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POSTMASTER: PLEASE SEND CHANGE OF ADDRESS FORM 942 TO FARMSTEAD MAGAZINE, BOX 111, FREEDOM, MAINE 04941
Dear FARMSTEAD:

I am one of your new subscribers on Cape Cod. And while I hope to have a small farm someday, it is those practical articles on foraging, fishing, and good cooking I enjoy the most. I can only hope more people will realize you are not just a Maine magazine, but an excellent magazine that anyone desiring a better life with more self-dependency should read.

Thanks,
Dan Cambra
South Yarmouth, MA

Dear FARMSTEAD:

I am writing you concerning the article "Nutrition and the Vegetarian Diet" in the early summer issue of this year. I am glad to see some effort on the part of nutritionists to consider the vegetarian diet. I have learned something from becoming a vegetarian over the last 2 years and I wish to share this with you. I am what Katherine Musgrave would call a lacto-ovo-vegetarian. I noticed on the vegetarian vitamin chart there was no mention of seaweed or miso. Dulse is said to be an "especially good source of iodine" in The Dictionary of Health Foods (Jeffrey Blish, P. 43). Seaweeds and miso, a fermented soybean paste, contain vitamin B-12*, an especially important vitamin to the vegetarian, since it is not present in other plant foods. Local seaweeds in Maine include dulse, kelp, and alarrah. These contain vitamin B-12, magnesium, and iron. Shephard and Linnette Erhart who live in Franklin, Maine collect and sell those seaweeds and they could send you more exact information on the nutritional analysis of these 3 seaweeds.

Love your magazine.

Carol Dixon
Sargentville, Maine

*(East West Journal, "Getting the most from Soybeans" by William Shurtlef — Akiko Agegi, P. 21.)
Dear FARMSTEAD:
Your magazine is a joy. Despite the fact that I live one hour from New York City, I can at least have a farmstead of the mind. Actually, we do live in the country, but down here when people start messing around in the dirt it’s usually because they’ve decided to put in a swimming pool. On the other hand I have friends who live within the city limits of Asbury Park, pick all the dandelions off the lawn of the Pepsi Cola bottling plant (and use them to make a much nicer drink), and have been gardening BioDynamically there for five years. So your magazine keeps me in touch with souls who don’t have to go underground to admire earthly ways. (Enough!)
Your Early Summer 1977 issue was absolutely crammed with good information. I can think of no other magazine with the variety and relevance of articles that yours has had. The line drawings not only are more informative than grey photographs, they lend character to your publication, as well as being art in their own right.
A question: when do plants stop being companions and just happen to be in the same garden? Is companionship a matter of feet, inches, yards? Keep it up.
Stewart Beach
Jackson, N.J.

Dear FARMSTEAD:
Being a new subscriber let me first say I enjoy reading your magazine. I find your information on organic pest control both interesting and useful.
In your article, “The Wise and Useful Farm and Garden Guide” — Summer 1977, you talk of insects and control. Therein you suggest the use of whale oil soap as a spray (p. 15 — p. 17).
This seems both unnecessary and inhumane to eliminate one life form to destroy another. Save the whales — boycott all whale derived products.
R. Boudreau Jr.
Stetson, ME

We agree with you about the whale oil spray. “The Wise & Useful Farm & Garden Guide” is a continuing feature which is composed of excerpts from the old American Agriculturist, circa 1859. Although many of the old techniques are every bit as good today, some, like the whale oil spray, are no longer appropriate or available.
Dear FARMSTEAD:
I just wanted to let you know I’ve really appreciated your magazine — learned a lot from it. I’ve especially enjoyed the articles on herbs and wild plants — they are a big interest of mine. I also thought the articles on home childbirth were very good.
Nancy Marstaller
Auburn, ME.

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FARMSTEAD MAGAZINE 5
Dear FARMSTEAD:
Here is as good a place as any to tell you that we enjoyed the articles on Home Childbirth. My wife and I delivered our two children at home and consider ourselves fortunate to have been able to have done so. The first time we couldn’t get a doctor to come out. The second time he arrived about 25 minutes after birth. Both times mother and child were fine. We credit pre-natal care and an attitude of being ready for what could happen.

Dennis Harrington
Brooks, Maine

Dear FARMSTEAD:
I see by your summer issue that some of your readers objected to the articles on home-births . . . mainly because they didn’t believe this subject should be dealt with in a periodical devoted to homesteading. I say you would be amiss if you didn’t.

Home births were certainly a part of family life on the homestead and farm about 40 years ago and why not now? With our modern day technology (we’ve been on the moon four times) home births should be all that much safer. Both my parents come from very large families and ALL the children were born at home with no attending problems that I know of.

I’m the father of three children who were born in hospitals and I can honestly say that none of the three occasions was a satisfying one. I was separated from my wife in traditional style and had to guess what was going on from my location “down the hall” in the father’s waiting room. Once born, my children were whisked away to the nursery to never be seen again for hours. And in two of the three births the doctor didn’t make it on time. From all this I can say that if and when there’s a fourth time, I’d give very serious consideration to a home birth. In fact, my mind is already made up . . . now if I could just convince my wife!

That is not to say that experienced and knowledgeable people shouldn’t be in attendance. Of course they should, and with the apparent revival of midwifery and home births, there seems to be no good reason whatsoever not to consider having your children at home and no reason that FARMSTEAD shouldn’t publish information on that subject. Keep it up!

Sincerely,
R.E. Nickel
Saskatoon, Sask., Canada

We wish to offer overdue apologies to Liz Buell, author of “Babies Born at Home”, which appeared in the Early Summer 1977 issue, for the extremely unfortunate scrambling of the text of this fine article. We particularly regret that this error occurred in an article of such deep and personal meaning to the author.

The Editors
What is the difference between canning with a water bath canner and a pressure canner?

Alice Wright, UVM Extension Foods and Nutrition Specialist, advises: Canning can be a tricky business. Sometimes, even though you followed all the rules, something goes wrong.

Be sure to use the appropriate canning method for the type of food you wish to preserve. Acid foods such as fruits, tomatoes, and pickles should be canned in a boiling water bath canner. Meat, poultry, fish, and all vegetables except tomatoes require processing in a steam-pressure canner.

Any large vessel will do for a boiling water-bath canner as long as it has a snug-fitting cover and a wooden or wire rack to keep jars from touching the bottom. It should be at least two inches deeper and one inch wider than the jars to allow extra space for brisk boiling.

To use, place filled glass jars in the canner, making sure they don't touch each other or the sides of the container. For raw pack in glass jars, the water in the canner should be hot but not boiling.

As soon as the water begins to boil, cover tightly. Start counting the time from when the water returns to a rolling boil and process as long as required. When processing time is up, remove containers from the canner immediately and complete the seals if necessary.
If you’re preserving non-acid foods, you’ll have to use a steam-pressure canner instead. Make sure you read and understand the manufacturer’s instructions first.

