and ask where they stock the hard ciders. There you will find some of the most popular nationally distributed brands sold in six packs. Brands like Cider Jack, Hard Core, and Woodchuck all offer several varieties.

Cooking with cider

Cooking with apples, apple cider, and Calvados (a French brandy distilled from hard cider) has opened some new culinary doors for me. The flavor and texture of apple can complement almost any type of meat or seafood without overpowering it, and also complement other flavor enhancers without losing its own character.

A cup of hard cider or a few tablespoons of Calvados can make even the most pedestrian dishes exciting. After a series of long debates with my resident recipe review committee, chaired by my daughter Sarah, with, my sons Jason and Michael occupying the other two seats, the following recipes were selected from 25 worthy recipes for inclusion in this column. Each recipe is one of my standard formulas that has been modified a little to feature apple and apple flavors.

My wife, Tricia, is the inspiration behind these two recipes. She grew up in a home that celebrated the arrival of the fall season with a host of apple entrées, mixed apple salads, and some wonderful apple desserts. Her mother's apple pie is my all-time favorite dessert. I hope that you have as much fun with these recipes as I did. The formulas are almost as new to me as they will be to you. If your taste

calls for the inclusion of a new ingredient or the omission of another, feel free and confident to make the change. If you feel that you have improved the recipe, please write and let me know.

Quality note: Both of the following recipes use Calvados apple brandy as a key flavor enhancer. Calvados is to my knowledge the finest apple brandy in the world. It has a flavor and aroma that has no equal for culinary use. Other apple brandies and Apple Jack are not a fair substitute for this marvelous brandy. It is a bit pricey though, about 25 dollars a bottle. If you can hold back the temptation to serve it as an after-dinner cordial it will last a long time. Once you experience the wonderful flavor enhancing qualities of Calvados, I am confident that you will find the initial investment practical.

Apple and chicken bake

I designed the original version of this recipe for a friend at a time when I was leaving my house at six in the morning and not returning home until ten at night. For me, breaking the recipe into segments was a necessity. Assembling the casserole and refrigerating it overnight allows the subtle apple flavors in the casserole to develop to their full extent.

At first glance this recipe seems busy and time consuming. I am sure that it would be if it were prepared all in the same day. The recipe can be separated into three stages, which can be performed on different days. The marinade should be assembled first and the chicken allowed to marinate overnight. The chicken can then be braised the next day and held in the refrigerator until the third day. Remove the casserole from the refrigerator, place it in a 300 degree oven and heat it to an internal temperature of 160 degrees. This will take about 45 minutes. Add the garnish as described in step 9 and serve.

Marinade Ingredients:

4 cloves fresh garlic, minced
1 Tbsp. fresh ginger, minced
2 Tbsp. Calvados
¼ cup dry hard cider
2 Tbsp. apple cider vinegar
2 tsp. Worcestershire sauce
3 Tbsp. peanut oil
¼ tsp. fresh ground nutmeg
1 tsp. fresh ground black pepper
1 tsp. Kosher salt
⅛ tsp. cayenne pepper
12 skinless chicken thighs

For browning:

½ cup peanut oil

Braising Ingredients:

6 Tbsp. peanut oil
2 cups onion, diced medium
½ cup celery, diced medium
1 large red bell pepper, diced medium
1 lb. Braeburn, Gravenstein, Rome or other firm fleshed apples, peeled, cored, and diced medium
4 cloves fresh garlic, minced
1 tsp. ground coriander
1 tsp. ground cumin
½ tsp. ground fennel
½ tsp. ground turmeric
1½ tsp. ground mace
1 whole cinnamon stick
1 tsp. dried oregano
fresh ground black pepper to taste
Kosher salt to taste
2 14½-ounce cans of diced tomatoes, drained
2 Tbsp. Calvados
1 12 ounce bottle of hard cider

Garnish:

½ cup slivered blanched almonds, toasted
⅓ cup raisins
⅛ cup fresh cilantro leaves, tightly packed

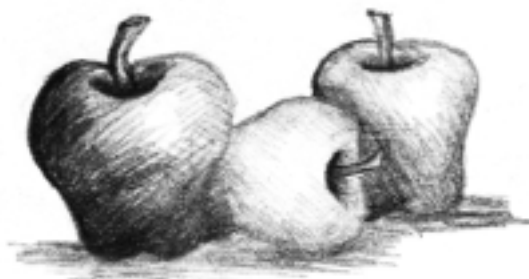
Method:

1. Combine the marinade ingredients in a nonreactive (glass, plastic, or stainless steel) bowl. Place the chicken in the marinade, tightly cover the bowl with plastic wrap and place it in the refrigerator. After the first couple of hours, turn the chicken to insure an even distribution of the marinade.

2. Remove the chicken from the marinade. Wipe off all excess marinade and discard the marinade. Heat the ½ cup of oil in a large heavy-bottom fry pan over medium-high heat. Brown the chicken on both sides. Do not crowd the chicken in the pan. Divide the chicken into two or three batches if necessary. After browning, place the chicken in a large 2-inch deep oven casserole. Discard any remaining oil.

3. For the braising, heat 2 tablespoons of oil in the same pan over medium heat, add the onions, reduce the heat and sauté the onions until they are a golden brown. Do not walk away during this process. The onions should be stirred frequently. If the pan seems dry, add 1 tablespoon of water. This step will take about 15 minutes. Remove the onions from the pan and set them aside.

6. Heat the remaining 4 tablespoons of oil in the same pan, over medium heat. Add the celery and red pepper and sauté for about 3 minutes. Add the apples and continue to cook the mixture until the celery becomes tender. Add the



garlic, coriander, cumin, fennel, turmeric, mace, cinnamon stick, and oregano. Continue to sauté the mixture for another minute.

7. Reduce the heat a little and add the pepper, salt, tomatoes, Calvados, hard cider, and the browned onions. Bring the mixture to a slow boil and cook, stirring frequently for five minutes.

8. Spoon the mixture over the chicken in a casserole, cover tightly, and place the casserole into a pre-heated 325 degree oven. Cook for one hour or until the chicken and the vegetable mixture are tender.

9. Remove casserole from the oven, evenly sprinkle the almonds, raisins, and cilantro on top. Place the casserole back in the oven, without the lid, for additional 10 minutes.

Serve with Basmati, Jasmine, or other aromatic rice.

Apple barbecue sauce

Country style pork spare ribs and beef short ribs are flavorful cuts of meat, but I often find both cuts too tough and fatty to barbecue. I have tried braising them in a variety of sauces with okay—but not exciting—results. Then, one afternoon, a few weeks ago, Tricia came home with five pounds of these meaty, but chewy, country style pork ribs. I started groaning and asked “How are we going to cook these things?”

“Well,” she said, “I thought that since we were working on so many new apple recipes, we could try to create a new apple-based sauce to cook these in.”

“What kind of sauce?” I asked.

She smiled and replied. “Remember what your mom often said. ‘Take a little of this, and a little of that, mix it all together and see what you get?’”

We both laughed.

After poking around our refrigerator and storage cabinets for a few minutes, we assembled a list of possible ingredients for an as yet unidentified sauce. We spent the next two hours assembling ‘a little of this and a little of that,’ having more fun in the kitchen than two adults are supposed to have. The following recipe is the surprise result of this afternoon of frolic.

This is a lively tasting barbecue sauce that gets most of its flavor from apples and is not as tomatoey as many traditional sauces. It is not difficult to make and keeps well in the refrigerator. It is great with, beef, pork, chicken, and grilled fish. My son, Jason, even likes it on his French fries.

Ingredients:

6 Tbsp. vegetable oil
2 cups onions, chopped fine
1 cup celery, chopped fine
3 Tbsp. fresh ginger, chopped fine
4 cloves fresh garlic, chopped fine
1 lb. Macintosh or Granny Smith apples, peeled, cored, and chopped
2 tsp. chili powder (Spice Islands preferred)
2 Tbsp. dried mustard (Coleman's is best)
2 tsp. dried thyme
½ tsp. dried oregano
⅓ cup cider vinegar
¼ cup molasses
4 cups homemade beef stock (You can substitute commercial beef stock, but the consistency of the final product isn't as good because commercial beef stock has no collagen.)
1½ cups chili sauce
⅓ cup tomato paste
1 tsp. Kosher salt
2 tsp. fresh ground black pepper
½ cup Worcestershire sauce
1 cup hard cider
⅓ cup Calvados
2 bay leaves

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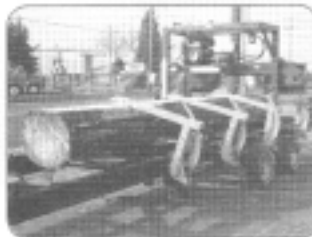
1. Heat the six tablespoons of oil over medium-high heat in a large, heavy-bottom fry pan. Add the onions, celery, ginger, garlic and apples. Sauté this mixture until the vegetables become tender and the apples become soft and start to break up. Remove the pan from the heat and set it aside allowing the mixture to cool.

2. Combine the remaining ingredients in a large sauce pot and bring the mixture to a slow simmer



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over medium heat. Continue simmering until the volume of the sauce is reduced about one quarter.

3. While the sauce is simmering, puree the apple and vegetable mixture in a food processor or blender. Add this puree to the reduced sauce. Return the sauce to a slow simmer and continue cooking until the sauce is thick, but can still be poured. If it seems to be too thick, thin it with a little hard cider.

That is all there is to making a barbecue sauce that will convince you to never again buy a commercial sauce. Δ

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get out of stay out of **DEBT**

By Darlene Campbell

Decades ago it was advised of young high school graduates to deposit a set amount of money into the bank each month, and when they retired they would be millionaires. Unfortunately, that philosophy fell by the wayside after World War II. Today it is not unusual for young graduates to receive credit card applications by mail starting them on the road to indebtedness, not the road to wealth.

If you are in debt now, you should be working to clear all indebtedness during the next year. We did it, and you can, too. We paid off credit card debt and doctor bills. We paid off the car and made double payments on the mortgage principle of our home with the intent of paying that off, too. But as the future began to look uncertain, we changed plans and sold our mortgaged home and obtained enough money from the equity to pay cash for a smaller home. Both my husband and I have even quit our jobs since having no debt means we need less income. We are not old enough for retirement and do not collect disability, retirement income, or welfare. Instead we have simply freed ourselves of debt and can now pursue other interests and earn sufficient money doing practically nothing.

We have enough money to eat, pay utilities, and put gas in two vehicles. I freeze a lot of food, and what we do not grow we purchase on sale. Most of our income comes from selling at flea markets and over the Internet.

Knowing how much you owe and how much you earn is not going to get you out of debt. You must learn to do

with less, stop buying on credit, downsize what you already own, and eventually you will be debt free. Sounds easy enough, but most people find this is the most difficult part of getting out of debt. They don't want to stop spending. Most people struggle to have more, not less.

Where do you spend?

It is necessary to organize your financial records, then develop a plan for paying off creditors. Gather the following records: your most recent pay stub, most recent bank statement, your checkbook, and all current credit card bills, medical bills, utility bills, insurance premiums, children's allowance, pet care, installment loans, newspaper subscription, cable TV, transportation, etc.

With these items in front of you, enter your income on the top line of a sheet of paper. This is your worksheet. List every known monthly expense, from the kids' allowance to the mortgage payment, and add it up with a calculator. When you finish you will see how much you earn and where the bulk of your money is spent. On the same worksheet, list out-of-pocket or miscellaneous expenses—all those little expenses down to the smallest item

such as a coffee break, hamburger, purchase of a key ring, or cigarette lighter. Pay close attention to these small expenditures because they add up to a significant sum on a monthly basis, and are almost always wasteful.

If you spend a lot unnecessarily, or are an impulse buyer, you probably



Here John is going over a worksheet to establish priorities and set deadlines.

can't come up with a figure for miscellaneous out-of-pocket expenses. In order to find out what you are spending unnecessarily, begin a journal of where your pocket money goes. When you have to take time to record each purchase, you will become less impulsive. Carry a small, inexpensive pocket notebook and list your spending as it occurs so you won't forget. If you are shopping at a mall and stop for lunch, enter everything you purchased while you are eating, including your meal. If you buy a magazine, make the entry in your journal when you get back into your car. Another way to

keep track of such expenditures is to save the cash register receipts and enter them all into the journal at the end of the day. Maintain this journal for one week, then multiply the sum total by four to find the amount spent in one month. If you doubt this total, continue the journal for the entire month. Enter this amount on the sheet of paper with your other expenses. Call this your out-of-pocket or miscellaneous expenses.

Categorize your monthly expenses by listing similar expenses in the same category on the worksheet. You may want to list monthly living expenses such as mortgage or rent, utilities, and gasoline separate from irregular expenses incurred on an annual or semiannual basis like insurance, taxes, and auto licenses. There are flexible expenses that are necessary but can be reduced, like food and clothing, over the counter drugs, toiletries, and out of pocket expense. Finally, there are questionable expenses that are wasteful and can be easily eliminated.

Now you can work on eliminating those expenses that are unnecessary. Can you reduce the number of trips to the hairdresser? I have cut my husband's hair for the last 35 years, and we save a bundle.

No more credit card

If you are charging \$100 a month on credit cards, you must cut back at least \$100 a month. By cutting back \$100 a month you can quit using your credit card which is the beginning of paying it off. Take time to read your monthly credit card statement; it can be very enlightening. What interest do you pay? How is it figured? Is it two cycle billing? Most major department stores charge in the range of 20-21% interest, while bank credit cards charge from 5-9% as an attractive come-on, then raise the rate in six months to around 17%.

To be credit card free, take the total you owe on credit cards and divide it by the number of months in which you wish to be debt free. The answer is the

amount of cash you must pay every month, plus a little more to cover interest, to free yourself of that debt within the desired time. Paying on several cards each month means you are paying interest to multiple creditors. If a new credit card offers a low interest rate to entice you to pay off your other cards, take advantage of it, but plan to pay off this new card at the introductory low interest rate before the new, higher rate comes into effect.

Pay the most you can possibly afford and think how you are paying so much a month for goods or services that you purchased a year ago and may no longer use. If you had the extra cash each month you would feel so free. You must be strict with yourself and make the commitment to pay off the debt within a specified time. It means you will now buy less, make do, and recycle everything possible to come up with the monthly payment. Your reward is watching the balance drop rapidly.

But this only works if you stop using the card! The best way to do this is to put it in a safe place where you are not tempted to use it. Do not carry a credit card on your person. After you pay off the card, notify your creditor that you are destroying the card and want to cancel your account. This way you will not be subject to annual fees later, or tempted into using it.

When you have consolidated all your credit card debt into one card with a lower interest rate, you will probably wonder how you are going to meet such a large payment each month until it is paid off. It scared me, too. We consolidated our two cards into one four-digit debt. With only six months before the low introductory rate changed to a much higher rate, we divided the six into the total and came up with \$350 a month. Our payment was high, but we persevered until it was paid off.

Found money

Finding \$350 a month was rough. It's more than some people pay in

mortgage payments. We made the payment every month and cut expenses everywhere else by pulling in our belts for a few months. I relied heavily on "found money," small amounts of money that I managed to save or set aside.

Begin saving all your loose change. John taught me this years ago by doing it diligently himself from the beginning of our marriage. I never did it until we had to have the extra \$350 a month. I put pennies in a tall bottle, nickels and dimes in a cream pitcher, and quarters in a face cream jar hidden out of sight. I discovered the bottle holds over \$10 in pennies, the face cream jar holds \$20 in quarters, and the cream pitcher holds \$30 in nickels and dimes. Get yourself some free coin rolls at the local bank. Put the paper rolls in a security box, and once every two or three months roll all your coins, or as many as you need to free space in the containers, and place the rolled coins in the security box.