You should also check your equipment carefully. If your pressure gauge is off by four pounds or less, you can make the necessary adjustments when you process your food. For example, if the food is to be processed at 10 pounds of pressure and the gauge reads one pound high, set it at 11 pounds.

The rubber gasket should be flexible but never brittle or cracked. If it is, replacements may be purchased at most hardware and appliance stores or ordered from the manufacturer.

When you’re ready to begin, put two or three inches of water in the bottom of the canner. Set the filled glass jars on the rack so steam can flow around them.

Then fasten the canner cover securely to prevent steam from escaping through openings other than the vent (petcock or weighted gauge opening). The steam should be allowed to pour out the vent for about 7 to 10 minutes, however, to remove all air from the container.

Next, close the vent and let the pressure rise to 10 pounds (240 degrees F). When this level is reached, start counting the time, keeping the pressure constant by regulating the heat.

Remove the canner from the heat when the time is up. Leave it until the pressure registers zero, then slowly open the petcock or weighted gauge. Unfasten the cover and tilt the container away from you to let the steam escape.

Before storing your jars of canned foods, let them stand upright for at least 12 hours, then test the seal. Check band-type jars by removing the metal band. If the cap is tight and somewhat indented, the jar is sealed.

To test bail-type jars, loosen the bail completely, and gently pull on the glass cover. It should remain tight. If your jars aren’t sealed properly, reprocess or use the food immediately.

Can Bermuda onions be grown in Maine? Why would a Maine gardener be unable to grow garlic?

Wilfred H. Erhardt, Vegetable Crop Specialist for the Cooperative Extension Service at UMO, answers: The length of day (photoperiod) influences the growth habit of several vegetable plants. Spinach and onions are notorious examples of vegetables grown in Maine that are influenced by photoperiod.

The climatic factors most important in determining the suitability of onion varieties are length of day and temperature. The time an onion plant will...
start to bulb is determined by the photoperiod and temperature and not by the age of the plant. Since bulbing is controlled by the photoperiod and temperatures, the plants begin to form bulbs at about the same time regardless of time of planting. Leaf initiation ceases when bulbing starts and the growth of the bulb depends on the leaves already present when bulbing commences. In general, bulbing will commence when the daylength reaches 12-15 hours depending on variety and when the average temperature exceeds 60°F. Onion varieties are classed as long-day and short-day varieties. The short-day varieties (12 hours) are adapted to the South while the long-day varieties (14-16 hours) are mainly grown in the northern part of the United States. Yellow Bermuda is an example of a short-day variety. Because of its early bulbing, it makes a small bulb in the Northern part of the United States. With this in mind, select a long-day variety for our Maine climate.

In our area, it is almost impossible to obtain good yields by sowing seed directly in the garden because seeding is usually done at a date when the photoperiod has already passed the minimum for bulbing. Above all, onion sets or transplants must be placed in the soil in Maine as early as is feasible. In order to have full-sized dry onions plant before May 15 in Maine. Sets and transplants planted after June 1 will not attain full size in Maine due to our photoperiod limitations.

The best chance for successful garlic production in Maine is to plant early in September, mulch heavily, and harvest the following year. Spring planting of garlic is not desirable because bulb size and yield is generally below normal because garlic has a photoperiod response similar to onions.

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September

September is, in many respects, one of the most important months in the farming year. The great staples, wheat, rye, oats and grass are secured, and corn is often sufficiently advanced to enable us to fairly estimate the yield. It can, in most instances, be pretty accurately decided whether the year has been a profitable one for the community and for individuals. Taking the country together, we hear but one opinion expressed — it is a year of plenty. But all have not shared the full measure of the bountiful yield. No favoring sunshine nor timely showers can atone for neglect or mismanagement. They have profited who have planned judiciously and followed up their plans with energy — lost by drought and tornado excepted.

A farmer to succeed must fix his eye upon results years ahead. Every crop should be put in with reference to improving the soil as well as with a view to present profit. Now is the time for laying plans for the succeeding year. If there has been failure because too much space was given to some one crop, arrange the plan with a view to a variety; some one of the staples almost invariably succeeds. It is unwise to venture the whole year’s labor upon a single crop. Thorough preparation of the soil will go far toward securing the winter grain to be sown this month, against the contingencies of the season. A wet basement is as unwholesome for crops as for men. Let draining and subsoiling occupy a prominent place in the program of work for the month.

Agricultural exhibitions are very generally held at the North during this month; every cultivator has an interest in them. A day spent in carefully examining improved implements, and superior samples of grain, vegetables, etc., will often be worth many dollars in suggestions of practical value. Each should also be willing to contribute...
whatever would add to the interest of the exhibition.

Buildings of all kinds should be put in thorough repair before the driving storms of Autumn find an entrance. Provide sufficient shelter for all stock. Erect sheds for sheep, and for storing manure.

Beans — Pull and dry. The straw properly cured, and also the beans themselves are much relished by sheep, for which they are excellent food.

Cabbage — Market early varieties now matured; and continue to hoe later plantings.

Cellars — Thoroughly cleanse and put in order for the reception of Fall crops of roots, apples, etc. Arrange for ventilation; destroy rats and mice.

Eggs — Pack in salt in a sufficient supply for Winter use.

Fences — Examine and keep in repair, particularly about the corn fields. Build new lines when wanted, but have as few as may be — they are necessary evils at best.

Grain — Early threshing, especially of that stacked in the field, will save much from the depredations of vermin. Have grain bins secured against rats and mice. Market as soon as prices are fair. Plow for Winter grain if not already finished. Deepen the soil an inch at each successive plowing. Try subsoiling part of a field, and note the results.

Poultry — Give them free range, and feed regularly, if they have not access to grain stubbles.

Root Crops — Keep the ground well stirred and free from weeds. The horse hoe greatly reduces the cost of growing these crops.

Turnips — Thin late sowings, feed early ones, and keep all well hoed. Sow more of the quick growing varieties on vacant ground.

Weeds — all left to scatter seed will multiply many fold another season. All that have been left to mature should be cut and burned.

The principle work of the month in the orchard will be securing and marketing or otherwise disposing of the fruits as they ripen. Most tree fruits are of better flavor if gathered while yet firm, and allowed to mellow in a cool dry room. They also bear transportation much better than when fully ripened. Care and judgment must be exercised to take them from the tree at just the right period-picking a few days too early or too late will make considerable difference in the value.

Drying Apples — Common sorts which are of little worth in market, will meet a ready sale next Winter if properly dried. Remove all the skin and core, slice them thin, dry quickly but not at too high a temperature, and keep from being wet. A screen of netting over them to keep out flies and other insects, will add much to the appearance. Scatter a few bits of sassafras bark among the fruit when putting it away, to keep out worms.

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October

Most of the accounts with the fields are to be closed this month. There is yet a balance due the farmer of sundry potatoes, beets, turnips, etc., to be drawn from the ground, and if he has not been in season with his work, the unhusked corn will soon be suffering from rain and from vermin. Preparations are to be made for the approaching inclement season, and no time is to be lost. There is comfort as well as economy in having everything snug for the winter.

Buildings need thorough examination and repair before the driving storms have damaged the gathered crop. Every crack in the horse and cattle stalls, where the old wind can enter, will cost many pounds of hay come Spring. See that roofs are tight, and doors, shutters, hinges, fastening, etc., are all in good order. Provide sufficient shelter for all animals. If paint is needed, now is a good time to apply it.

Cisterns — A convenient supply of water for the stock may be obtained by constructing a cistern to the drip from the barns and sheds. This will also save much manure now wasted by washing away. Forest leaves are excellent for bedding, and manure. Provide a large supply undercover, for use as wanted.

Hogs — Commence feeding for fattening, giving cooked food. Supply with leaves or straw for bedding, and keep the yard well covered with muck for manufacture of manure.

Pumpkins — Store them before injured by frost. Handle with care to prevent bruising. Feed plentifully to milk cows and other stock.

Sheep — Keep them in thriving condition by an occasional allowance of hay, roots, and grain, as the grass fails. A gradual change of food is best. Salt them at least once a week. The males should not be turned with the ewes until later in the season.

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Tools — Collect and put all implements in their proper places under cover. Put all in good repair during rainy weather, repaint wood-work, clean all iron and steel surfaces, and coat them with a mixture of oil and resin to keep from rusting.

The remaining garden crops are mostly to be secured this month, before they are injured by frost. Winter Squashes, Cabbages, Potatoes, Beets, and other vegetables are to be marketed or housed, and a general clearing up of the grounds is to be made. Next Spring's work can be greatly forwarded now, by plowing, trenching, spading, and preparing manures. Land trenched now, will be ready for early working next season, and the beneficial action of the elements through the Winter, will be much more effectual by turning it up loosely.

Beets — Pull before hard frosts, twist off the tops, and if the weather be fair, leave them to dry a day or two before storing. Feed the tops to milch cows.

Celery — Earth up while dry. Keep the earth from falling between the stalks, by tying with soft strings which will not bruise the stalks. Harvest.

Spinach — Cover, that sown last month, and sow seeds in cold frames. Weed and thin former sowings, cooking the surplus plants.

Turnips — Gather and market or store early varieties. Rutabagas and other late sorts may grow awhile.
Jim McHale - Champion of the Small Farmer

By Dennis King

Jim McHale is a man you should know. He's been fighting battles for farmers and rural people for the better part of twenty years. During the late 40's and 50's, he was a typical "bigger is better" dairy farmer in Pennsylvania, until he realized that the bigger and better and more efficient his farm became, the deeper he got into debt and the less real freedom he had.

Jim became active as an organizer for the Farmers Union in the early 60's and sold his dairy farm because he found he had little time for it any more. He gained national prominence in 1971 when Governor Milton Shapp appointed him Secretary of Agriculture for the Commonwealth of Pennsylvania. In that job he devoted much of his time supporting small family farmers and the revitalization of rural areas. He asked a lot of embarrassing questions of the agribusiness establishment, oftentimes related to why the middlemen take so much of the food dollar. There was the time in 1974 when he bought a 1450 lb. cow for 15¢ per pound and had the meat evaluation center of Penn State University dress the cow, take out the top cuts (good steaks and roasts), grind the rest as hamburger, then calculate the cost of the hamburger. The calculated cost of the hamburger, including butchering cost, was 29.5 cents per pound. That same week hamburger in grocery stores in Pennsylvania was selling for $1.09 per pound. When the Governor publicly announced that the state should set up cooperatives and buy the butcher cows and make the meat available to senior citizens at cost, the grocery store price immediately dropped to 89¢. It is easy to see why this kind of question didn't sit too well with the agribiz community, especially that part of the community that was getting the difference between $1.09 and 29.5¢ per pound. Jim was forced from his job as Secretary of Agriculture in 1976, but Governor Shapp immediately appointed him Special Coordinator for Rural Planning and Programs, the job he holds today.

I met Jim at the recent Spring Growth Conference in Maine, at which he was a keynote speaker. He agreed to send me copies of several of his recent speeches, testimony he has made to various U.S. Senate and House of Representatives committees, and policy statements on agriculture he prepared for the State of Pennsylvania. The following brief summary of some of Jim's thoughts and accomplishments were taken from that material.

One of Jim's assertions is that "today's urban problems are yesterday's rural problems." If we had solved the rural problems of twenty-five years ago, our urban problems wouldn't be so severe now. Between 1945 and 1970, twenty-five million people left rural America. Government and private policy which emphasized the concepts of "bigger is better" and attempted to maximize agricultural efficiency per farmer, purposely depopulated rural America. If the USDA was to be able to continue reporting increasing food production per person in agriculture, it could be accomplished either by increasing food production or decreasing the number of farmers. The second course was chosen. "Some of the ill effects of migration to the cities by farm families are: Rural communities lose the human abilities and purchasing power of whole families and lose tax income which supports schools. The rural communities lose tax income, small businesses go bankrupt because corporation farms buy production supplies in large volume from out-of-state wholesalers and manufacturers located in trade and metropolitan centers." As people moved from rural areas, the rural communities disintegrated, in many instances, leaving only the elderly and the poor.

Jim found that of the 400,000 people who left Pennsylvania in the 60's, 357,000 were from rural areas. They left because of lack of opportunity and lack of public services. It is for these identical reasons that people are leaving urban areas today. We are seeing our urban centers decay today just as we saw our rural areas decay twenty-five years ago. The difference is that rural decay was a matter of planned public policy while our urban decay today is not. If we hadn't planned its demise, we probably could have prevented rural decay, but we have been caught unsuspecting by urban decay and don't seem to know what to do about it. Our national policy has been toward industrialization and urbanization and we can't seem to get untracked. Urban ghettos, urban unemployment, urban disillusionment were merely transferred from rural areas of yesterday. Jim rejects the myth that most of America's rural and small town residents are superfluous and obsolete and that their ultimate destiny is to be drawn or driven into cities. He states in his policy for the Pennsylvania Department of Agriculture: "It is our conviction that a rural renaissance is possible in Pennsylvania. We will do everything we can to help families who wish to do so move back to the land." As most of us know, people have been moving back to rural areas for the last several years, with or without the help of government policies or plans. Jim is obviously way ahead of other politicians on this subject, and to his credit, only a few years behind the people.
One of the primary difficulties which small farmers have is in their operating margin. Government policy has maintained low prices for farm-produced raw materials (wheat, corn, etc.). Farm operating costs have, however, escalated at or above the general rate of inflation. As a result, profit margins for farmers have been squeezed lower and lower. The USDA edict to farmers has been "Get bigger and get more efficient or get out." Most small farmers, farming small acreages, with small production have had to get out.