You must work to make your found money grow, so every time you come home from shopping, separate the coins. When you pay for an item, use only bills to make sure you are given change in return which you can save. If you feel a little rich, buy some coins; ask the cashier to give you a dollar or two in quarters. You will be amazed at how you never miss this change, yet it seems to grow by the month. If you are diligent, you should be able to save several hundred dollars a year in this manner, which you keep in the security box for emergencies or deposit in a special account.

You can gain found money in your checking account by rounding up the checks you write to the nearest dollar in the check register. You don't want to lose track of the actual amount of the check so write this amount in parenthesis next to it. This not only makes your check book easy to figure, it always leaves a little extra in reserve.

Another method of having found money in the checking account is to

draw a line across the page after you balance your account. The next deposit becomes the new balance and checks are written only on that balance. If there is a balance in the account at the end of the month, that too gets a line drawn under it to signify that you are beginning a new cycle and will write checks only on the next deposit. Each month leaves a little more in reserve; it might be only 89 cents, or it might be \$12.89. This amount becomes hidden and is seen only when the monthly bank statement arrives. Check your statement balance against your cycle balance and the difference is found money in your account. It will add up to a considerable sum if untouched. It will also help prevent you from overdrawing, which can be very costly.

Found money also includes the coupons you clip from newspapers and use as cash at the supermarket. Get them organized and use them. Some stores will double the face value of the coupon up to a certain amount, so if you happen to find the item on sale and use a coupon to purchase it, you may get the item free.

It's a good idea to get your family around the table and talk about cutting expenses. Each family member will be affected differently by financial downsizing. Younger children won't understand, so it's best to explain to them in simple terms to prevent any anxieties.

Older children may act reluctant as they are worried about what their peers will say. Ask their advice along the way and make suggestions for their help like taking on a part-time job after school. This could free up some allowance money. Most older children want to take responsibility for their own spending, so you may inform them that the money they earn should be used wisely such as paying for their school lunches, their clothes and activities. They will appreciate being treated as an adult in this matter.

Establish some goals

As you list your expenses on the worksheet, set up a column with a date you expect to pay off each debt. You should have short-term and long-term goals. Short-term goals could be paying off doctor bills, credit cards, and loans. Long-term could be paying off the automobile and the mortgage. Your short-term goals tell you which creditors will be paid off quickly. A good way to establish priorities among your creditors is to use the balance due each one as your guide. Make the smallest bill your main priority, and the largest bill your last priority. By this I mean to pay off the smallest debt first so that once it is paid off in its entirety you can apply the amount you would normally pay to it to the next priority on your list.

If your worksheet shows that you are spending more than you are receiving in income and there are a lot of creditors bothering you, don't be alarmed. Simply pick up the telephone and call those creditors and explain that you are working out a financial plan and will be making regular payments until each bill is paid in full. Creditors are very easy to work

with if you let them know that you are making an effort to pay them. Take, for example, doctor bills; if you talk to the bookkeeper or the person responsible for sending out the statements each month that you can afford only \$10 a month on a \$700 bill, it usually will be accepted. By law you cannot be taken to court if you are making an honest effort to pay the account, and make regular payments. Once you get some of the bills paid off you can increase your monthly payment to the doctor from \$10 to \$20, \$40, or more.

Keep the worksheet where you can refer to it often. Keep a copy of it wherever you sit to pay the bills. As you pay off a creditor in full, mark it on your worksheet. Now apply the amount you were paying to that creditor to the next priority on your worksheet. Just because you have a set amount due each month on a particular bill does not limit the amount you can pay on it. Once one bill is paid off in full, you will have that extra monthly cash to apply on other bills. Apply all of it to one bill to pay that debt faster; do not spread it around on all the bills. When the second debt is paid off, you now apply the combined amount of the previous two bills to the third bill, plus the normal payment to eliminate it quickly. If you have a date marked on the worksheet for paying off each creditor, you may find as you progress that you can beat those deadlines as you apply the additional cash to each one of them.

You should have a place where you can work undisturbed while figuring and paying bills each month. If you have a desk with a drawer that can be used for the purpose, very good, but if you only have the dining room table then get a cardboard box to set up a file system for maintaining records of each bill you pay, for saving pay check stubs, bank statements, income tax records.

While you struggle to pay off your debt and to live with less, consider ways to eliminate spending so you can live within your means. If you are



The author listing collectible toys for sale on the Internet.

accustomed to buying yourself and your children soft drinks every time you go to town, and each drink is in the neighborhood of a dollar, you can save those dollars by waiting until you get home and serving powdered drink mixes or canned juice. Buy packages of generic soft drinks and serve them chilled at home or make iced tea using loose tea leaves.

I take along a large thermos of lemonade when we take a trip to town. Often I sit with the children in the car at a shopping mall parking lot and eat sandwiches and cookies. Stopping for a hamburger is not on the agenda, and if we do stop for hamburgers at McDonalds it is for a special treat such as a birthday celebration. Consider taking along an ice chest packed with your meal, which will double as a container to carry home your perishable purchases which includes not only groceries, but animal vaccines that lose potency if not kept cool. Freeze bottles of water to keep it

cold, or recycle those ice packs that are packed with vaccines when you order by mail. Trips to the city are still all day adventures walking the malls and looking into store windows (window shopping is free).

Special accounts

Who ever said a person should have only one checking or savings account? If you are like me, this does not manage your money efficiently enough to have a sum set aside for land taxes, auto insurance, fill the propane tank, eye glasses, or school clothes. We always mean to set money aside, but somehow it gets spent, and when the time comes to pay for those expected needs, we just don't have the money unless we struggle and juggle the budget. What to do? Open a special account.

Special accounts can be either checking or savings. Locate an account that is free. That means free checks with no monthly service charge, or a savings account that does not charge a penalty for withdrawal or low balance. Some banks even pay interest on checking accounts these days, so shop around and ask questions. Make a few calls; you don't have to open the special account at your present bank.

Make regular deposits into this account, and never, never draw money out or write a check against the account unless it is for that special need. For example, suppose your land tax is \$400 a year

and you have opened the account to save for that need. Divide that amount by 12 months and you get \$33.33. If you deposit \$34 monthly into the special account, you never have to worry about where the money is coming from to pay your land tax.

You may not have an extra \$34 while trying to pay off your other debts. What do you do in that case? Discover some source of income that can be regularly deposited into the special account. Deposit the egg money, the income tax return, money made from baby-sitting, your saved change, money from the sale of livestock, hay, etc. Raise something special like rabbits. If the income is directed toward the special account, you will find that \$400 a year is easy to save, and you may even end up with closer to \$600, so that you can purchase something special or needful like a set of tires for the truck.

Do not underestimate a special account. It is the modern version of Grandma's sugar bowl savings, but less easily dipped into or spent unwisely since it requires a banking transaction.

The final leap. You've made it; you've finally paid off all your debts and now have freed up your cash. Where do you go from here. It's time to look at the long-term goals. Mortgages can be paid off rapidly if you pay an additional \$100 or \$200 a month on the principle. Be sure to note on your payment that it is to be credited toward the principle, or it may go into your escrow account. When we began making large principle payments we learned that an additional \$100 a month would shave off 120 months from the payoff date, and save us \$21,436 in interest. It was at this point that we made the decision not to pay off our mortgaged house, but to sell it and pay cash for a smaller one with the equity.

Whatever you do, don't get trapped into debt again. We got out from under those bills and you can too. Δ

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Do-it-Yourself Hydro Survey

Assess your site's potential for water-generated power

By Michael Hackleman

Does water flow across your land? Seasonally? Year-round? Right after a storm? How far does it drop in elevation across your land? How big is the flow? A big drop with a small flow, a small drop with a big flow, or, blessings from heaven, a big drop and a big flow—these sites are candidates for a hydro-electric system. And you can, inexpensively and with the help of a friend, find out if your site qualifies.

Water as energy

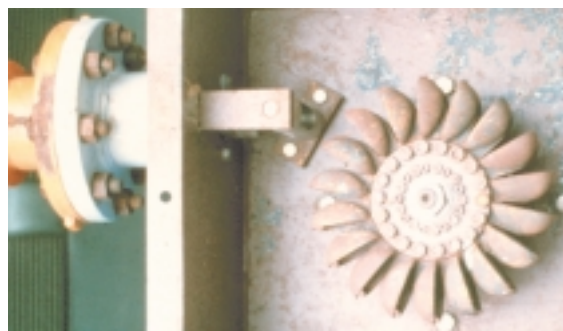
The beauty of free-flowing water is that it's a natural energy source. Even if you don't have a year-round stream, water energy could be available to you as a power source during the winter or rainy months. This is perfect for owner-builder systems that also use PV (solar-electric) modules since they partner each other through the year. When the sun wanes in the winter, the water flows. The bulk of energy production shifts easily from solar to hydroelectric in the winter and back to solar-electric in the summer.

A recent application for hydro-electric systems is in erosion control. Many counties have programs that



will help farmers, ranchers, and landowners mitigate erosion problems, particularly in watersheds and critical fish-spawning areas. As much as 50% of the costs incurred in applying one or more of several methods, i.e., rocks, gravel, stream diversion, and anti-erosion hardware on your land might be possible. A good design of hydro-electric system might qualify to handle this problem as a form of stream diversion. Most importantly, it does something constructively with the water's energy as it exits the system.

Up front, it's important to understand that the basic components of an independent energy system are more



similar than different. That is, hardware such as a battery bank, an inverter, and monitoring equipment are virtually the same in any system.

Better yet, these components may be shared by hardware that taps the energy of solar, wind, and water simultaneously. The output of PV modules, wind-electric machines, and hydro-turbines and their control boxes will interface without difficulty or interference with one another. With the right balance, a system which is able to take energy from two or more

(Left, counterclockwise) An over-shot-type waterwheel, a Banki-Mitchell turbine, and a Pelton wheel are popular choices for small-scale hydro systems.

(Right) The transit-pole method will find elevation changes.

sources (a hybrid) generally will prove less expensive than buying a standby generator with its attendant costs to run, repair, and maintain. This is a big plus.

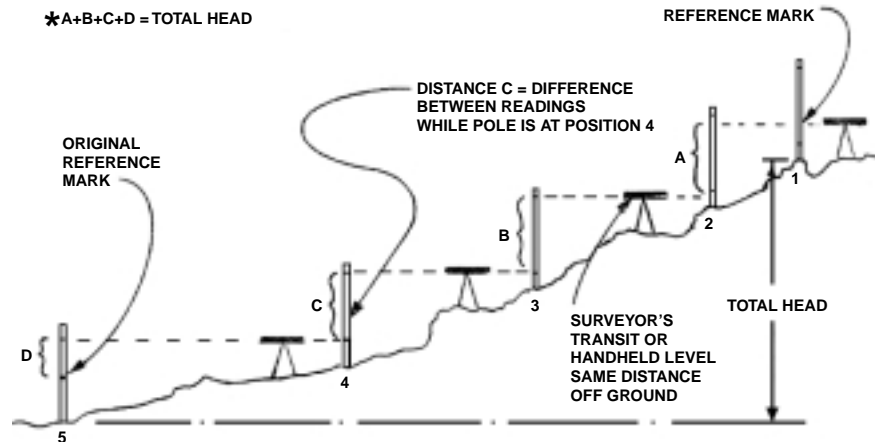
The physics of water

Water has weight. Basic physics says, if it falls or flows downward, gradually or quickly, water gains momentum and expends energy. If we direct some or all of the same water through a pipe and a hydro-electric unit, electricity can be generated from the water's energy. This does not involve building a dam and installing big machinery. The average small-scale, 500 to 1000-watt hydro-electric unit uses 2-inch plastic pipe from a convenient point upstream to bring water to the hydro-electric unit mounted downstream. In climates with few freezes or little snow, the pipe lies atop the ground and it's easy to drain the system during freezes, restarting it later.

How much power?

A small-scale, Pelton-type hydro-electric unit weighs less than 20 pounds with its control box. It packs a big punch, though. A wind-electric machine must have a propeller diameter of 10-15 feet to capture enough wind (moving air) to generate 1kw (one kilowatt, or 1000 watts) of energy. Water is 680 times denser than air. For this reason, a 1kw water-turbine has an impeller that may only be 3-6 inches in diameter and spins at high rpm.

Many sites will not have enough fall and flow to generate 1000 watts of power. No matter. Even if you only



net 50 watts of power from a hydro-electric system, it may be worth going after. Water power is generated through an entire 24-hour period. At a rate of only 50 watts, a microturbine will produce 1,200 watt-hours (1.2kWh) daily. This is equivalent to the output of four 50-watt solar modules exposed to six hours of sunshine.

There's a formula that will help you estimate what kind of power you might expect from water dropping a specific distance with a certain volume:

$$P = \frac{\text{head} \times \text{flow}}{9}$$

Where:

P = power in watts

Head = vertical feet between intake and outlet

Flow = water flow in gpm

9 = conversion factor

You have to plug in the numbers to get an answer but—you have to *know* the numbers first. How do you find the fall and flow of water over your land, particularly if steep terrain or brush exists? Let's start with head.

Know your head

Head is the measure of the difference between the highest and lowest points in a water system in feet. Head represents only the vertical (not horizontal) distance between these points.

To find the head, you must use one of a variety of techniques for finding changes in elevation.

Previously, I've used surveying equipment and even a homebuilt transit and pole to find elevation changes over the length of a streambed (see drawing). This time-honored method involves two pieces of equipment: a measuring pole (downstream) and a transit (upstream). The leveled transit is used to sight horizontally, spotting and recording the reading on the measuring pole. Subtracting the height of the transit, the resultant number represents the measured vertical distance between the two points. After the reading, the transit is moved to the pole's former location and the pole is moved downstream. This process is repeated for as long as it takes to cover the whole distance. Adding up the numbers gives you the total value of vertical drop, or head over the portion of the stream that is measured.

The newest method I've tried is the hose-and-gauge method. John Takes taught me the basics of this method, which involves a simple hydraulic trick to find the drop in elevation. Water standing in a vertical or angled pipe creates pressure at the lower end. The value of pressure is not related to the weight of the water or the pipe diameter. Instead, it is a measured 0.433 psi (pounds per square inch) for

each foot of vertical height of water in a tube or any container.

In the field, the rule is 2.3 vertical feet equals 1 psi. This is useful for calculations or when converting head into psi, or viceversa. Remember, it is only the vertical component of water in a pipe that creates pressure and produces a reading. It doesn't matter if the pipe is tilted, even at a 10°, 30°, or 60° angle.

So, if you install a pressure gauge at the end of a pipe that is filled with water and sloped down a hill, the pressure reading on it can be used to find the head. For example, suppose the pressure gauge reads 25 psi. Since 1 psi equals 2.3 feet of head, the reading of 25 psi demonstrates a head of 57.5 feet (25 psi x 2.3 ft/psi).

Now, let's substitute a garden hose for the pipe in our example. Install a pressure gauge at one end, fill the hose with water, and stretch it out over the ground with the open end up an incline. What's the pressure reading? Again, multiple the reading on the gauge by 2.3 ft/psi to find the head. This is the difference in vertical height between the top and bottom of water in the hose.

The trick in applying this knowledge as a method of surveying for hydro-electric potential is to take your readings over the length of the stream in discrete increments equal in length to the hose you use. When finished, the pressure readings may be added together and the total multiplied by 2.3 ft/psi to find the head.

Actually, you may take the readings along *any* path you choose between the intake (where the water is taken from the streambed) and the outlet, the site where the hydro-unit will generate the power and discharge the water from the system. That's because the hydraulic trick works regardless of the length of the hose you use, or the method you use to get down the hill. However directly or indirectly you conduct the survey, the psi read-

ings and calculated head will total to the same values.

Assemble the parts

The hose-and-gauge method of finding the head involves a length of hose, a pressure gauge, and miscellaneous hardware.

In practice, a 100-ft water hose is good for a stream with easy access and not much drop over the land. A 50-ft or 75-foot hose will work better through brush and steeper slopes. You'll want to take a pencil and notebook to build a table. For each increment, record the number of the reading and the reading itself. For example, the entry, 6-14.5, might signify the 6th reading is 14.5 psi.

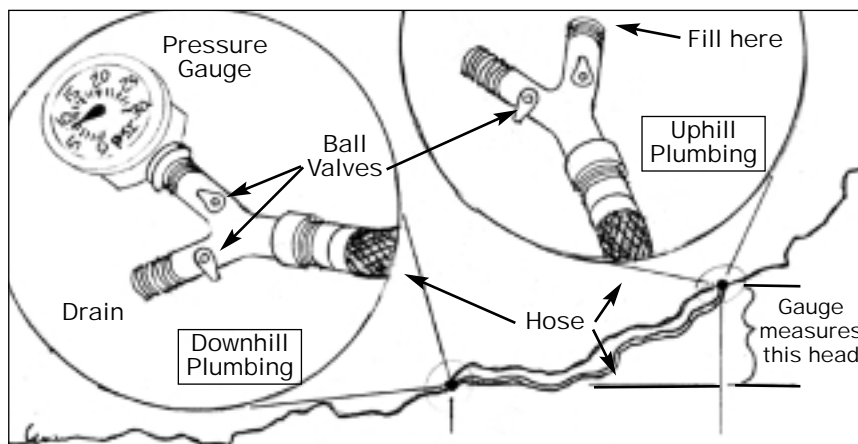
One additional benefit in the hose-and-gauge method of surveying is that it may provide you with another vital number: the length of pipe used in the hydro-system. If you are able to walk the most direct route between intake and outlet, your readings will yield both psi values *and* the length of pipe needed to cover that route. For example, if you use a 50-foot hose, the 6th reading you take is 300-feet (6 x 50 ft) away from the start point, top or bottom. So, the number of readings multiplied by the length of hose equals the shortest distance between the inlet and outlet of the system. Knowing the length of pipe your system will need will help you estimate its cost in advance.

The pressure gauge you use is important. If you hang a 50-foot, water-filled hose vertically, the maximum pressure reading possible is about 22 psi (50 ft. x .433 psi = 21.65 psi). In a 100-foot hose, it's 43.3 psi. The gauge you select should not be rated much higher than these values. The accuracy of gauges is best in the middle of their ranges. How accurate a reading of 10 psi will you find on a gauge that reads 0-150 psi versus a gauge that reads 0-25 psi? The best results come from picking the right length of hose with the right gauge, too. For example, a 0-30 psi gauge will work well with a 100-ft hose for small heads. The same gauge can be used with a 50-ft hose for larger heads (steeper terrain).

Additional hardware is added to keep water in the hose during shifts between readings and to aid in draining the hose at the lower end. I used a plastic Y-fitting at the lower end. It's the kind that threads onto an outside faucet so two hoses can be attached. It has two ball valves that rotate through 90° to open or close. One branch doubles as a drain or fill valve. The other isolates the gauge from the hose pressure. Additional fittings are needed to

(Right) Different wheels and turbines fit various combinations of head and flow.

(Below) Hardware for the hose-and-gauge survey method.



mate the gauge with the plastic Y-fitting. This will depend on the type and size of thread on the gauge you find. If you take all the parts to a hardware store, you can usually figure out what you need or get some help.

Got all the parts? Assemble the hardware using pipe thread tape to avoid leaks. Test it before you haul it out into the brush. With the gauge assembly sitting on the ground, elevate the other end of the hose (up a slope or on the roof) to a known value and fill it full of water. Read and calculate. Everything check? Great. Is the gauge reading off? Adjust it (if it has this ability) or note the corrected value. Check it against other test readings. Use these to adjust your survey readings to the corrected ones before you make any calculations at the end.

Start the survey

This process is easily done with two people: the gauge reader and the holder. Survey from the bottom up or the top down. If you know where the hydroturbine will be sited, start there and work up. The last site I surveyed had easy access to the uppermost point, so I started the process there. Reverse it for a bottom-up approach.

The gauge reader starts downward first. The other person's job is to hold

on to the other end of the hose. When the reader has stretched out the hose, the holder yells stop. At the upper end, the holder opens the valve and refills the hose full from a quart water bottle. Then, the reader opens the lower valve (between hose and gauge) and records the psi reading. This may be done at waist height or at ground level. The reader and holder need only be consistent with each other throughout the survey.

Got the reading? Both people close their valves and hang on to their end of the hose. If the holder is close enough to see the reader, he or she may head downhill until reaching the exact same position. At the same time, the reader may head down until the hose is again taut. If the holder can't see the reader's position and accurately find it, the reader should wait until the holder arrives. This will place a loop in the hose, which will try to catch on every little thing, but—be patient. (Next time, I'll leave orange peelings at these points to speed up the process.) Repeat this procedure all the way down the hill.

A word about downhill readings. Remember, you're not out to record the length of the streambed. You're trying to find out the available pressure and head and, if possible, the

length of tubing your installation will require. So, even if your stream meanders, you shouldn't, unless it's the best way to avoid brush. Survey by moving directly downhill. If your stream is a wild one in the winter, the inlet pipe should leave the streambed in the most direct way. Of course, if there is a more direct way to reach the site of the hydro-electric unit, go that way. The shortest distance between two points is a straight line. You may not need to follow the streambed at all.

The last reading you take in the survey is where you want to stop, at the hydroelectric site or at your property line. Approximate the length of the last section, even if there's not much of a reading, and make a note of the adjusted length of the hose. Take the last reading at ground level, right where the hydro unit will sit.

All done? Sit down at a table with your paperwork while you're still fresh from the experience.

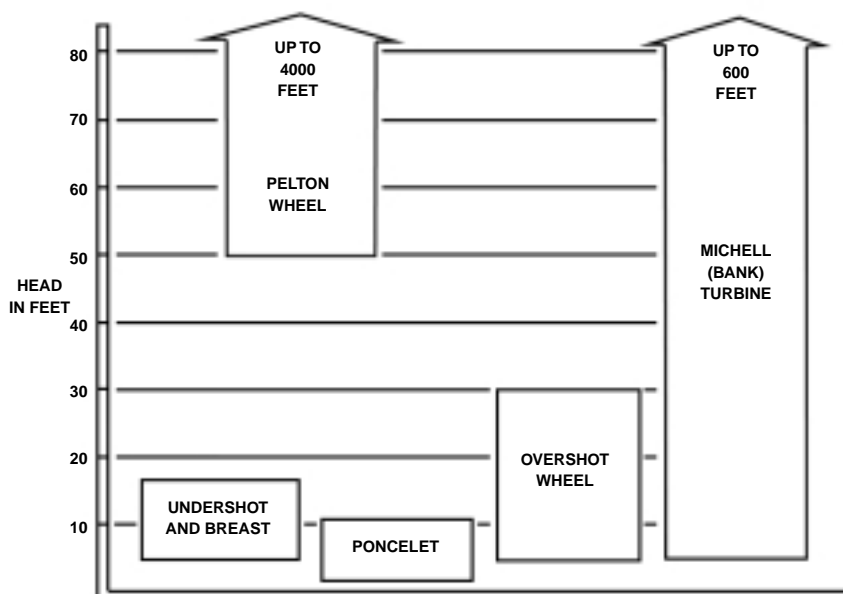
1. Add up all the pressure readings. If the gauge was found to read a little off, adjust the written values accordingly. This is the total pressure in your system. Record it; it will be useful when you select the schedule (psi rating) of pipe.

2. Multiply the pressure reading by 2.3 ft/psi. The answer represents the number of feet of head between intake and outlet.

3. Add up the number of readings you made. Multiply this value by the length of your hose. The product is the approximate total length of pipe your system will need (if you traced the pipe's route).

Find the rate of flow

The second vital portion of the hydro survey is to find the actual flow of water in gpm or cfm. Gpm is gallons per minute and cfm is cubic feet per minute. The first is used with flows of 5-50 gallons per minute. Beyond this rate, cfm is used because, at about 7.5 gallons per cubic foot of



water, it can handle the bigger numbers.

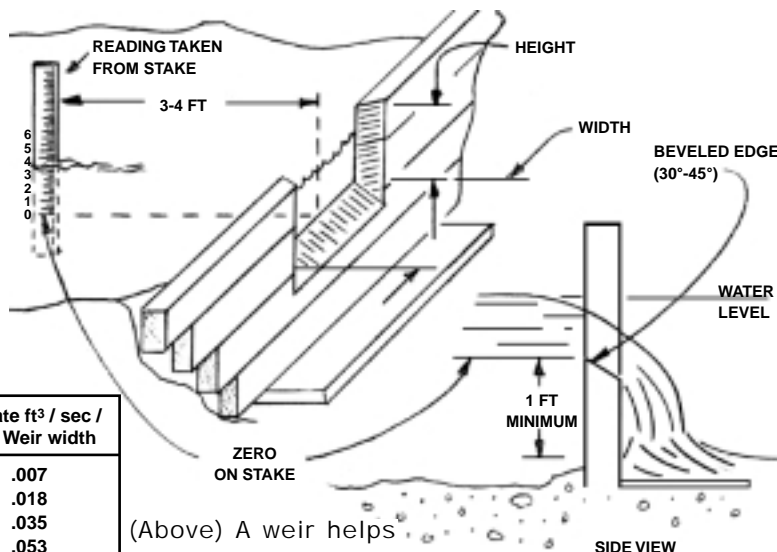
Which one fits your site? Answer this question: How big a pipe would you need to channel all or most of the stream's water through it for a few seconds? A 2-inch diameter pipe? A 6-inch? A 12-inch? If your answer is 6 inches or higher, you must measure flow another way, i.e., a weir.

A. Using a bucket. To measure a relatively small flow, you will need three things: a pipe, a container, and a time piece. The pipe can be a short section of large diameter plastic tubing. Find a spot where you can lay the pipe and make a small dam around it and the immediate area. You're successful when most of the water in the streambed is forced to flow temporarily through the plastic pipe and directed into a 2-gallon or 5-gallon bucket.

Generally, the longer it takes to fill the bucket, the more accurate the measurement. The time piece should read in seconds. The idea is to note the time you first put the bucket under the pipe's flow of water and the time the bucket reaches full. The *difference* between the two times is the elapsed time. Repeat this process until you get a fairly consistent value for the elapsed time.

Use a container of known capacity to fill and discover (or verify) the gallonage of the water your setup will capture.

For example, suppose that our diversion pipe fills a 5-gallon bucket in 10 seconds. What's the flow rate in gpm? One gallon per minute is the same as 1 gallon per 60 seconds. At a rate of 5 gallons in 10 seconds, we'd fill a 30-gallon bucket in 60 seconds, or 1 minute. Thus, the calculated rate of flow is 30 gpm.



(Above) A weir helps find the flow rate.

(Left) A weir table converts readings into a factor for flow rate calculations.

Depth (inches)	Flow rate ft ³ / sec / inch of Weir width
1	.007
2	.018
3	.035
4	.053
5	.075
6	.098
7	.123
8	.152
9	.180
10	.212
11	.243
12	.278
13	.313
14	.352
15	.388
16	.428
17	.468
18	.510

B. Using a Weir

Larger flows of water need a different technique.

If it only takes 2-3 seconds to fill a 5-gallon bucket, you've got lots of water but probably a poor measurement. In this instance, you might consider using a weir.

A weir is a simple dam with a particular shape to its top. It goes across a streambed and is sealed so that all the stream's water flows through the beveled aperture. It's basically a low-level dam which directs and smooths the flow of water enough to take a measurement of its height above the bottom of the weir.

How does it measure flow rate? The depth of the water in front of the weir is measured with a ruler and looked up in a table. This represents a flow rate/inch of weir. This is multiplied by the width of the weir and a conversion factor.

An example. The water just reaches the 6-inch mark on the ruler upstream of the weir. In the table, 6 inches of depth is equal to 0.098 ft³/sec./inch.

Multiply this figure by the width of the weir (i.e., 24 inches). The flow rate is 2.352 ft³/sec.

Since a cubic foot (ft³) of water equals approximately 7.5 gallons and 1 minute equals 60 seconds, we can find the flow in gpm by multiplying 2.352 ft³/sec by 7.5 gal/ft³ by 60 sec/minute. The product is 1,058.4 gpm.

Once installed, the weir will permit multiple readings through a season, establishing the highest, average, or lowest readings. This technique will yield a good profile of water sources which are seasonal or only runoff in nature. A long-lasting weir has to be well constructed and the owner/builder will want to read up on the design and construction issues it embodies to survive heavy flow and debris, i.e., rocks and tree parts.

Calculate power

Once you have numbers for the the flow, you're ready to plug them into the formula that will tell you the maximum amount of power the water's energy will generate in the form of electricity.

There are a variety of water-harnessing turbines and wheels that cover the span from small flows and big head to big flows and small head. Owner/builders will have some

choices of turbine or wheel types in the middle range. Otherwise, the site will dictate the hardware specifications.

Power transmission

There are a few things to know about the hydro-electric system. Again, the inlet is the point where the water is diverted into a pipe or channel and the outlet is the hydroturbine itself.

It is ideal when you can locate a hydro-electric turbine very close to the battery bank it will charge or the electric loads it will power. At the same time, it should be positioned so that the water discharged from the turbine will go back into the natural streambed, or an adjacent streambed, or storage that will make other use of the water. Site the turbine above the high-water mark at the outlet point. In a high flow, it can be inundated by water and become inoperative, or risk being swept away by the flow or debris.

The reality of your layout may require that the hydro-turbine be located downstream of your building site. As the distance between unit and usage increases, so will the expense in getting the generated electricity from the turbine to the loads it feeds.

Low-voltage systems will suffer most, since large (expensive) wire will be needed to avoid line losses. At some point, the extra power generated by the hydroturbine must be balanced against the cost of the pipe and the wire needed to reach it.

There are several design strategies for handling a growing distance between the hydroturbine site and point of use.

1. Use a higher system voltage. A 24-volt system will transfer power with only ¼ the line losses of a 12-volt system for the same length and size of wire. Thus, electricity from a hydroturbine in a 24-volt system can use ¼ the wire size to transfer the same power at the same loss rate

experienced in a 12-volt system. Or travel four times as far with the same wire at the same loss.

2. Invert the low-voltage dc power into high-voltage ac power, i.e., 110V, 60-cycle ac. This works if the turbine is located near (or in) a building that contains the battery bank and inverter.

3. Use two dc-dc converters to transfer power. A dc/dc converter is a high-frequency electronic circuit that will step up the voltage of the hydro-turbine's output to a few hundreds or thousand volts for transmission along a relatively small wire. At the other end, a similar dc/dc converter steps the voltage back down before it is routed to the battery.

In any case, the rule is "low voltage, big wire; high voltage, little wire" when it comes to distances.

Hazards

A few things to think about:

1. **Loose pipe.** What happens when plastic pipe used in your hydro system is laid over hard ground or decomposing granite on steep slopes? It slides. Pipe should be tied off periodically to trees or fence stakes. A 20-foot section of 2-inch pipe is fairly light. Full of water, it will be heavy. Use 3/16-inch polyrope to tie the pipe loosely to a likely anchor.