At the other end, prices of food to consumers have continued to escalate. This has happened because the spread between the price of farm commodities to the farmer, and the price paid by the consumer has increased drastically. Did you know that a $3.00 bushel of wheat made into dry wheat flake cereal costs the consumer more than $50.00? The transporters, traders, speculators, processors, wholesalers, retailers, (middlemen, by whatever name), keep taking a bigger and bigger chunk. Jim has been in the middle of this one for a long time and has proposed several approaches to determine where the food dollar goes and how small farmers might get a larger share of it.

Several times he has proposed a complete examination of the American economy and how it relates to rural problems. He would ask questions like: Who owns the land of rural America? What are the facts about rural income and how does it compare with urban income? What has been the impact of vertically integrated corporations in agriculture or family farmers? Where does the food dollar go? Why should farmers be asked to produce at world market prices when no other segment of the economy does? And many more. "This is badly needed to give us a compass sighting as to where our Ship America is in relation to its own people."

In a more direct solution to the middleman problem, Pennsylvania was a leader in encouraging direct marketing from producer to consumer. One of Jim’s objectives was to educate both farmers and consumers to the benefits of direct marketing. Farmers can receive a better price for their products and thus a larger share of the food dollar. Consumers can receive higher quality, fresh food, at a lower price. Pennsylvania hired consumer coordinators to put farmers directly in touch with consumers. Producer and consumer cooperatives were encouraged and a communication link was set up between them. Jim thinks that networks of producer-consumer cooperatives should be able to compete successfully with vertically integrated corporations.

There is a lot more to Jim McHale than I’ve summarized here. He’s a courageous, creative, whirlwind of a character and he believes we can solve our problems if we put our minds to it and are able and courageous enough to reorganize our priorities. Most of all, I wanted to say he’s in there fighting and he’s on our side.
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FARMSTEAD MAGAZINE
behind rural homes in Maine they sit, fenderless and seemingly abandoned, the modified trucks and cars, the homemade tractors, and the Deer Isle pickups. Whether they evoke grins or testimonials, one thing is certain: people pass them by not recognizing their worth or giving them credit where credit is due. The average tourist can’t appreciate their usefulness for hauling everything from pulpwod and farm machinery to pulling floats in Fourth of July parades. The story of their conception from recycled road vehicles by trial and error backyard mechanics, and their history from the first automobiles to present day high speed vehicles aroused my curiosity and launched me in search of the homemade tractor.

I traveled along the winding roads stretching from Castine to Deer Isle that weave together the towns of Penobscot, Blue Hill, Sedgewick, Brooklin and Brooksville. Braving barking dogs and maneuvering through a winter’s accumulation of rural junk, I approached houses sporting interesting specimens to ask, “Pardon me, could I take a look at that tractor by your barn?” and to receive, with a smile of disbelief, a consenting, “Yes, I guess so.”

We see only those that survived. The rest, though rusting, broken down, or mired in the backwoods mud, can be found in the stories of the men who built and used them. Over cups of coffee I talked with a few of the many Maine people skilled in the art of building and using homemade tractors. I’m convinced that they are the most slapped together, well built, bastardized pieces of working junk I have ever seen, or will ever see.

Three categories emerge: the shortened trucks and cars, the trucks left stocksize yet modified in some other way, and the Deer Isle pickups, or “DIP’s.” The DIP’s are sedans and station wagons with the body behind the driver’s seat removed and replaced with a wooden flatbed. Used to carry clamhods by clam diggers and to carry hay for farmers, DIP’s are a familiar sight in rural areas. Though I appreciate what DIP’s have done for Maine and New England, I was more interested in the other two categories which require a bit of special genius to make and use.

The essence of tractors can’t be appreciated in a first glance. Anyone can see that they are different. They have shortened wheel bases, springless rear axles, dual wheels or extra-large 20 inch rear wheels encased in tire chains. The quality of the cab varies from undamaged rust to early automotive dent. The uninitiated tend to miss the

Charles Page works for Cornerstones, a school for owner/builders, in Brunswick, Maine. Photos are by the author.
mechanical subtleties involved in their creation and evolution. Let me explain.

There was no textbook for the early experiments in rural New England in the 1910's and 1920's. Homemade tractors were not born at a Kitty Hawk or a Menlo Park, but rather where the right conditions existed: a barn to work in, a cheap (under $25) car or truck, and a man with the desire to build one. As the American love affair with the automobile progressed, so did the number of junk vehicles, dump picker specials, backyard mechanics, and homemade tractors. Most of the early makes and models of cars and trucks were converted into off-the-road working vehicles. The list includes Fords, Buicks, Willys-Overlands, Studebakers, Maxwells, Hupmobiles, Hudsons, Packards, and many others. The idea behind the modifications was to make a machine that could do the work of horses in fields or in woods but with less effort. A machine like a farm tractor, but without the high cost of farm tractors was the objective. The extent of the modifications depended for the most part on what the machine was to be used for. Farmers wanted short vehicles with small turning radiiues to pull harrows and plows around narrow fields. For woods work, a longer body was desirable to accommodate pulpwood. The extra traction that the pulpwood load gave to the rear wheels was helpful in pulling pulpwood trailers or for skidding out logs.

There was no orderly sequence of events leading to the ultimate homemade farm or woods vehicle. Communication between coastal towns was slow. People didn't travel much either. A trip from Castine to Brooklin was a long way to go, even to see relatives. In the winter people walked. A man down the road talked of draining the oil out of his family car each winter night and bringing it inside. After pouring the oil back into the car in the morning, there was only a 50-50 chance that the engine would start. This lack of communication perpetuated trial-and-error building techniques well into the 1940's.

No better example illustrates how trial-and-error experimentation shaped homemade tractor development than the case of a Brooklin, Maine man who welded the rear axle onto a shortened truck frame which he had reinforced. Loaded with pulpwood and traveling over rough ground, the back left wheel would rise up in the air if the front right wheel went into a hole, and vice versa. The rigid frame cracked after a while, and he was forced to follow in the footsteps of a lazy neighbor who lashed his tractor together with baling wire, making his machine so flexible that the wheels would remain on the ground no matter how rough the terrain. Although what these farmers did was the talk of the town, the news never reached the next town of Blue Hill. There the same situation occurred. Once again, a slapped together, backyard wiring job proved more successful than a carefully planned and professionally-welded machine.