2. **Freezing weather.** If your stream freezes periodically or your area suffers hard freezes, your hydrosystem could be at risk. Free-running water in a pipeline doesn't want to freeze. If the system is stopped and full of water, a hard freeze could damage it. Either let it run free or drain the system.

3. **Legal and ethical use.** Let's talk the law. Do you have legal right to use some or all of the water that crosses your land? If you don't know, find out. This is crucial to avoid later conflicts or legal action.

There are different types of rights regarding water use. What type exists in your area? Most areas forbid in-line ponds for seasonal or year-round

use since downstream sites are at risk in case of dam failure or spurious flow. Fortunately, most small-scale hydro-electric systems can generate sufficient power with only a fraction of the water available. This also circumvents any concern about drying out a section of streambed.

4. **Being hydro savvy.** You may be your own best advocate for using hydro-generated power to people who could pull the plug on your dream. Don't expect them to know anything, or anything useful. The ability to gently educate others and avoid aggravating anyone unnecessarily will go a long way toward project approval.

For example, point out the fact that hydro-electric turbines do not use up the water, they only make use of the water's energy. Even if you have no legal right to the water itself, you may simply generate power from it and return it to the original streambed.

5. **Using runoff.** Don't scoff at the idea of using runoff if that's all you have. A friend with a PV system was happy to discover that he could use a hydro system to do two things:

a. Supplement his energy system with hydro-generated electricity from runoff of winter rains. He does not have a seasonal flow. It lasts for the duration of the storm and a bit after.

b. Route the runoff past fertile ground it had been eroding through first a channel and then down a pipe into the hydro system. This proved the least expensive way to treat the erosion problem. The system cost slowly pays itself off with the winter electricity it provides and the standby generator it idles.

(Some photos and drawings are taken from the waterpower chapter in *At Home with Alternative Energy*, Michael Hackleman, Peace Press, 1980, 148 pages. Available in libraries, or from Michael Hackleman, P.O. Box 327, Willits, CA 95490. E-mail: mhackleman@saber.net) Δ

THE COMING AMERICAN DICTATORSHIP

PART II

how the creation of new “legal” rights is destroying our real rights

By John Silveira

This is the second installment of *The Coming American Dictatorship*. The first installment appeared in Issue #66 (November/December 2000).

We went down to one of the restaurants here in Gold Beach—Dave, Mac, and me. Dave, of course, is Dave Duffy, the publisher of *Backwoods Home Magazine* and Mac is O.E. MacDougal, our poker-playing friend from southern California.

That morning, when Dave and I arrived at the office, we found Mac sleeping on the floor. Mac said he'd arrived at about two in the morning and he had let himself in.

Somehow or other, while we were still at the office, we started talking about possible catastrophes for the “end of the world specials” ad that, until this issue, we ran on the inside back cover of the magazine, and when we asked Mac if he could suggest another scenario he mentioned what he saw as a half dozen signs that we may have an American dictatorship in our future. His reply came as a surprise to us and we asked him what he meant.

While we were still at the office he explained the first of those signs. He said it was the steady erosion of our basic rights—our natural rights, as he called them, and after listening to his explanation it is more appropriate to call them natural rights than constitutional rights.

When he had finished that explanation we left for breakfast and, now, seated at the restaurant, I was hoping he'd pick up the thread with the second sign of a possible dictatorship.

But he and Dave started out discussing the merits of the different breakfasts on the menu—pancakes vs. omelettes and bacon vs. sausage. Then they talked about fishing here at the mouth of the Rogue River which lies at the north end of Gold Beach.

I listened patiently and thought they'd forgotten our morning conversation, but just about the time our breakfasts arrived Mac said, “You know, the second thing we have to worry about is how politicians, bureaucrats, and special interest groups have created the illusion that they can manufacture new rights—legal rights.”

“What do you mean legal rights?” Dave asked.

“Well, on the one hand, we have our natural rights, many of which are listed in the *Bill of Rights*. But now we have these new legal rights which Congress creates at will.”

“Rights are rights,” I said. “What's wrong with having more rights whether Congress creates them or not?”

Mac took a bite out of one of his pancakes. “Do you know the difference between natural rights, which are our real rights, and legal rights?” he asked.

“We've talked about this before,” Dave said.

“Yes, we have,” Mac responded.

“Go over it again?” I asked.

Our real rights

“Let's first define natural rights. When this country was founded, the Founders believed we all share a certain number of rights. Individuals are



John Silveira

presumed to have these rights and they exist apart from the state itself. This belief has become the foundation of our legal system.

“In virtually every other country, today and in the past, the assumption has been that the source of your rights is the government.

“But in this country, and only this country, our real rights exist apart from the country and from the government itself. It is for this reason, though most Americans don't seem to understand it, that when a foreigner in this country is accused of committing a crime, and demands his rights—including due process—he's accorded the same rights as American citizens because our rights are presumed to be human rights and not reserved for Americans alone. The people who founded this country assumed them to have existed before the United States existed and that they will exist even if the United States ceases to exist tomorrow. In fact, they are assumed to exist everywhere, including in other countries. They exist in China where they are simply denied, they exist in every two-bit African or South American dictatorship, and they'll even exist if we ever go to another planet. It's a purely American belief,

though unfortunately most Americans don't seem to be aware of it anymore."

"Okay," Dave said, "and these rights, the natural rights, are the ones listed in the *Bill of Rights*."

"That's right. But the ones listed there are not the only natural rights we have. Also included are the so-called unenumerated rights inferred in the *Ninth Amendment*. But, taken together, they are, as far we're concerned, the rights everyone is born with."

"But what's wrong with establishing more rights?" Dave asked. "It seems like the more the better."

"Yeah, the more the merrier," I added.

"What's wrong is that these new rights we've been creating since the 1960s, have a cost associated with them," Mac replied.

"What do you mean, 'cost'?" Dave asked.

"All too often, when Congress, the President, or the courts propose a solution for some perceived problem, they create a new set of rights for some group, or even for some animal or object. And they pretend that these new rights supercede our natural rights. And, of course, as long as we're willing to go along with that idea, they do."

"Then you're saying," Dave began, "that when we create these new rights, we do so..." He hesitated. "...at the peril of our real rights?"

"Yes, that's exactly what I'm saying."

"Can you give me some examples of legal rights that conflict with our real rights?" Dave asked.

"Legal" rights

"What comes to mind immediately are the *Civil Rights Act of 1964*, the *National Environmental Policy Act*, and the *Americans with Disabilities Act*. There are others, but these three serve as good examples.

"Each of these acts is an attempt to impose government solutions to problems—both real problems and imag-

ined problems—in American society. But right from the get-go, each is essentially a fascist solution."

"What do you mean they're fascist solutions?" I asked.

"Yeah, you've got to explain that one," Dave said.

"Fascism is an economic and social theory that property, though privately owned, is subject to government control."

"Are you saying we're fascists?" I asked.

"Capitalism asserts that property is privately owned and privately controlled; communism says property is commonly owned and government controlled.

"All three of the acts I mentioned, the *Civil Rights Act of 1964*, the *National Environmental Policy Act*, and the *Americans with Disabilities Act* make the assumption that, even though property remains privately owned, it is to be regulated by the state. That's what fascism is.

"Accordingly, each of these acts has generally been used to deny us our property rights, but lately they've also been used to deny us free speech and due process, and they've even been used to create criminal acts where there was virtually no criminal intent. They have also been used to create administrative crimes, which apply to land owners, small businesses, and corporations where the crime is often just filling

out forms incorrectly or filing them late.

"Each of these, though legislated by the Congress and signed into law by Presidents, is in violation of Article I, Section 8; and of the *Fourth, Ninth, and Tenth Amendments*. But today, politicians, bureaucrats, and special interest groups feel that when they disagree with the *Constitution* they can safely reinterpret it or ignore it altogether. But the *Constitution* is the law of the land."

"So these things are all happening at the federal level," Dave said.

"No, even at the local level, new legal rights have been created by local governments which deprive you of your rights."

"Like what?" Dave asked.

"Rent controls which deny property owners the full value of private property, hiring practices which deny business owners the freedom to hire as they see fit, which is usually to hire the most qualified people, zoning laws

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THE CIVIL RIGHTS ACT OF 1866
Act of April 9, 1866

An Act to protect all Persons in the United States in their Civil Rights, and furnish the Means of their Vindication.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That all persons born in the United States and not subject to any foreign power, excluding Indians not taxed, are hereby declared to be citizens of the United States; and such citizens, of every race and color, without regard to any previous condition of slavery or involuntary servitude, except as a punishment for crime whereof the party shall have been duly convicted, shall have the same right, in every State and Territory in the United States, to make and enforce contracts, to sue, be parties, and give evidence, to inherit, purchase, lease, sell, hold, and convey real and personal property, and to full and equal benefit of all laws and proceedings for the security of person and property, as is enjoyed by white citizens, and shall be subject to like punishment, pains, and penalties, and to none other, any law, statute, ordinance, regulation, or custom, to the contrary notwithstanding.

which deny you the right to use your private property as you wish, laws that require businesses to provide access for the disabled, and many other things.”

Civil Rights Act of 1964

“But the *Civil Rights Act* was needed to help blacks in the South,” I said.

“And what did blacks get with these new legal rights? If you think about it, these new rights are rights granted by the state—specifically, Congress—and can be modified or withdrawn since that’s the source of these rights. We’ve also discovered these don’t belong to everyone. You have to belong to a specially favored group for them to apply to you. But the *Bill of Rights* belongs to everyone, even foreigners.

“But the worst is that now that our natural rights have become corrupted, the real rights blacks and other minorities got are the same corrupted rights we all now have. The *Civil Rights Act of 1964* actually brought them less than they were gaining on their own.”

“But they needed a solution to the problem,” I said.

“There was a solution.”

“What?”

“The *Civil Rights Act of 1866*.”

“What was that?” Dave asked.

“It was an attempt, after the Civil War, to ensure that blacks would not be denied protection by the *Constitution*. Unlike the *Civil Rights Act of 1964*, the *Civil Rights Act of 1866* was an effort to extend natural rights to everyone. It demanded the same rights be accorded to blacks that were accorded to whites. Unfortunately it was passed and immediately ignored by the states, the courts, the Congress, and each successive President.

“The *Civil Rights Act of 1964*, however, wasn’t about civil rights or individuals. It attempted to create new rights by stepping on our real rights and it sought to do this by creating a more powerful, pervasive government. Had the federal government, particularly the Congress and the courts, been serious about the *rights* of blacks and not the *power* of government, they would have enforced the Act of 1866.

“But the Congress and then President Lyndon Johnson sniffed out a chance to follow in FDR’s footsteps and enhance the power of the federal government.”

“But didn’t it result in more freedoms for blacks?” I asked.

“I don’t think so. The *Civil Rights Act of 1866* didn’t work because the American people didn’t stand behind

it. In the same way, the *Eighteenth Amendment* and the *Volstead Act*, which brought on Prohibition, didn’t work because people really wanted to drink so they flouted the law. The War on Drugs isn’t working for the same reason. And if the country wasn’t ready to end segregation in the latter part of the 20th century, no number of laws could have brought it about. That includes the *Civil Rights Act of 1964*. On the other hand, when we are ready for something, or when the American people want something, no number of laws can stop it.”

I know I looked perplexed.

“I’m saying,” Mac continued, “segregation actually ended because blacks took a stand and enough whites took their side. It was that and nothing more. The end of segregation was already underway in 1964 when the *Civil Rights Act* of that year was passed, and to say it was the result of that Act is demeaning to those who actually brought it on.”

“You’re saying that the *Civil Rights Act of 1964* was the result of an upwell that was going to make a dent in segregation and not that the end of segregation came about as a result of that Act,” Dave said.

“Yes. The color barrier broke in baseball in 1947, and the Birmingham bus boycott that swirled around Rosa Parks and Reverend Martin Luther King preceded the Act by nine years. There were thousands of instances of blacks and many whites ignoring the color barrier. Had blacks not taken a stand after World War II, and had not more and more whites given them support, the *Civil Rights Act of 1964* would have meant nothing. It wouldn’t even have been considered in Congress.

“But the fact is, with or without the *Civil Rights Act*, segregation was going to end in this country just as it had been ending all over the world.”

“Well,” Dave said, “If things only happen when we’re ready for them and not as a result of the laws Congress is passing, couldn’t you say

that there couldn't be a coming American dictatorship unless Americans are ready for one—ready to comply with one?"

Mac just nodded, and took a bite of a piece of sausage.

"Then that's exactly what you think. You think a dictatorship will happen because of what we're doing, don't you."

He nodded again. "We're putting everything in place for it because we no longer value freedom the way our forefathers did."

"Wait!" I said. "We still need the government to look out for minorities, the poor, the handicapped, and...and..." My arms swirled around as I tried to think of other groups I thought needed government protection. "They have rights," I said and ended my outburst.

Mac said, "The economist Walter Williams sums these rights up succinctly. He has said the so-called rights we have manufactured since the 1960s are not really rights, they are wishes. The right to health care, work, food, and the right of the handicapped to access, along with all of the other rights we have manufactured, are just wishes. Noble wishes, he asserts, and it would be nice if all these things just existed, free, as the right to speech, worship, and the right to keep and bear arms exist. But the right to free speech means just that, that each of us has the right to speak. But it doesn't mean someone else has to supply you with a microphone, megaphone, or even a soapbox to stand on. In the same way, the right to freedom of worship doesn't mean the state has to build you a church or subsidize your religious beliefs. And the right to bear arms doesn't mean the state has to buy you your rifle or a handgun.

"But those who advocate we all have a right to a job mean someone else has to supply you with an income. The right to health care means someone has to provide medical care if you can't afford it. The right to food means someone must provide you

with food if you can't afford it, the right to housing..."

"These are the things that are welfare," Dave said.

"That's right. And, as Williams points out, it's not just welfare for the poor that's being forced on us. There's also corporate welfare in the form of subsidies, tariffs, and protections against competition.

"And the people who cry out for all of these things believe they are entitled to them, and Congressmen, to win your vote, comply and try to provide them. But not only do these new rights not appear in the *Bill of Rights*, it turns out they have to be provided by someone else, and the power to force one citizen to provide them for another, also does not appear in the *Constitution*."

"What about a black man's right to eat in a restaurant?" I asked.

"He doesn't have it," Mac said.

"That's a terrible thing to say," I said.

"Of course it's terrible," Mac replied. "And I wouldn't eat in a restaurant that discriminated against blacks. But by virtue of being black a man doesn't have rights to my property, my money, or my time anymore than by virtue of being white do I have any rights to a black man's property, his money, or his time."

"You're on thin ice here," I said. "You're advocating discrimination."


"No, I'm not. I'm saying anyone who wants to discriminate has the right to. But I'm not saying I condone it. However, we have a government that not only condones it, it encourages it."

"How can you say that?" I asked.

"What do you think Affirmative Action is? Despite its so-called intent to level the playing field by establishing de facto hiring quotas, it advocates what its detractors call 'reverse discrimination.'"

I shook my head. I simply didn't agree.

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Dave took a drink of his coffee and leaned back in his chair. "So, it's a real right if it doesn't have to be provided by anyone," he said.

"Yes, none of your natural rights have to be supplied to you by anyone else with the exception of one, and that's the right to a trial before a jury of your peers."

Dave thought about that. Then he said, "And the right to a jury trial is there only because your fellow citizens owe you something before they're allowed to take away your freedom, your property, or your life."

"It's more than that. Our forefathers demanded that when the state claims it has a reason to deprive someone of their freedom, their property, or their life, we the citizens have the right to examine the case and determine whether or not it should be allowed."

"Why?" I asked.

"Because we may be next. Jury trials are one more attempt by the citizens to prevent government excesses. Or at

Article. I. Section. 8.

The Congress shall have Power To lay and collect Taxes, Duties, Imposts and Excises, to pay the Debts and provide for the common Defence and general Welfare of the United States; but all Duties, Imposts and Excises shall be uniform throughout the United States;

To borrow Money on the credit of the United States;

To regulate Commerce with foreign Nations, and among the several States, and with the Indian Tribes;

To establish an uniform Rule of Naturalization, and uniform Laws on the subject of Bankruptcies throughout the United States;

To coin Money, regulate the Value thereof, and of foreign Coin, and fix the Standard of Weights and Measures;

To provide for the Punishment of counterfeiting the Securities and current Coin of the United States;

To establish Post Offices and post Roads;

To promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries;

To constitute Tribunals inferior to the supreme Court;

To define and punish Piracies and Felonies committed on the high Seas, and Offences against the Law of Nations;

To declare War, grant Letters of Marque and Reprisal, and make Rules concerning Captures on Land and Water;

To raise and support Armies, but no Appropriation of Money to that Use shall be for a longer Term than two Years;

To provide and maintain a Navy;

To make Rules for the Government and Regulation of the land and naval Forces;

To provide for calling forth the Militia to execute the Laws of the Union, suppress Insurrections and repel Invasions;

To provide for organizing, arming, and disciplining, the Militia, and for governing such Part of them as may be employed in the Service of the United States, reserving to the States respectively, the Appointment of the Officers, and the Authority of training the Militia according to the discipline prescribed by Congress;

To exercise exclusive Legislation in all Cases whatsoever, over such District (not exceeding ten Miles square) as may, by Cession of particular States, and the Acceptance of Congress, become the Seat of the Government of the United States, and to exercise like Authority over all Places purchased by the Consent of the Legislature of the State in which the Same shall be, for the Erection of Forts, Magazines, Arsenals, dock-Yards, and other needful Buildings;--And

To make all Laws which shall be necessary and proper for carrying into Execution the foregoing Powers, and all other Powers vested by this Constitution in the Government of the United States, or in any Department or Officer thereof.

least that's the way it's supposed to work. But nowadays, with asset forfeiture and bureaucratic edicts from the EPA, the IRS, OSHA, and other agencies, the right to due process has often been suspended or superceded."

We didn't say anything for a moment and the waitress came back and topped off our coffees.

"When a politician makes a promise to provide a new right, whether it's access for the handicapped, tenants' rights, animals' rights, or whatever, though he appears to be generous he isn't being generous at all. All he's done is thought of someone else who either has to supply that right or foot the bill, because he's certainly not going to supply it himself. And, the problem is, once he imposes that burden on someone else, he has in fact violated that person's real rights.

"And that's why you won't call them real rights," Dave said.

"Yes."

"But what about those less fortunate than ourselves?" I asked.

Mac took another bite of his pancakes while he considered my question. "Are you implying that if someone is unfortunate that I am obligated to assist that person?"

"Yes," I said.

"And, if I refuse, I should be fined, have my property seized, go to jail, or be killed?"

"No."

"Then how are you going to make me supply those 'rights' to the less fortunate if I refuse to?"

No one said anything until I finally said, "There must be some kind of provision in the *Constitution* for taking care of the poor and the unfortunate."

"The Founding Fathers never made provisions for the federal government to have the power to trample our natural rights for the sake of what today's liberals call 'social justice.'"

"There should be," I said.

"But the fact is, they didn't, and trying to impose the responsibility for providing those rights is illegal under our *Constitution*."

"Why didn't they provide them?" Dave asked.

"There is no way to provide them without force and the people who founded this country didn't trust government. They didn't want to give it that much power. They believed that allowing the government these powers, for some imagined social good, was a mistake because once we grant it the power to suspend or negate our rights, the danger is that that power

will never be relinquished and it will eventually be expanded."

Environmentalism

"You said the *National Environmental Policy Act* also violates our rights," I said.

"I'm not going to debate whether the environmentalists have a point with their fears of global warming except to say there is plenty of evidence that they're wrong and there are many scientists who disagree with them and their conclusions. And I'm not going to argue with their fears of loss of habitat except to say habitats are always changing and we have to decide what we want; in other words, there are trade-offs to be made.

"What I will say is that their approach to solving the problems, if there are problems, is political rather than scientific and it conflicts with both our rights and the limits placed on the federal government in the *Constitution*. People are losing their property, losing their access to their property, and losing the economic value of their property illegally."

"Well, let's suppose the environmentalists are right," I said. "Is there a solution that you would think is just?"

"The simplest solution to the problem would be that property owners be compensated for the loss of their property or for the loss in value when the government seizes it or limits its use."

"That could cost a fortune," I said.

"Of course it would. But today farmers suddenly find out they cannot plant crops because a bureaucrat has designated his property as protected wetland or the home of some protected vole. For the same reason developers are denied the right to build on their property.

"There's even the 'reasonable bird' rule, called the 'glancing goose' test by its detractors, that says that if a passing bird could look down and wanted to land on your parcel of land, then your right to what you can do with *your* land no longer belongs to

you. It's not the bird's right either because, just as the bureaucrats can deny you any rights to your land, they can also grant waivers. So in a neat trick involving the hypothetical bird, the federal government has gained control of your property, clearly in violation of many sections of the *Constitution*.

"If we want to let the environmentalists have their way, it has to come at either a financial cost or the expense of our liberty, and we've chosen to sacrifice liberty. But who cares? No one, apparently."

"What could you possibly have to say about the *Americans with Disabilities Act*?" I asked and reflexively rolled my eyes.

Americans with Disabilities Act

"First of all, I'm not responsible for taking care of other people, disabilities or not. That may sound heartless, but it's true. And I may be willing to help people, and I actually would, but it's not right for the government to force me to. It's not right for someone to appropriate my money, my property, or my time to force me to.

The *Americans with Disabilities Act* isn't about the disabled; it's about bureaucracy. When it was proposed, Americans had visions of people in wheelchairs or with seeing eye dogs as the recipients. But the law was written so intentionally vague that the fat, the ugly, and the drug-addicted can call themselves 'disabled,' and so accommodations have to be made for them. And generally, this is not at the government's expense but at the expense of other individuals, namely the expense of businesses.

"Its intent seems to be to empower bureaucrats, win 'feel-good' votes for politicians, and enrich lawyers.

"But its biggest defect is that it is one of the most vaguely written laws ever passed, and vaguely written laws are dangerous."

"Why?" Dave asked.

"Because vaguely written laws are the tools of dictators. Even if they aren't originally intended to be so, they will eventually be used to expand governmental power at our expense. Any law not written in precise language will inevitably be used against the people. I don't care whether it's the anti-terrorist acts, *RICO* laws, or the *American with Disabilities Act*.

"I wonder why anyone in their right mind would opt to put a vaguely written law, which later can be used for abuse, on the books? It's the responsibility of the Congress, the President, and the courts to ensure that no laws are passed that can later be used this way. But, more so, it's *our* responsibility, we the people, to object to vaguely written laws. But we don't. We're too caught up in what's happening on the latest sitcom, the latest playoff games, and the latest celebrity gossip to look at what's happening to our freedoms. And we are now reaping what we have sown."

"Which sections of the *Constitution* are they violating with the *Americans with Disabilities Act*?" Dave asked with a smile.

"The same ones they always violate: *Article I, Section 8*, which lists the only powers the federal government is allowed, and *Fourth, Fifth, Ninth, and Tenth Amendments*...at least."

"You cite that *Article I, Section 8* a lot," Dave said.

"Read it. It clearly limits what powers the federal government has."

"I have," Dave said. "It's just that you never hear politicians or bureaucrats mention it."

Mac shrugged. "Today, our rights are second to the environment, to how the state perceives the welfare of children, to the beauty of our neighborhoods, to the preservation of historic places. But none of these things are mentioned in our *Constitution*. Our *Constitution* is made up of two things, restrictions on our government—including the rules by which it can conduct its business, and the assertion of the existence of our individual

rights and the rights of the states. In practice, we expand the power of government and restrict individual rights and the rights of the states. It is for this reason that our government is overwhelmingly illegitimate and most politicians and bureaucrats could be found guilty of treason."

"What if the government has to do something for our own good but is prohibited by something in the *Constitution*?" I asked.

The American people don't know what their rights are. They imagine they have rights they don't and they'll even fight for them. But they won't do anything to protect their real rights.

"That supposes two things. First it supposes that the wholesale ignoring of the *Constitution* by government agencies in both Washington, D.C., and at the state and local levels has been done for our good. Second it supposes that, if there are problems that require attention, that there aren't better, but constitutional, solutions."

"But wouldn't it be prudent to compromise some of these things in the public interest to solve some of our social problems?" I asked.

"I'm glad you said that because that leads directly to the second thing I wanted to bring up. Let's say we compromise property rights for the sake of the *Civil Rights Act of 1964*, for the *National Environmental Policy Act*, and for the *Americans with Disabilities Act*. We set limits on free speech so no one is offended, set limits on due process for the *RICO Act* and the War on Drugs, we set limits on the right to jury trials for the sake of government efficiency and to save tax dollars. We do all this and more in the name of *public interest*. If we're willing to do these things, then we'll compromise everything else in the *Bill of Rights* in the public interest."

"I think you're overreacting," I said.

"Hate crimes, politically correct speech, and campaign finance reform

are all compromises on free speech, made in the public interest. The incident at Waco and many drug laws are compromises of freedom of religion made in the public interest. Twenty thousand gun laws in this country are all illegal but were passed as compromises to the *Second Amendment* in the public interest. How much freedom of the press do you think *Time Magazine* and the *New York Times* are willing to give up if the government says it's going to start censoring and managing the news in the public interest? How much censoring is *Backwoods Home Magazine* going to tolerate if your local bureaucrat, or the mayor, or the local cops, or if Congress, or the President himself, say it's in the public interest?"

I didn't answer.

"Which of our rights are negotiable in the public interest, and which are not?" he asked. "The concept behind all of these compromises is that we are freer collectively if we have *fewer* freedoms as individuals."

"Of course, the people who really benefit from the compromises are the people who derive power, often in the form of employment, from enforcing them. This includes politicians, bureaucrats, and special interests."

"But for the rest of us there's a downside and it's that we now have politicians and bureaucrats deciding what our rights are. And if you, as an individual or a business, violate one of their edicts because you thought you had a right to, you may find yourself being dragged into court. They use our money—your tax money—to try you and you also discover that it is usually cheaper to admit to a finding and pay a fine than to fight them because, even if you win, you spend more to defend yourself than it's worth."

"The result is that they win one victory after another and they are shaping our freedoms. That is, bureaucrats using the *National Environmental Policy Act*, the *Americans with Disabilities Act*, the *Civil Rights Act*, and a thousand other laws to deter-

mine which of your natural rights, or constitutional rights, you can exercise, and when you can exercise them."

"Why not challenge them during an election? Bring it to a vote?"

"If a politician challenges these acts, the bureaucrats and the special interest groups run to the press, which is usually young and liberal, and which comes out and defends the bureaucrats. If you point out that the *Civil Rights Act of 1964* violates our real rights, you're a racist. If you challenge edicts of the EPA, you're destroying the planet or you're a greedy capitalist pig. If you point out that the government *forcing* one person to accommodate another is a violation of that first person's rights, you're...what's the new term?...mean spirited. And that's all people hear. A politician taking a position against any of these feel-good laws will be abandoned by his fellow politicians in a vote on the subject, and he'll be abandoned by the voters at the polls who don't understand the harm these laws do. So, even if it were left to a vote, we lose."

Who's to blame?

"Do you care to do any finger pointing?" Dave asked.

"The Democrats are leading the way in passing laws that shred our natural rights, but the Republicans are finding they've got to join the parade if they're to survive at the polls."

"What do you mean?" Dave asked.

"The Democrats pass an unconstitutional law and the Republicans oppose it, but when the next election comes around the Republicans treat it as the status quo. So, once these laws are passed, there's no one in government with the courage to repeal them."

"Then there's the press. They don't blow the whistle on these laws because they are largely Democratic-sponsored bills and the media is largely, by its own admission, liberal."

Dave said, "So you're saying Congress is partly to blame, the bureaucrats are partly to blame, the courts are partly to blame..."

"And even your local zoning board is partly to blame," Mac said.

"Zoning boards?" I asked in surprise.

"Most zoning and planning boards work exactly the opposite of the *Constitution*, and they therefore operate illegally. They operate on the principal that anything not specifically allowed is prohibited. Zoning laws are blatant manifestations of fascism; property remains privately owned but subject to government control and direction."

"Man, you see demons everywhere, don't you," I asserted.

Mac just tossed his shoulder and ate more of his breakfast.

"When you say fascism, you're not talking Nazis," Dave said.

"No, mostly I'm talking economic theory," Mac replied.

Dave nodded while he thought about this and then we finished our breakfasts.

The waitress returned and topped our cups again and asked us if everything was okay. Mac nodded at her and smiled and she started collecting the dishes.

Dave looked at Mac and asked, "So, are we heading to hell in a handbasket? Are we up the creek without a paddle? Is there any way to save ourselves?"

The solution

"The problem could be solved if the people so willed it. The problem is

that they won't. The American people don't know what their rights are. They imagine they have rights they don't and they'll even fight for them. But they won't do anything to protect their real rights."

"It's that mundane, that we're losing our rights because we won't protect them?" Dave asked.

Mac nodded.

"What about the theories that the New World Order or some other plot is the reason why we're losing our rights?" I asked.

Mac shrugged. "I've heard them, but they don't matter."

"What do you mean?" I asked.

"If Americans demand their rights, no amount of foreign conspiracy, no existence of an invisible government, no preponderance of multinational corporations can stop us. But if we *don't* demand our rights, neither laws, the *Constitution*, the *Bill of Rights* itself, nor the deaths on foreign battlefields of a half-million men we have now forgotten are going to save them for us."

"Can we talk more about this at the office?" Dave asked as he got up.

"Sure," Mac said and he fished around in his pockets as he stood up.

"Oh, no, I left my money in my car."

"I've got it," Dave said as he scooped up the bill.

And we left to return to the office. Δ

In the March/April 2001 issue Mac, John, and Dave discuss how bureaucrats are putting themselves beyond our reach with juryless trials, and how they use businesses, including banks, airlines, and even manufacturers of paper, to get around the *Fifth Amendment* and conduct warrantless searches.

In later issues they will discuss how Presidents unconstitutionally bypass the legislative process with Executive Orders, which include among them provisions to suspend the *Constitution* for indefinite periods, how the government will eventually control the Internet, how the conversion of the military from a "citizen army" to a professional army is a danger to us all, and how all the time we were fighting communism, fascism was put into place in this country. Δ

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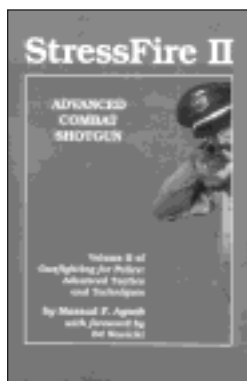
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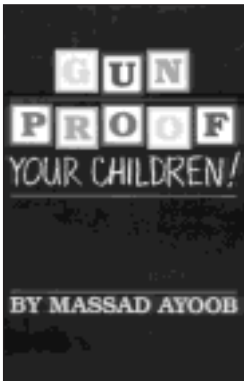
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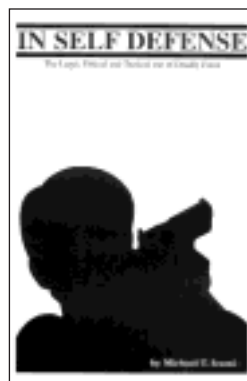
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Letters

(Dear Readers - Thank you for writing to Backwoods Home Magazine. The opinions and suggestions we receive from our readers are very important to us. We regret that we are no longer able to print or individually respond to every letter received due to the volume. We do read every letter received, and pass them along to the editor or writer concerned. We print a selection from our mail that best represents the views and concerns of our readers.