Insuring flexibility by bolting the rear axle onto the shortened frame instead of welding it had its drawbacks. While pulling heavy loads, the rear axle would have the tendency to roll forward, pulling the universal joint off the spline shaft of the transmission, thus causing the driveshaft to drop to the ground. The problem was solved in different ways by different people, but the most common method was to bolt the differential to a crossmember on the vehicle's frame. Care had to be taken in shortening the vehicle's original driveshaft. Some people simply removed the short front driveshaft, called the jackshaft, and attached the rear driveshaft directly to the transmission. Others, desiring even shorter tractors, cut the rear driveshaft, removed a section, and welded the two pieces together. Bent or poorly balanced driveshafts wobbled, shook, rattled, and eventually ruined the universal joints and all the seals in the differential. Lining up the rear axle with the front axle wasn't easy. Unsuccessful attempts led to vehicles with minds of their own, determined to circle, bounce, and jog rather than head in any one direction.
Lugging power, the power to carry or drag heavy loads slowly over rough terrain, was desirable. V8 engines, which have to turn at a high RPM in order to get the same power that a six-cylinder would have at a much lower speed, proved inadequate for most vehicles. In general, tractors with V8's would spin in place, drive off helter skelter over stumps and rocks, or stall under heavy loads. Engine weight was also a factor. The weight of a V8 tended to drive the front end of the tractor into soft ground. Six cylinders worked nicely, but four cylinder engines worked even better. The simplicity of the light-weight, easily maintained, four cylinder Ford engine made it popular in this region of Maine.

There was always someone who had a four or six cylinder tractor with a three speed transmission who wanted extra lugging power from the engine, or someone who had a tractor with a V8 engine and needed a lower gear reduction. A second transmission added to the first transmission would lower the gear ratio enough to allow the engine to carry heavy loads at an idle without stalling. The joint between the two transmissions was made by welding a universal joint that fit one transmission onto the second transmission's clutch plate. By this method, Ford transmissions and rear ends would be used on Chevys and vice versa. Unsuccessful attempts to weld the second transmission securely to the frame led to the more flexible arrangement of bolting it to a crossmember of wood or steel. It was learned the hard way that the tremendous torque generated by the first transmission would twist apart a second transmission of equal size. Two ton truck transmissions were used behind 1 1/2 ton transmissions. Truck four speeds were used behind car three speeds. The lowest gear was obtained by putting both transmissions in reverse and driving forward! This gear was so low in some cases that loggers could leave their tractors unattended, in gear and running, while they piled pulpwood on the back as the tractor crept along.

More often than not, rear springs did more harm than good. A load of pulpwood on springs would sway and bounce over rocks and stumps, causing the load to loosen and pulpwood to be thrown all over the place. In addition, without rear springs, the body was lower, making it easier to throw on a load of pulpwood or hook on farm machinery. Bolting the springs down to the frame was another technique used to prevent the load from swaying.

Front springs were also considered a handicap in some ways. Unlike Chevros, Fords until 1974 had transverse front springs. This was a desirable feature because the hinge in the center allowed the front wheels to move up and down easily over rocks and stumps. To reduce the force necessary for the front wheels to move up and down, the springs on both the Fords and Chevrolets could be removed and replaced by a central yoke. With free floating front wheels, the engine could use less power to maneuver over rough ground.

There is a long standing disagreement concerning the advantage of dual wheels over single rear wheels. There are those who claim that single 750-20 inch wheels trample less ground when harrowing and are narrower and higher than dual wheels, making the tractors more maneuverable in the woods. Dual wheels, on the other hand, have more traction on bare and icy ground and in deep mud. This extra traction proved valuable when hauling farm machinery and pulp trailers. Chains were essential for traction in the woods regardless of wheel style. For dual wheel tractors, chains proved valuable in another respect. When mired in the mud, a cable securely wrapped around a tree would be attached to the tire chain between the two wheels, and the machine winched out as it was driven forward. I have the feeling that likes and dislikes of wheel style were shaped more by what was available at construction time than by any scientific principle.

In the 20's and 30's Fords and Chevrolets were the most plentiful and therefore underwent the most modifications. One vehicle, the Model A 1 1/2 ton Ford truck, emerged as the classic homemade tractor in New England. Not only was it easy to maintain and to get parts for, but its simple yet rugged construction made it last longer as a woods or farm vehicle.
By 1950 Herb Bowdens' 1929 Model A 1 1/2 ton tractor had hauled out hundreds of cords of pulpwood and thousands of logs. His secret was in the set up of his trailer and in his skill in using it. He attached the back bobs from a horse-drawn woods sled to the rear of his shortened truck with two long beams. Chains from the sled's runners were crossed and attached to the tractor's frame, enabling the sled to track the wheels as the machine maneuvered around trees and rocks in the woods. This sled-tractor combination would carry two cords of wood or 1000 board feet of logs each trip. Today that is comparable to a small modern-day woods skidder costing about $30,000. To pack down his winter road, Herb would back into the woods, drive forward, then back in again, packing the snow as he went. Herb was not alone in his skillful use of the homemade tractor. Though working techniques and machines varied from one person to the next, it is obvious that many millions of board feet of logs and pulp have been hauled by these tractors since their conception.

All the people with whom I talked had favorite vehicles or engines or transmissions that were outstanding to them. These included the Chevrolet 235 engine, the Ford low speed differential, and the fish plated Chevrolets. The trouble is that all these were from older vehicles long since gone. Modern cars have high speed short stroke engines with high gear ratio transmissions and differentials. What was so simple for the Model A to do would be quite difficult for the vehicles of today. Some of the larger trucks, two tons and more, have six cylinder engines and low speed drive trains, but they are so big they would swallow a garden in one bite.

Massive amounts of road salt used today, coupled with the increased demand for scrap metal, has made the availability of junk parts limited. Cost is a factor, too. Where a Model A tractor would have a cost a few dollars to make in 1940, it would cost about $600 to make a tractor today, provided you could find the right parts. Of the 25 working homemade tractors I took a close look at, only two were made after 1950. I did not see the owners' sons out in back with wrenches in hand, working under some junk. Nor did I hear of anyone planning to build one. There was one neighbor, a mechanic who had a homemade tractor, who said one evening with a sparkle in his eyes as I stood up to leave, "You know, if you took a four cylinder Ford Pinto engine and put it into a 1 1/2 ton truck body and had an automatic transmission in front and then had a four speed behind, you would really have something."

My neighbor's enthusiasm for homemade tractors, seeded by countless dealings with them over the years, now begins and ends in a daydream. As parts break down with age and become harder to find, and the men who built and used them no longer like to tinker to hold them together, their numbers dwindle. The next time you see one, stop to look closer, kick a tire or two, bend to look beneath the rusted frame, climb carefully over out-reached seat springs and sit where you can think awhile. Daydream about the machines you knew or maybe ones you'd like to build or use, and above all else, give credit where credit is due.