— The Editors)

BHM hits home

I was born 6/30/25 in the central coast of California. We had NO electricity, we cooked and heated with wood. The outhouse was over a canyon, open to dogs & varmints. We did not have much and lived off what we could grow and kill. When I was six years old I was given a .22 single shot Hamilton rifle and sent out to shoot rabbits around the hay fields. The one good thing was we lived near the ocean and could get fish, crabs, mussels, and abalone.

Your magazine hits home to me. I keep hoping that I could get back to that life. Thank you, keep it up.

Walter Victorine
Carmel, CA

Teamwork

First, let me say how much I enjoy your publication! This month's cover (Nov/Dec 2000) is really great!

Have you noticed that some of the wealthiest folks are not nearly as content as those who make do with less? For example: Our family of five lives on an income less than half that of our peers. We do not live extravagantly but have everything we need and a few things we "want." Therein lies the key: WANT. While others live in \$250,000 homes, ours was less than \$40,000. While they both go off to work, I stay home and raise our children and run a home business. My husband works a blue collar job and likes it. He could earn more elsewhere, but would he like the job?

Why do people now days have to have everything now? The way I see it, they sure do have everything: debt, debt, debt! Are we a culture so mesmerized by the allure of a dollar, that we can't see the big picture? Someone much wiser than I said "It's not what you make, it's what you spend that counts!"

Everyone laughed as we bought our home. An old farmstead with a relatively new pole barn, an unliveable house, 100 acres of land and no neighbors. I could visualize the finished product although I knew it'd be years in the making. After 7 years, the mortgage was paid off. Every improvement made has been paid for and not borrowed on. Although we've still got some unpainted rooms and a couple unsided sides to the house, we're warm, dry, cozy, and mortgage-free. We don't sweat out \$1000 +/-month mortgage payments for the next 30 years! One of the biggest rewards is "bragging rights." We've done everything ourselves, from septic system to a new roof. There's a lot of satisfaction in that. We live with a lot less stress than our counterparts. This carries over to many aspects of our lives. My husband and I spend much time together, working as a team. We set and attain goals for each season. This is good role modeling for our kids and keeps us connected. We learn from, and with, each other. The kids are getting old enough to help and are learning the importance of teamwork and family.

I'm glad to read of your interest in homeschooling. Our local public school is a good place for my children to learn. We're among the lucky ones, I guess. According to the teachers and educators I've spoken with, children who have been raised by their parents and not at day care, are

far advanced in all areas over their peers. This is true with my kids. The one problem is that while great strides are made serving the under-achievers—to get them caught-up, there is little offered for those needing advanced curriculum. So, with that in mind, I hope to see informative articles that will help me to augment my children's education. Perhaps you could note the grade level or age appropriateness of the homeschooling articles. We're looking forward to them and more issues of BHM.

Terry Hirsch, Elba, NY

Bloodhound reading

I would appreciate a replacement copy of the Nov/Dec 2000 Backwoods Home. My Bloodhound found it very interesting reading. If there is a charge let me know.

Buel Boaz, Bakersfield, CA

Sent at no charge. Your bloodhound has taste. — Dave

Hydro power

Before I renew my subscription to your fine magazine I must be assured of something.

I have requested through your survey and in a separate note that you do an article (or two) on Hydro Electric Power production. I mean a really good one. Comprehensive. Something to include fabricating parts or salvaging useful components from autos or scrapyards. An article that gives the same amount of attention to detail as some of Michael Hackleman's articles (16 pages last issue). Detail a system that would produce a minimum 1500 to 2000 watts per day from a pelton wheel or other type of water wheel with the emphasis on the backwoods guy building or fabricating most of the equipment himself. Can you do it? Will you do it?

Here's my deal. I've enclosed my check \$21.95 for the next year of Backwoods Home Magazine. If you can promise me you'll cover the

above described subject in depth in the next 12 months then cash my check and send me the mags. Plus if you do do the article I'll renew for 5 years next time around! I promise, and I'll tell a friend!

So how 'bout it Dave? I can't be the only one out here wanting that information. Not everybody can use wind and solar to make electricity.

Mike Ing, Lakehead, CA
recluse@c-zone.net

I promise. The first hydro article (by Michael Hackleman) is in this issue. — Dave

Statistics commentary

A great editorial by Dave Duffy. Contrary to what most people seem to think, statistics is not boring. It is absolutely essential to understanding and clear thinking. The misuse of statistics by politicians happens every day. Their figures are accepted without a thought. You do not have to be deep into mathematics to understand the basic principles of statistics and clear thinking. It should be the basis for evaluating things in everyday life. Because you want a backwoods home does not mean you must be backwoods in thinking. Right on, Dave! A fresh breath of clean air amongst the polluted smog coming out of Washington.

Frank W. Summers, Santa Ana, CA
serndip@aol.com

Stupid people

I enjoyed your article on stupid people. It gratifies me to see other people reasoning. The lack of original thinkers plagues the world, and the stupid abound. That is perhaps why the buggers get away with it. Good brain-washing creates good drones, and although they don't torture and execute us any longer, they (the buggers) still try to segregate the thinkers from the drones and have managed to do so very effectively. Thanks to this medium, positive inter-

action is now possible and paper publishing is widely available. Keep up the good work. Cheers.

Javier Harth
j.harth@waikato.ac.nz

New England office

I am a subscriber to Backwoods Home Magazine and I enjoy your magazine very much but your comment on page 6 (New England Office) of the November/December 2000 edition really bothered me.

Perhaps you were being facetious and I misunderstood your tone but to say that New England is "largely a wasteland when it comes to self-reliance information" is absurd.

I was raised in New England and taught to be self-reliant by rural people who lived in Vermont and Connecticut, people who had to be self-reliant in order to survive. These were poor, hard-working farmers who know more about living off the land than you and I will probably every know.

I have many friends in rural New England who still are teaching me new ways to improve my self-reliance skills. Many of these people have always been self sufficient and have had a full life of personal independence.

Win Wilson, Henderson, NY

I was being facetious. — Dave

Applause

Enclosed is \$20 for anthologies #2 & #3. I'll be sending more money in every chance I get. You guys are the only magazine out there that is worth my money, AT ALL. Thank God you made the anthologies available for those who haven't been with you from the first ... And Richard Blunt's articles on food are incredible! He seems to have an intuitive grasp of his subject that is a wonder to behold. I only wish I knew 1/10th of what he knows!

Anyway I could carry on for days about how I love Backwoods Home,

but you get the idea ... you guys are all incredible, Jackie Clay, Dave, John (John, the poems that aren't nauseating are wonderful, and the other writing is marvelous!), Mac, Richard, etc. Bless you all, heaps & bunches. Thank you all, for everything you do.

Joanna Scalf, Springtown, TX

First I must tell you that I love your magazine. I have been buying & experiencing it for years.

Your article, Ilene, in the March/April 2000 issue on pages 45-47 really hit home here. My husband & I recently moved from Florida where for 16 years we struggled with 7 days a week both working 2 jobs each to make ends meet with 2 children. We now reside in an area of Tennessee where we can finally realize our goal of running a home/family farm and becoming self-sufficient while being here for our children. It has definitely not been an easy road. But the knowledge that 650,000 family farms have ceased to be in the past decade has been a real motivator for us. We hope to become a tree farm and would appreciate any future articles you can do on set up and running a family farm! ... I am superimpressed by your U.S. Constitution Book—and have often felt it should be read & given to each and every person in this country.

Elaine Kuhl Goldman
Soddy Daisy, TN

About two weeks ago I found your magazine while shopping for groceries. I honestly can say this is the greatest magazine I've ever found. I've been looking for something like this for quite some time. Thanks!

Brian Russell
Wayzata, MN

I think your magazine is great. There is so much useful information. I'm planning to buy some land in a very rural area in a few years and the

information from your magazine will be put to use.

Just when I think there is nothing more to know about self reliance, I pick up your magazine and find so much more information. I hope your magazine is around forever.

Bradford Drew, Plymouth, MA

I Love It! A true voice of truth and wisdom in a sea of whining, drivel, and complacency. Thanks for your mighty efforts.

Bob Gresham, Centerville, TX

Irreverent joke

A man stopped at a farm to ask for directions and saw a pig with a wooden leg. He told the farmer. "I never saw a pig with a wooden leg before."

The farmer said, "Don't make fun of my pig, he is wonderful. My little boy fell in the pond and was drowning and the pig dove in and pulled him to safety."

The man said, "I wasn't making fun. I just have never seen a pig with a wooden leg before."

The farmer said, "He is so great that our house caught on fire in the middle of the night and that pig squealed and made a lot of noise until he woke us up and saved us from the fire."

The man said, "Yes he does seem great."

The farmer said, "You bet he is, and you don't eat a pig like that all at once."

I love your magazine. Keep up the good work. I saw a bumper sticker that said, "Y2K bug found dead", just like you said at Backwoods Home Magazine. Congrats.

Garnett E. Doyle, Clarkson, KY

Dictatorship article

John, "The Coming American Dictatorship" is excellent. I was critical of your baseball article a while back. Take it all back now! You'll

probably have some of the government's finest shadowing you now...

Dave, Tony Brown (Grateful Trucker) [letters, Nov/Dec 2000] is right—drive long haul myself and your magazine at truck stops would do well. Most drivers are good ole boys (and girls) and they are pissed about how things are going down in the U.S. Keep up the excellent work you two.

Marcus Frisch, Hayward, WI

I just wanted to drop you all a line and say "GREAT JOB." I have been reading your words 'o wisdom for a few years now, and have found them to be on target. My wife and I have been planning on leaving the "rat race" when the time/money issues have been resolved. Until then I look forward to every issue and could only wish it came out 12 times a year instead of 6. I read and re-read until almost everything from cover to cover is burned into the grey matter. I loved the article about the upcoming monarchy. I've been yelling about that for years to anyone who would listen and not call me a radical...but now it's in print. Hopefully things will change! Again...GREAT JOB!

Scott, KIMCOTN@hotmail.com

I have been an avid reader of your magazine for a few years now, so much so that I purchased the anthologies to cover the first 5 years, to be sure that I wouldn't miss anything. I also refer daily to my pocket sized copy of the Constitution and The Declaration of Independence while reading the newspaper or watching the news.

Just received the Nov/Dec 2000 Issue and tore through John Silveira's "The Coming American Dictatorship." This article was like the lost piece of a jigsaw puzzle which is needed to make sense of the whole. I'm 56 years old and for years I have noticed subtle and sometimes not so subtle changes taking place. At

first, it's just an uneasy feeling, hard to define: a headline here, a news blurb there about normal everyday law-abiding people who have broken no law nor are charged with any crime, having their houses broken into and/or their possessions seized by agents of some level of government. Suddenly you realize, "Hey, that could just as easily have been me!" Apparently Amendment V of the U.S. Constitution regarding "...nor be deprived of life, liberty, or property, without due process of law: nor shall private property be taken for public use, without just compensation." no longer applies.

Another part of Amendment V states "...nor shall any person be subject for the same offense to be twice put in jeopardy of life or limb;..." It seems the system has figured a way around this, too. One which quickly comes to mind is the murder of a civil rights worker. State law tries the accused for murder. For the same act, the feds try the accused for violation of the victim's civil rights. This certainly seems like a noteworthy goal for which no one should find fault, "but the logic you're using can be applied to more than one case, and logic is independent of the subject content," to quote O. E. MacDougal. It doesn't take long before federal hate crime legislation is used to prosecute the accused in addition to whatever state charges he must face. Notice, legislation such as these are always initiated in response to some worthy cause. Who could object?

The process has gotten so tainted that even the National Rifle Association argues that the federal, state and local law enforcement agencies should enforce federal gun control laws already on the books instead of arguing that the laws on the books are in direct violation of individual liberties guaranteed in the 2nd, 9th and 10th Amendments to the Constitution of the U.S. of A. The NRA has actually been involved in

drafting previous state and federal gun control legislation on the premise that a compromise with the gun grabbers was necessary to preserve some of our gun rights. I'm sure that sounds good in Washington, D.C. but it's just so much hogwash in fly-over country.

The ability of every man to defend himself, his family and his property is either an unalienable right or it is not. That's why I belong to Gun Owners of America—an organization which takes an uncompromising stand on 2nd Amendment rights. The Jews for the Preservation of Firearms Ownership also takes an uncompromising stand on gun rights (and who knows better than the Jewish People what happens when the gun grabbers have their way).

Another method used by the U.S. Congress with some frequency of late is to cheapen the unalienable Bill of Rights by calling proposed legislation such things as: the patients' bill of rights, the property owners' bill of rights, the "what's happening now" bill of rights, etc. By marketing these legislative schemes with the words "bill of rights" attached to the name leads citizens—no longer properly schooled in the founding of our country, the U.S. Constitution and the Bill of Rights—to believe rights are granted by government edict and that no rights are truly unalienable.

A separation of powers between the three branches of government is capable of functioning as the founders intended, only if there is a free press willing to expose corruption of the process. Today's liberal/socialist media, however, is unwilling to bring forward any untoward activity unless it conforms with their agenda.

One more before I quit venting and sign off: it seems that it's now a federal crime to lie to an agent of the federal government—FBI, BATF, U.S. Marshals, IRS, etc. No need for sworn testimony of any sort, just don't give the answers a federal

agent is looking for and you can be in violation of some federal statute. Also, if I were on a jury panel, I would accept no testimony from a witness whose testimony has been extorted from the prosecution (reduction of sentence, charges dropped, promise of immunity, etc.) and would vote to acquit the accused if such a tactic were used.

Enjoy your magazine. Keep up the good work.

Lee McGee, Jeanerette, LA
lee2mcgee@aol.com

Libertarianism

Thank you for being one of the "down to earth" voices of Libertarianism in the world today! I have recently renewed my subscription for two years because of this, as well as because of the usefulness of your articles, ads and classifieds.

Unfortunately, I never knew I was a Libertarian until I turned 48 a few years ago. All the time before that I thought I was Republican or Independent. I had associated Libertarianism with Larouchies. Then I found your mag on a local dealer's rack and picked it up. Not for anything to do with my political views, but for the independent lifestyle dream. I spent a lot of holidays growing up at my uncle's cabin in northern Michigan where I caught the fever.

I don't know where this country of ours is going, but I don't want it to keep heading toward its socialistic tendencies. Have you guys given any thought to succession planning within your organization? Who will be carrying on the excellent tradition you've built? Very few people like to think about it, but what about 10-20 years from now? I can think of very few "lighthouses" that focus on Liberty as well as your magazine does. Perhaps even better than the Libertarian Party!

Thank you for your continued focus. As for articles I would like to see,

how about more on acquiring land, maybe some consumer research into "claiming public lands" or other tips from people who have achieved the "Backwoods" life style?

As for me, I am a metallurgical engineer and an amateur blacksmith. I would be happy to assist your readers in any way I can with info that I might be able to provide on metals or metalworking. If I don't know the answer, hopefully I can direct them to someone who does. They can contact me at gortokj@mtco.com.

Kin Gorton, Eureka, IL

Mandatory volunteerism

Is it just me being a poor citizen, a bad spirited republican, or a mean person, but do others feel that mandatory volunteerism is an oxymoron.

Irvington High School, in Fremont, California has a graduation requirement that says all students must provide 40 hours of "Community Service" (within their 4 years stay), or they won't be allowed to graduate. I feel that it should be encouraged, but not a mandatory graduation requirement.

*I don't know if it is a fiscal issue, but 1,600 students at 40 hours = 64,000 hours (over 4 years), or 16,000 hours per year, at one high school. 16,000 * 5.00/hour = \$80,000 the community is saving, as our kids are forced to work.*

I do personally volunteer, in the past with a Sheriff's Dept. Urban Search & Rescue Team, and currently with the U.S. Coast Guard Auxiliary, so my children see community volunteerism in action.

I just feel it's wrong to make it mandatory. I believe they're exploiting the kids.

Leonard Gomes, Fremont, CA

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The last word

Outplayed and outbluffed

It was maybe 30 years ago when Dave—that's Dave Duffy—and I left Boston on a January afternoon to go play poker at the University of Massachusetts in Amherst, almost halfway across the state. We left in pretty good weather and got to the University in plenty of time. It turned out to be a worthwhile trip for me; I made some good money that night.

But the next morning, when we left, snow was falling. The snowflakes were wet and heavy and the size of nickels, and Dave's little VW Bug had a broken windshield wiper. Globs of snow stuck to the windshield and piled up on the highway making the driving treacherous. We traveled with our windows down and a piece of string leading from each window and attached to the driver's wiper blade. As we drove along, Dave pulled the string on his side to pull the blade up, then I'd pull the string that went out my window to bring it back. It more or less worked, but every once in awhile we had to pull over to straighten the system out.

We hadn't gotten far when we first saw the plows. They seemed barely able to keep ahead of the accumulation, and they pushed the snow into banks alongside the road creating the illusion we were driving through a valley. The further we went, the narrower the road was. More plows. It seemed as if, soon, there wouldn't be any place to plow it. Dave wondered if it had been a good idea to leave that morning.

Then we saw them—two girls hitchhiking on what would have been the edge of the passing lane, had the number one lane not been piled high with snow.

"Should we pick them up?" Dave asked.

"Pick them up."

We would never have picked up two guys.

Dave coasted to a stop and I yelled out the window, "Where are you going?"

"Where are *you* going?" one of them asked.

"Boston," I said.

She mentioned a town just outside Boston.

"We'll take you there," I said and got out of the car to let them climb in back. It was cramped back there. Had we been a pair of psychos, they were effectively trapped.

They were goddesses, but whereas one of them was quiet, the other was bubbly. I tried to make conversation.

They said they were from the college. We were older and I tried to impress them.

"Have you been listening to the radio?" the bubbly one suddenly asked.

"No."

"Did you hear about the plane crash?"

"What crash?"

"There was one this morning in California."

We hadn't heard.

"The last guy to give us a ride said there was about 250 celebrities on board. They were going to a charity fund raiser. They think everyone was killed."

"Like who?"

"Bob Hope, Carly Simon, the Smothers Brothers..." She rattled off other names. The snow suddenly didn't seem so bad. Dave turned the radio on and started going through the stations but all we were getting were top-40 stations: the Fifth Dimension wanted to go up, up and away on one station, the Beatles bemoaned Michelle on another, but no one talked about the crash.

I talked about how much I liked Bob Hope and the Smothers Brothers. They did too. I asked if they could think of any other people on the plane. The one who did most of the talking said she thought the guy had mentioned James Taylor. It seemed like John Wayne was on it, too.

This was a real catastrophe. But there was no news of it, just the damned music. I mentioned how I couldn't understand why we weren't hearing updates.

"Are you sure that's what the guy said?" I asked.

She was sure.

"Did you hear any newscasts?" I asked her.

"He had turned his radio off before we got in," she said.

"He said it was just too depressing to listen to."

On we went like this for several miles, Dave driving, me scanning for news while, at the same time, we tried to keep the windshield wipers going.

"We get out here," she suddenly said.

I looked around. We had barely made it to the next town.

"We're not even near Boston," I said.

"That's okay," she said. "We've got to see someone."

"We'll wait for you," I said.

"No, we're going to be awhile."

"We can wait," I repeated as they got out of the car.

But the talkative one smiled and said, "No."

Then they were gone. We hadn't had a chance to ask them out. We hadn't even asked their names. As Dave drove on I still manned the radio. Still no news. But the snow was letting up, so we didn't do the wipers as often. We talked about how pretty the girls were. They were beautiful.

"Why do you think that guy told them there was a plane crash?" I asked. Dave shrugged and drove on. But I already knew the answer. And though I still checked the radio stations, just in case, I realized there had been no plane crash. Bob Hope, Carly Simon, the Smothers Brothers, and the rest of them were all safe in California or wherever they were at the moment. And the two girls had been safely dropped off in a town just outside of Amherst unhassled and unharmed. Even a psycho, like the Boston Strangler or Ted Bundy, would have become too caught up in their story to have entertained any thought of harming them. We didn't talk about them much after that. But when I think about them today, I'm just glad the glib one hadn't been in that poker game. Δ

— John Silveira

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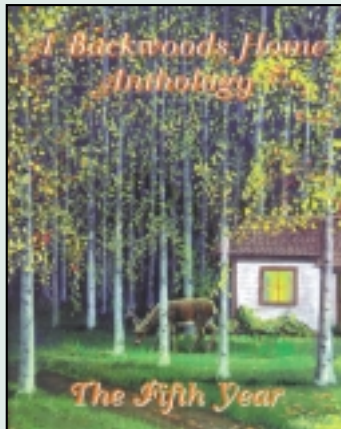
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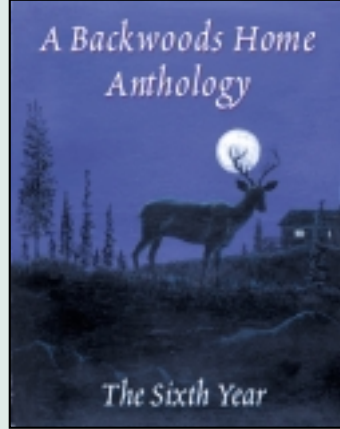
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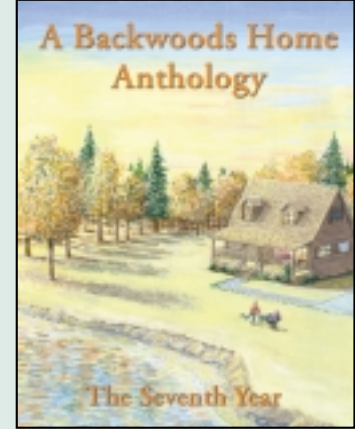
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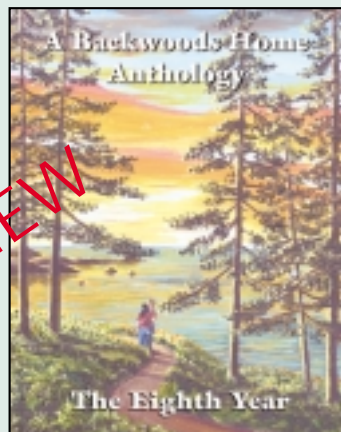
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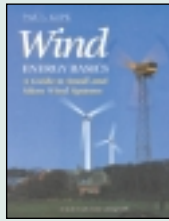


EN7

THE NEW ELECTRIC VEHICLES

272 pages of EV technology, 500 photos and drawings, and more than 175 design and technical sidebars. Meet the individuals and teams who have converted or built EVs. There is detail on 65 EVs—ranging from free-way machines to bicycles, motorcycles, and neighborhood EVs—to help you select an EV of your own.

272 pages; 8 x 11" pbk. \$27.95

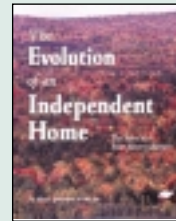


EN10

WIND ENERGY BASICS

This book gives an overview of the burgeoning use of wind energy around the globe, describing and analyzing the most affordable small wind generators, including the new generation of highly practical micro turbines.

122 pages; 8 x 10" pbk. \$22.95

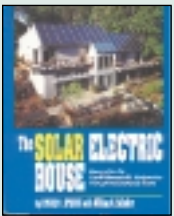


EN6

EVOLUTION OF AN INDEPENDENT HOME

This is the story of how one man used local resources, ingenuity, imagination, and patience to create a homestead powered and heated by the sun. Author Jeffrey Fowler is an authority on remote solar electric homes.

254 pages; 8 x 10" pbk. \$24.95



EN11

THE SOLAR ELECTRIC HOUSE

Solar electricity is the direct conversion of sunlight into electricity by solar photovoltaic cells. It is a truly elegant means of producing electricity on site, allowing you to take control of your energy destiny and create your own lifestyle without concern for energy supply or environmental harm. No pollution, no by-products, no depletion of resources.

276 pages; 8 x 10" pbk. \$24.95

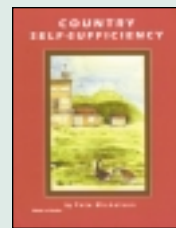


FP32

SMALL SCALE CRAYFISH FARMING

Includes a short explanation of crayfish habits, their reproduction, and their life cycle. Explains constructing and maintaining a crayfish pond, building traps to harvest your "crop," processing and selling it, and even some recipes for preparing them.

50 pages; 5½ x 8½" pbk. \$9.95

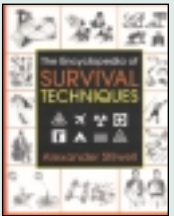


SS42

COUNTRY SELF-SUFFICIENCY

Country Self-Sufficiency describes how to find and build a homestead, complete with a garden, greenhouse, crops, and animals for all of North America. Chapters include home-schooling, finding and selecting a country home and living off nature.

272 pages; 8½ x 11" pbk. \$22.95



SS41

ENCYCLOPEDIA OF SURVIVAL TECHNIQUES

Included here is everything you need to know about staying alive in the wild. Organized by climate and terrain (desert, sea, arctic, mountain, and jungle), this book is packed with over 200 line drawings that provide step-by-step guidance to mastering survival situations.

192 pages; 7½ x 9½" pbk. \$22.95



SS29

MOUNTAINMAN CRAFTS & SKILLS

Learn how to make and use hunting tools and utensils, wild game traps, mountainman clothing, tents, and much more. Wilderness survival skills are also covered, with instruction geared at both novice and expert. Learn how to trap wild game, tan hides, shoot with black powder, make a fire, and cook a hearty meal with only the barest of essentials.

240 pages; 6 x 9" pbk. \$17.95

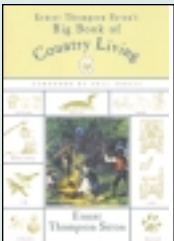


SS30

NATIVE AMERICAN CRAFTS & SKILLS

This book is an excellent introduction to the study of Native American crafts and outdoor skills, including tanning leather to create authentic clothing and moccasins, the basics of the "kitchen," including utensils, cookery, and foods, and games, musical instruments, and jewelry.

216 pages; 6 x 9" pbk. \$17.95

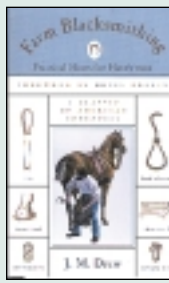


SS31

BIG BOOK OF COUNTRY LIVING

Originally published in 1922, this work represents years of observation and experience in the wilderness. Learn to distinguish edible plants from poisonous ones, start a fire using a jackknife, build a four-story birdhouse out of a wooden box, tie a variety of essential knots, identify trees, wildflowers, animals, birds, and constellations, and much more.

590 pages; 7 x 10" pbk. \$22.95

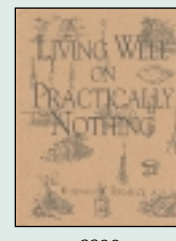


SS32

FARM BLACKSMITHING

This complete, no-nonsense guide, published originally at the turn of the century, dispenses invaluable tutelage on both the history and craft of this grand tradition. J. M. Drew begins with the basics, including how to set up a blacksmith shop, identify and use various essential tools, and select materials with which to work.

100 pages; 4½ x 7¼" pbk. \$15.95

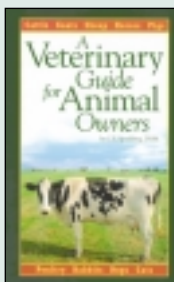


SS33

LIVING WELL ON PRACTICALLY NOTHING

This book is for people who need to live on a lot less money. If you have been fired, demoted, retired, divorced, widowed, bankrupted, or swindled—or you just want to quit your job and remain financially self-reliant—this book is for you. In it are hundreds of tips, secrets, and necessary skills for living well on little money.

153 pages; 8½ x 11" pbk. \$24.95

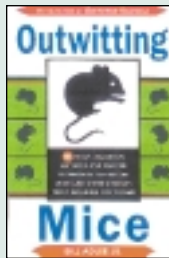


SS34

A VETERINARY GUIDE FOR ANIMAL OWNERS

Backwoods Home Magazine's very own Jackie Clay revised and updated this classic on veterinary care. Included are methods to diagnose and treat diseases and injuries in livestock and pets. This is the book to have when you have to treat your own animals or to check before you call the vet. Illustrated.

432 pages; 8¾ x 57/8" hdbk. \$25.95



SS35

OUTWITTING MICE

Anyone who has had mice invade their home knows that nothing is as unnerving as hearing mice scurry across the linoleum in the middle of the night or finding droppings on the kitchen counter in the morning. From mice in the pantry to rats on the rafters, Adler provides dependable, practical advice and innovative methods to help you get rid of your rodent problem for good.

224 pages; 6 x 9" pbk. \$17.95



SS36

SQUIRREL PROOFING YOUR HOME & GARDEN

The bestselling author of *Deer Proofing Your Yard & Garden* helps homeowners battle one of nature's most wily and persistent creatures—squirrels—with a storehouse of environmentally responsible techniques that really work.

153 pages; 6 x 9" pbk. \$15.95

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NATURAL LIQUID SOAPS

Finally, a book on making liquid soaps at home. Using a simple double-boiler technique, you can create inexpensive moisturizing hand soaps, revitalizing shampoos, invigorating shower gels, soothing bubble baths, and much more. And all tailored to your skin type, to your hair's needs, or even to your mood.

134 pages; 7 x 10" ppbk. \$21.95

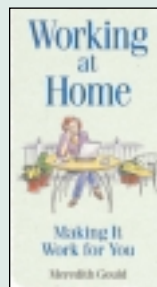


SS38

THE PAPERMAKER'S COMPANION

With clear instructions and step-by-step illustrations, expert Helen Hiebert covers every aspect of creating one-of-a-kind papers and using those papers in fun, creative, and beautiful ways. This essential handbook is sure to be one that paper crafters return to again and again.

219 pages; 8 x 8" ppbk. \$21.95

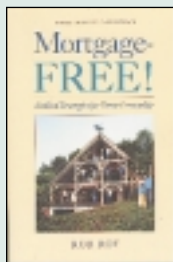


SS39

WORKING AT HOME

Free yourself from the world of rush-hour traffic and office politics with these easy-to-digest ideas and techniques for establishing and running your own home office. With authority and wit, Gould covers it all—from setting up your workspace to setting up record-keeping systems. Nearly 50 million Americans work from their homes. Why not you?

171 pages; 4½ x 8" ppbk. \$12.95

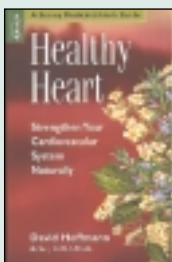


SS40

MORTGAGE-FREE

Here is a banker's worst nightmare, a book that tells you how to live without being enslaved to financial institutions. Rob Roy offers a series of escape routes from indentured servitude, underscored by true stories of intrepid homeowners who have put their principles into action.