Special thanks to Kendell Ellis, Bob Leach, Sonny Farnham, Berewyn Hutchens, and Herb Bowden of Penobsot, Bunk Black and Vernam Ryan of Brooksville, Arthur Smith and Stanley Gray of Brooklin for information, enthusiasm, and love for the homemade tractors they have made or used.
Green Manuring is the practice of growing crops for the sole purpose of working them into soil as a means of soil improvement. It was a widely used agricultural practice in the 19th and first part of the 20th century. Cheap chemical fertilizers and the farmer's economic imperative to produce saleable crops on every acre has resulted in the decline of this practice. As the era of cheap resources passes us by, green manuring will again become a necessary agricultural practice. In fact, the soil receives many necessary benefits from green manure which cannot be provided by chemical fertilizers and continuous monoculture cropping.

Green manures have always been a viable alternative for the sensible gardener. It provides a method of maintaining healthy soil without having to import large amounts of organic matter. Even though the use of waste organic matter (sewage sludge, waste manures, waste hay, etc.) is commendable, permanent agriculture, or permanent gardening cannot continually depend on moving organic matter over long distances. Every time we use organic matter produced in another area on our garden, we may be improving our garden soil, but in the long term we are impoverishing the area from which the organic matter was removed. The previous statement is obviously an oversimplification and all of us could think of exceptions to this rule, but in general it is true and sets the tone for the justification of green manuring. We can provide organic matter for our gardens and fields from our gardens and fields.

Green manuring is no magic cure-all, as it is proposed to be by some advocates. If a soil contains mineral deficiencies or imbalances, these must be corrected. If soils are extremely low in organic matter content, it may be a long and costly process to
improve them with only green manures. Given a halfway decent soil to begin with, with mineral nutrients in balance, green manures are an excellent method to keep them that way. In the garden it is often not necessary to take any space out of production to use green manures. There are many green manures that can be interplanted with vegetable crops or planted before or after vegetables occupy the spare. A good green manuring system simply means that every part of your garden (or farm) is producing something throughout the entire growing season. On the other hand, it sometimes may be advantageous to develop a system where vegetable crops are rotated with green manures.

The Advantages of Growing Green Manures

What are some of the advantages of growing green manures? What can it do for your soil? One of the most important, and least emphasized benefits, is to hold nutrients in the plant-soil system. The release of nutrients in organic systems is quite slow. After nutrients become soluble, and available to plants, we cannot allow them to leach out. Maintaining continuous plant cover is the best way to utilize all available nutrients. Nutrients are absorbed by the plants and then released again as the plants decompose. Dr. Hardy Vogtmann of the Institute for Biological Husbandry in Switzerland emphasizes that the objective on their farm is to have something planted within 24 hours after each crop is harvested.

Weeds also serve this function of nutrient sponges in nature. Most of our agricultural weeds are pioneering annual plants that rapidly invade disturbed sites. We could allow weeds to serve this function in our gardens (most of us do no matter how hard we try not to) but if allowed to go to seed, weeds often interfere with succeeding crops. This is a good point to remember. Some manure crops can become troublesome weeds if allowed to go to seed also. Seeding all harvested areas to a green manure crop immediately after harvest can be a means of controlling and suppressing weeds. An added advantage is that we can grow more organic matter at a faster rate than most species of weeds.

Another function of green manures is to provide available nutrients to succeeding crops. Most plants, still in a succulent stage of rapid growth, contain enough nitrogen so that decomposition is rapid. If plants are worked into the soil at this stage, their nutrients are rapidly available to the next crop. On the other hand, however, if green manures are allowed to mature, their nitrogen content diminishes and decomposition is slow. It usually even takes extra nitrogen to assist decomposition which must come from the soil and is robbed from the next crop, if mature plant material is worked in just before planting. That is where the term green manure comes from. The plants are green, growing and succulent, when they are worked into the soil.

Succulent organic matter is also an excellent food for soil life, including everything from earthworms to bacteria. Soil biology is one of the most important, but least studied, parts of soil science. A healthy soil requires healthy and abundant soil life. A lot of the success achieved with green manure programs is related to the increase in soil life.

The most widely touted advantage of green manure is that it can be used to maintain and increase the organic content of the soil. As I said earlier, green manure is most valuable as a nutrient source if it is worked into the soil at a succulent stage. At this stage decomposition is most rapid. Since decomposition is rapid, we cannot expect much of an increase in organic matter as humus. Humus is made mostly of the slow-decomposing portions of organic matter and releases nutrients quite slowly. The humus content of soils is increased most rapidly by using mature and dry organic matter or compost. As an example, humus content would be increased more rapidly if a green manure crop such as rye were allowed to mature before being worked into the soil. As stated above, this is usually not the objective of green manure programs.

There are two ways, however, that organic matter content is increased by a green manure program. Soil life is a part of the total organic matter of the soil. Up to 50 tons per acre of soil life have been measured in healthy soil. Increasing the amount of soil life increases the total organic matter content of the soil. Also, with an active green manure program, we can grow much more total organic matter than if soil is left bare part of the time. Even if the green organic matter is rapidly broken down, the content in the soil is increased.

Green manure crops can also provide extra nutrients to the soil! Alfalfa is noted for having roots that penetrate to a depth of 20 feet, excellent at bringing up subsoil nutrients. Buckwheat, with its ability to grow in very poor soils, increases the organic matter content of these soils. Organic acids dissolve and release mineral nutrients, thus making them available to succeeding crops. Legumes (clover, alfalfa, peas, etc.) have the ability to attract nitrogen-fixing bacteria to their roots. Atmospheric nitrogen thus feeds the legumes and is released to other plants when the legume or the nitrogen-fixing bacteria decompose.

Erosion control can be another important function of green manures and cover crops. Plant cover on slopes is essential to hold the soil during heavy rains and spring runoff and reduces wind erosion. Plant cover also reduces surface compaction caused
by heavy rain hitting bare soil. Soils that are crust­
ed by heavy rain are much less permeable than
loose soils to succeeding rain.

Green Manures to Plant in the Fall

You can see there are many benefits from
green manure. Green manuring is not the
only way to obtain all these benefits, but it is
certainly one of the easiest ways. I’ll go on with a
few specific examples that can be tried by fall
gardeners. The old standard green manure and
cover crop to plant in the fall is winter rye. Actual­
ly, winter wheat or barley could be used also, but rye
is used because it grows more in cool weather, can be
established later than wheat can and begins to grow
earlier in the spring. Rye can be planted anytime
from August up to mid-October in the North and
even later further South. It will survive winter as
long as it has a chance to germinate before the
ground freezes, but it will produce more green
manure if planted a little earlier.

Rye can be planted after any of your vegetables
are harvested and the residues either composted or
worked into the soil. Another good idea is to plant
it between rows, after the last cultivation and
weeding in your late crops. This can be done in
corn, cold crops and many others. Planting rye in
late sweet corn is an especially good idea. After
frost kills the corn, the rye still has at least a
month or six weeks when it can grow and cover the
ground. Rye begins to grow very early in the spring
and can be allowed to grow until it’s about a foot
high. Then it should be worked into the soil.

Kale is another good fall green manure crop. It
can be sown in old spots in late summer or early
fall and, except in the far North, will overwinter
and grow again the next spring. Annual or Italian
rye grass can also be planted in the fall. It is winter-
killed in the North, but in the Southeast it overwin­
ters well. At any rate, it makes rapid growth in cool
fall weather.

Several legumes can also be planted in the
fall. Fall plantings of legumes are especially
good if you plan to leave an area in green
manure for the next growing season. Plant them
with a grain in the fall. Mow off the grain before it
goes to seed and then allow the legume to grow the
rest of the summer. Sweet clover, white clover, red
clover, vetch, and others are especially good for
this. In the North it is possible to get good growth
out of most of these legumes in early summer, then
till them in and plant late sweet corn.

Crimson clover is used as a winter annual in the
South and is the old-time southern soil builder, just
as sweet clover and buckwheat were used ex­
tensively as soil builders in the North. Crimson
clover will overwinter south of New Jersey and
blooms the next spring in April or May. If planted
early enough, about early August, it has time to
make good growth before the ground freezes in the
North. Northern gardeners who use annual rye
grass in late summer might try mixing in some
crimson clover.
Our earlier discussion included wild strawberries, raspberries, cherries, and sugarplums... a few representatives of the Rose Family which in eastern North America is unrivalled by any other group of plants in the production of a diversity of delectable fruits. Almost every New Englander with rural experiences carries nostalgic memories of wild strawberries, raspberries, blackberries, and an early truant from cultivation, wild apples. Whittier, in "The Barefoot Boy," mentions "strawberries on the hill" and Thoreau wrote a fine essay about wild apples, to note only two familiar local references. In addition to these especially noteworthy fruits, several other rosaceous plants provide tasty nibbles for campers and hikers, or gourmet treats when properly prepared. Descriptions of the more important kinds of fruits produced by rosaceous plants not previously considered follow. Also included are several other types of plants whose fruits ripen in late summer and fall.

Dr. Bailey, a biologist and entomologist, lives on Swan's Island in Maine. Part I of this guide appeared in the Summer 1977 issue of Farmstead. Illustrations are by Pamela and Walter Carroll.

Rosa Rugosa

Years ago, this coarse, vigorous, showy rose was introduced from Eastern Asia and has naturalized so well as to appear to be a native plant. Frequently it may be found on the shores of small islands off the Maine coast that have never been inhabited. It thrives on rocky shores, beachheads, sand dunes, and along roadsides, and may be found throughout eastern North America from Quebec to Minnesota and south into New Jersey.

This shrub grows in dense clumps that gradually spread in all directions by strong stolons. The canes may be two to five feet or more tall and may or may not branch freely. They are densely covered with sharp prickles of varying lengths. The foliage is coarse, heavily veined, and a rich, dark green. The single flowers are large and typically rose-red, but the color is somewhat variable. A pure white form is not uncommon, though it is less vigorous than the reds and has foliage of the much lighter green. Several hybrid forms, some with double, richly scented flowers, are also in cultivation.

In exposed situations, the clumps are often great mounds of green splashed with clusters of red flowers, from June until fall. Marginal stems are
usually only a foot or two tall, but the canes in the center of the mass may be five or six feet high. By early August, the fruits of June flowers are ripening. No other rose known to me produces such large haws. Since they are a brilliant orange-red, they are as colorful and attractive as the flowers. Late in summer, both flowers and fruits occur together.

These large haws, or hips, have a very high vitamin C content. Conserves and jellies may be made from them. This is generally true of rose hips, but those of other species are much smaller and have far less pulp around the seeds.

Native deer, domestic cattle, birds, and man himself have all unwittingly (except for Johnny Appleseed) assisted in the dissemination of apples. Most everywhere in New England, apples have naturalized in pastures and around old homesteads. Some were originally planted and have even managed to survive where old houses have long since completely disintegrated, leaving only the cellar hole maintained by walls of massive boulders or rough-cut granite. The old cellar hole with a long-neglected apple tree or two, and possibly a clump of lilacs nearby, are surprisingly persistent memorials to our pioneering ancestors.

The typical old apple may have a spreading crown with dense, irregular branches. For a few days in spring, their lovely pink and white flowers will lend beauty to an old pasture or homestead otherwise completely overrun by alders and other native trees and shrubs. If examined closely, you will usually find the bark of the older apple trunk and main limbs closely dotted with the shallow circular punctures of sapsucker drill holes, where they annually make a systematic search for bark-dwelling insects.

From late summer until heavy frost, some of these trees will yield their fruits. Some are small, nubbly, and sour, but an occasional wild tree will produce fruits that make excellent, tasty sauce, jelly, and pies. Since the trees are unkempt and subject to infestation by numerous fungi and insects to which apple trees serve as host, it is best to pick only what you can use promptly. Seldom will the apples keep. If such trees are nearby, gather just what you will use in a day or two, and then pick more as needed. Generally they will keep better, and even improve, if left on the tree.

**NATIVE AMERICAN PLANTS**

**Chokeberries**

*Pyrus arbutifolia* (Michx.) Willd.

*Pyrus floribunda* Lindl.

*Pyrus melanocarpa* (Michx.) Willd.

Family Rosaceae

These tend to be colonial shrubs (rarely small trees), quite variable in growth, leaf form, and other characteristics. *Pyrus melanocarpa* is the commonest representative in New England and grows in low, dense, spreading thickets. It has black, juicy fruits 7-10 mm. in diameter. *P. arbutifolia* is commoner to the south and bears red fruits only 5-7 mm. in size. It is most likely of the three species to be arborescent. Finally, *P. floribunda* has dark purple, juicy fruits 8-10 mm. in diameter and is more northerly in its range. All grow on peaty soils among low trees, in thickets with various shrubs, and in clearings where soils may be wet or dry and even thin, as on ledges and bluffs.

Clusters of white flowers, often with a pinkish tinge, resemble mayflowers. The deep forest green foliage is somewhat glossy above. These plants are frequent and seem to hybridize freely among themselves and with native Mountain Ash occasionally.

Their fruits, now seldom used, resemble small hawthorn pomes, are rich in pectin, and ripen from late July into October depending on the locality. They occur in little clusters and make a heavy, sweet, dark carmine jelly.
Hawthorn  
(Crataegus species)  
Family Rosaceae

Throughout eastern North America, numerous species are scattered and may be locally common. Although easily recognized as a group, identification of particular species is difficult and essentially academic. Most are small trees with low and spreading tops. Their branches are dense, slender, very crooked, and twiggy. The stout thorns quickly become apparent. Several types grow in dense, spreading copses or thickets. They seem to prefer woodland borders and open slopes.