353 pages; 6 x 9" ppbk. \$27.95



HE17

HEALTHY HEART

The whole-body approach of noted herbal clinician David Hoffmann offers a practical, natural way to prevent heart disease and ease the symptoms of hypertension, congestive heart failure, angina, varicose veins, arteriosclerosis, and other cardiovascular conditions. Discover how herbs can help you live a longer, healthier, more vital life.

122 pages; 5½ x 8½" ppbk. \$15.95

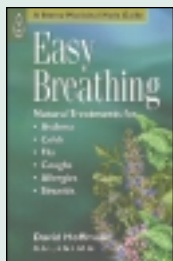


HE18

HEALTHY BONES & JOINTS

This book includes clear explanations of how herbs can be used in daily regimens to help prevent bone and joint diseases, a thorough overview of common musculoskeletal conditions, with a wide variety of preventive strategies, and a directory of herbs that are most helpful for the musculoskeletal system—along with preparation instructions and dosage guidelines.

122 pages; 5½ x 8½" ppbk. \$15.95

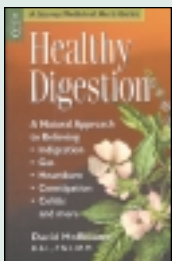


HE19

EASY BREATHING

This easy-reference guide offers an overview of common respiratory ailments, with preventive strategies and healing herbal formulas suggested for each condition. The author uses a holistic approach to respiratory care, with a combination of herbal medicines and lifestyle changes.

122 pages; 5½ x 8½" ppbk. \$15.95

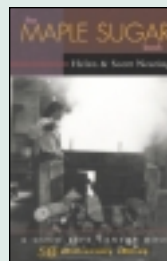


HE20

HEALTHY DIGESTION

Healthy Digestion is your complete guide to tapping into the power of herbs to maintain a healthy digestive system—with a full directory of useful herbs, preparation instructions and dosage information, and a chapter on simple ways to make your own teas, tinctures, powders, and capsules.

122 pages; 5½ x 8½" ppbk. \$15.95

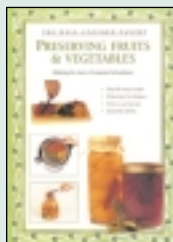


FP42

THE MAPLE SUGAR BOOK

This book is filled with a history of sugaring from Native American to modern times, with practical tips on how to tap trees, process sap, and market syrup. Fifty years after its original publication in 1950, *The Maple Sugar Book* is as relevant as ever to the homestead or small-scale commercial practitioner.

306 pages; 5¼ x 8" ppbk. \$19.95



FP36

PRESERVING FRUITS AND VEGETABLES

This book provides a creative answer to preserving fruits and vegetables in times of abundance, making them available on your pantry shelf in times of need. The new, exciting, fully-tested recipes are all described in easy-to-follow steps. From freezing to drying to canning (bottling), together with seasonal tips and gift-giving ideas, this book is the perfect guide for the adventurous cook.

96 pages; 6 x 8½" hdbk. \$19.95



GL8

PRUNING MADE EASY

Pruning is one of the best things you can do for your plants, if it's done the right way. Learn when, how, and why plants should be pruned, artistic pruning techniques used to make topiary, espalier, and cordons, and methods of using and caring for pruning tools and equipment. More than 300 step-by-step illustrations demonstrate the proper techniques for pruning varieties of trees, shrubs, bushes, hedges, vines, and flowers.

218 pages; 8½ x 11" ppbk. \$22.95

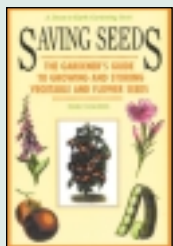


GL61

THE PRUNING BOOK

Whether you're new to gardening or an experienced pro, you'll find Lee Reich's advice and practical techniques to be invaluable. Packed with informative tips and illustrated with clear line drawings and color photographs, *The Pruning Book* shows every gardener how to prune with great results.

234 pages; 8 x 10" ppbk. \$22.95

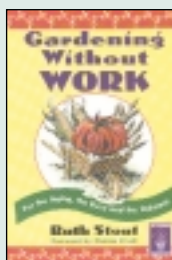


GL62

SAVING SEEDS

Saving seeds is a time-honored tradition—one that more and more gardeners are rediscovering. This book will tell you all you need to know about how to raise, harvest, and store seeds for the easiest-to-grow and most popular vegetables and ornamental plants. Each vegetable and flower is discussed in detail.

186 pages; 6 x 9" ppbk. \$15.95

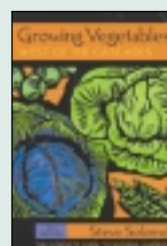


GL63

GARDENING WITHOUT WORK

With this delightful book, you can garden with hardly any labor except planting and picking. The Stout System of mulch gardening will allow you to throw away your weeding tools, pesticides, and fertilizers, and will conserve and replenish the soil to make plants thrive.

214 pages; 6 x 9" ppbk. \$17.95



GL64

GROWING VEGETABLES WEST OF THE CASCADES

Grace your table year-round with an array of fresh, nutritious vegetables—straight from your garden. This fully revised edition includes advice on how to select, cultivate, and harvest the vegetables best suited to this region. Whether you want to grow a few tomato plants or aspire to self-sufficiency, you'll find this bible of Northwest vegetable gardening indispensable.

356 pages; 7 x 10" ppbk. \$21.95

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GL65

THE LAWN & GARDEN OWNER'S MANUAL

You know when it's time to mow the lawn, but do you know when and how to prune the tree that is starting to block the view? Move shrubs that are overcrowded? Liven up an overgrown perennial bed? Fertilize and aerate your lawn? Let Lewis and Nancy Hill show you how easy lawn and garden care can be.
188 pages; 8½ x 11" ppbk. \$24.95



FP43

FOREST GARDENING

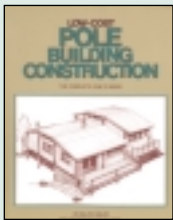
Based on the model of a healthy natural woodland, a forest garden incorporates a wide variety of useful plants, including fruit and nut trees, perennial herbs, and vegetables. The principles of "backyard permaculture" can be applied in every temperate zone of North America, helping to transform even a small cottage garden into a diverse and hospitable habitat.
234 pages; 6 x 9" ppbk. \$20.95



GL66

GROWING PROFITS

Turn your love of plants into an enjoyable and profitable business. Learn how to start a nursery in your backyard with virtually no capital investment. In an area of only 1,000 sq. ft. it is possible to generate over \$5,000 worth of plants in a single growing season. A backyard nursery is a wonderful business for the person who wants to make a living from self-employment at home.
216 pages; 5½ x 8½" ppbk. \$20.95



BU18

LOW-COST POLE BUILDING CONSTRUCTION

This one-of-a-kind book will save you money, labor, time, and materials in building a small home, barn, or other structure. It is illustrated with plans, drawings, and photographs, and carefully explains construction techniques.
182 pages; 8½ x 11" ppbk. \$17.95



BU19

BUILDING WITH STONE

Nothing can rival stone for its beauty and durability. This book educates the novice and inspires the seasoned artisan. A stonebuilder at any level will learn how to evaluate each stone and undertake each step in the procedure with an eye toward aesthetics and useful permanence.
192 pages; 8½ x 11" ppbk. \$20.95



BU20

THE ALTERNATIVE BUILDING SOURCEBOOK

In this book, there are over 900 individual listings from more than 400 companies. Most of the products, and or, services, focus on natural, traditional and sustainable building techniques and systems.
141 pages; 8½ x 11" ppbk. \$22.95



BU21

HANDY FARM DEVICES

First published more than 75 years ago, this book is filled with a wealth of labor- and money-saving projects, including a portable chicken coop, a small truss bridge, an easy fence-post and stump-puller; gates that don't sag, and much more. It is a combination of nostalgic Americana and helpful instruction.
288 pages; 4½ x 7¼" ppbk. \$15.95



BU22

THE HOMESTEAD BUILDER

This practical classic, first published in 1872, is filled with handy advice on the best ways to plan and construct dwellings in any location, using wood, earth, and gravel. Includes nonsense instructions on erecting log cabins, slab houses, farm houses, and many others, as well as outdoor ovens, cellars, gates, furniture, and more.
145 pages; 4½ x 7¼" ppbk. \$15.95



BU23

STRAW BALE BUILDING

Straw Bale Building guides the reader through every stage of the design and building process and is heavily illustrated with both architectural quality drawings and photographs of on-the-job action. With its extensive listing of further resources, it provides all you need to plan and then create the building of your dreams.
238 pages; 8 x 9" ppbk. \$27.95



CR31

THE NEIGHBORHOOD FORAGER

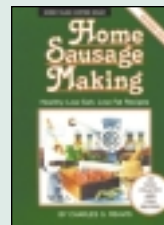
Mention "foraging" and many people think of tramping through soggy swamps of trackless wilderness, battling mosquitoes and briars to reap a tiny harvest of nuts or berries. Yet, foraging for wild edibles doesn't have to be difficult, or require expeditionary gear to have surprising and tasty results.
280 pages; 8 x 10" ppbk. \$27.95



CR20

THE BOOK OF GREEN TEA

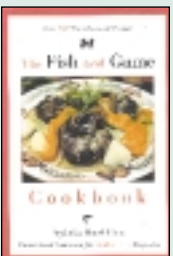
Enhance your life with the great versatility and healthful benefits of this tea of the ancients. From bath salts to ice cream, this traditional Asian beverage can be used in dozens of ways to relax the mind, strengthen the body, and soothe the soul.
156 pages; 7½ x 7½" ppbk. \$19.95



FP34

HOME SAUSAGE MAKING

This book is a combination how-to manual and cookbook. This edition includes new poultry and fish chapters. All recipes have been re-written to reflect lower fat and salt content. Learn dozens of ways of combining fresh, healthy homemade sausage with other ingredients to prepare many dinner treats.
168 pages; 8½ x 11" ppbk. \$17.95



CR33

THE FISH & GAME COOKBOOK

A unique cookbook by the former food columnist for *Outdoor Life Magazine*. Included here are dozens of outstanding recipes, many of which have been neglected by standard cookbooks—venison moussaka, shark tetrazzini, trout with cucumber sauce, broiled goose in mustard sauce, and curried fried squirrel, to name just a few.
272 pages; 6 x 9" ppbk. \$17.95



CR34

WILD RICE COOKING

Wild Rice Cooking is a total guide to wild rice: an introduction to harvesting and cooking, as well as a fascinating history of the plant and the cultures that have thrived on it for centuries. This book will appeal to all those interested in getting back to the land, as well as anyone who likes to cook.
160 pages; 4½ x 7¼" ppbk. \$19.95

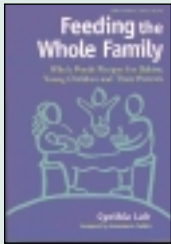


CR35

THE ART OF AMERICAN INDIAN COOKING

Over 150 delicious, authentic, and traditional dishes from five North American regions. From delicacies such as Zuni green chili stew and roast pheasant stuffed with grapes and nuts to simple favorites including baked acorn squash with honey and Chippewa wild rice, *The Art of American Indian Cooking* is a sensual journey of color, scent, and flavor across the regions of North America.
215 pages; 6 x 9" ppbk. \$17.95

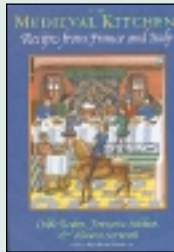
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CR36

FEEDING THE WHOLE FAMILY

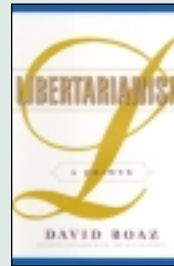
Cynthia Lair is a certified health and nutrition counselor and member of the nutrition faculty at Bastyr University. This is an excellent guide book for families interested in whole, organic, natural foods. Chapters run the gamut from starting your baby on whole foods to including vital vegetables in your diet to making wholesome desserts and natural drinks. 282 pages; 7 x 10" ppbk. \$21.00



CR37

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This book is a delightful work in which historians Redon, Sabban, and Serventi rescue from dark obscurity the glorious cuisine of the Middle Ages. Medieval gastronomy turns out to have been superb—a wonderful mélange of flavor, aroma, and color. The recipes are expertly reconstructed from fourteenth- and fifteenth-century sources and carefully adapted to suit the modern kitchen. 285 pages; 6½ x 9½" ppbk. \$21.00



TH5

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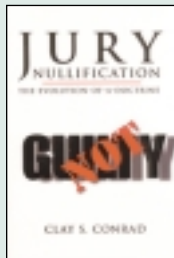
This book traces the history of libertarian thought and provides a concise yet thorough treatment of the subject. The writer discusses why libertarianism is morally just, efficient, and practical, and how it would affect public policy in America by leaving decisions in the hands of the individual, creating a freer and more efficient society. 314 pages; 6 x 8½" hdbk. \$26.00



TH1

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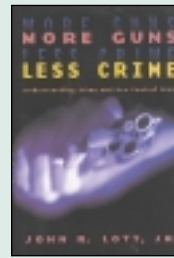
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TH2

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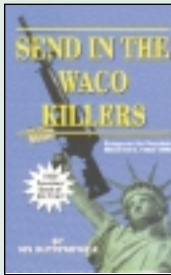
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TH26

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TH10

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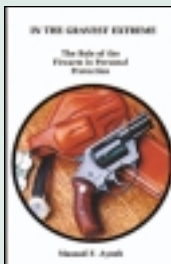
For the concerned citizen who wishes to keep a low profile, protect his or her rights, and survive in the "interesting times" which are sure to come, this book is essential reading. Wolfe lists the supplies you should be laying in and activities you should be engaging in before stuff starts spraying off the fan. She also lists some interesting web sites you should look into. 200 pages; 5½ x 8½" ppbk. \$18.95



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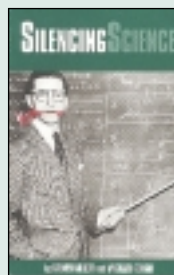
The clodhoppers of Tyranny stomp on the toes of innocent people every day, from flat-out prohibitions of peaceful activities, to flagrant invasions of privacy, to the not-so-subtle erosion of Constitutional freedoms. Author Claire Wolfe has come up with another batch of ideas to follow up the wildly popular 101 Things to Do 'Til the Revolution. 238 pages; 5½ x 8½" ppbk. \$18.95



FH1

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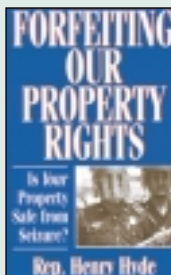
Science has been a major contributor to the health and wealth we enjoy today, but not everyone is happy with it. Science can get in the way of social and environmental activists, politicians, lawyers, and government regulators. This book is a tongue-in-cheek "how-to" manual for the concerned citizen annoyed by "pesky" science. 61 pages; 5½ x 8½" ppbk. \$11.00



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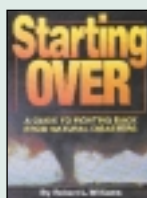
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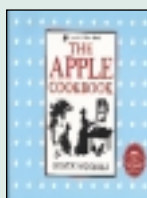
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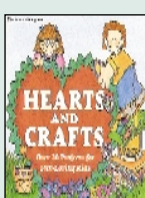
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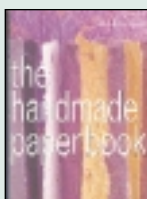
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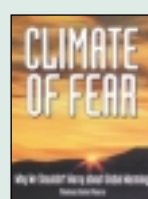
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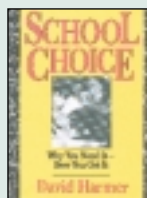
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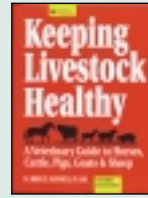
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