New England species have small leaves with margins variously lobed and serrate. They are a smooth, glossy, forest green above and set off the corymbs of white flowers that appear in May. Generally, the fruits ripen in October and often persist to be eaten by several different birds in winter. They may be yellow but are most commonly some shade of red and are much like tiny apples. The flesh surrounding the seeds may be thin and dry, firm and thick, or juicy and thick. Some are very tart and others sweet. The fleshier, juicier varieties make fine jellies. Consequently, wherever you may be in October, the hawthorns will be worth investigating.

Blackberry  
(Rubus species)  
Family Rosaceae

Closely related to the Raspberries is the Blackberry complex. Although even the botanical specialists disagree in their classification, most rural New Englanders know wild blackberries and where to find them in season. Blackberry canes are light green, strongly ridged, and generously armed with needle-sharp, curved, stout spines. Since the arching canes may be six to eight feet long, picking the wild blackberries can be slightly hazardous and often painfully remembered. Fortunately, rope blackberries are large and firm. Therefore, a quart or two can often be picked in just a few minutes.

Blackberries frequently grow on fairly wet soils, in alder swamp openings, and in thickets with such shrubs as meadowsweet, spiraea, black alder, and wild roses. They flower (white axillary clusters) in July and the fruits ripen from late August into early September.

Numerous types of wild blackberries occur in North America, and as Europeans settled and cleared the land for homes and farms, the native ecosystems were so disturbed that the different wild blackberries were brought into contact and hybridized rather freely. This resulted in a rapid proliferation of new forms. Many of these have established and become locally abundant. This process has obviously greatly complicated attempts to clearly identify wild blackberries.

Blackberries also have a unique and delectable flavor. Fresh berries are mouth-watering with cream and sugar. They also make tasty pies and fine jams and jellies.

Beach Plum  
(Prunus maritima Marsh.)  
Family Rosaceae

Near the sea shore the beach plum often forms dense, low shrub thickets. The tops are gnarled, twisted, and thickly branched. In more sheltered situations, it becomes a small tree. In early spring the dark, almost black, branches set off clusters of small white flowers. By early fall, blue-purple plums, rarely yellowish, mature. These are just over an inch long and make excellent jams and jellies.
Though these plums are typical of coastal areas from southern Maine to Delaware, they may grow on sandy soils along streams and lakes twenty-miles or so inland. In many other parts of eastern North America, related wild plums occur that may yield similarly useful fruits. These wild plums are also preserved by drying.

**European or Common Barberry**

*Berberis vulgaris* L. Family Berberidaceae

This attractive shrub was early introduced from Europe and has naturalized and become completely wild in eastern parts of central and southern New England. It is apparently hardy from Nova Scotia south to Delaware and westward. The shrub is frequently found growing in New England hedgerows, dry thickets, rocky pastures, woodland borders, and along rural roadsides. Commonly, it is four to six feet tall, with many relatively slender gray-brown stems whose tops tend to arch rather gracefully. Stems and the smaller branches are copiously armed with clusters of needle-like spines which occur in triplets or branch even more freely. The inner bark and wood are noticeably yellow.

The flowers, clear yellow, appear in May or June in compact drooping clusters, to be followed by the clustered scarlet berries in autumn, making the shrub handsome throughout much of the growing season. However, few nurseries seem to handle it now, possibly in the Northeast because it is so common, and further west because it is the alternate host of the fungus that causes the dread stem rust of wheat and should, therefore, never be introduced to any area where this important food plant is grown.

The ovoid berries have an elongated seed, covered thinly with a sour pulp. In colonial days, and occasionally still, these berries are cooked and the pulp is strained off for jellies, jams, and even pies.

**Wild Grape**

*Vitis labrusca* L.

**Fox Grape**

Growing in thickets along woodland borders, stream banks, and lakeshores, several wild grapes may be found throughout eastern North America. Many are vigorous climbers and develop an almost smothering entanglement in red maples and other native hardwood trees. From *Vitis labrusca* L. the well-known Concord and other hardy cultivated varieties were derived. This species ranges from southern Maine to southern Michigan and south to Georgia and Tennessee and is variable in many features. The fruits may be white, amber, pinkish, russet, purple, or purple-black. They are 1-1/2 to 2-1/2 cm. in diameter, grow on clusters of up to twenty and, when fully ripe, often after an early frost in September or October, they are sweet and tasty. The somewhat rounded, lobed leaves are large, thick, and strongly veined. Beneath they are thickly felted (tomentose). Where available, the grapes are excellent for jellies, for wine, and for eating fresh when fully ripe.

**Checkerberry (Wintergreen)**

*Gaultheria procumbens* (L.) Family Ericaceae

The checkerberry ranges throughout the woods of the Northeast and is a common evergreen ground cover. It grows in clearings and along roadsides where it often merges with mats of the haircap moss (*Polytrichum*) and
other low-growing plants. Just beneath the surface litter, mat-forming stems of the checkerberry spread and produce the upright flowering branches that are only four or five inches tall. Each branch may bear a group of thick, alternate leaves crowded near the summit. They are very deep green and glossy above, succulent at first, but becoming leathery late in the season. Although essentially evergreen, they usually turn a deep, dull maroon and persist through the winter. The entire plant is quite aromatic with checkerberry (or wintergreen) flavor. Small, white, bell-shaped flowers with pink tips hang in a group of only two or three on a short pedicel from an axil among the crowded leaves in early summer. By early fall, the plump, bright-red, dry pulpy fruits mature. They have distinctive wintergreen flavor and are pleasant to nibble, even after over-wintering. Several birds (partridge, pheasants, etc.) are fond of them. Mature leaves are said to make an agreeable tea when steeped.

Cranberries
Mountain Cranberry
Highland Cranberry
Lingenberry

American or Swamp Cranberry
Vaccinium macrocarpon Ait.

Highland Cranberry:

This handsome little plant is prostrate and vine-like. It prefers dry, peaty soils and may be found associated with the low-bush blueberries. Frequently it forms rich, evergreen mats on the thin turf over ledges just above sea level along the Maine coast. In the southern part of its range, it grows with alpine plants above tree line in the mountains. The brilliant red berries ripen in August or later. Where plentiful they may be gathered and used for making excellent jellies and cranberry sauce. They are often preferred to the swamp cranberries by those who know both. In late June and July the white flowers resemble blueberry blossoms. At each season, the glossy leaves beautifully set off first the flowers and then the gleaming red fruits.

The ancient Norsemen used these berries for making wine, since the plant also grows in their homeland. In their early voyages to North America (referred to as "Vinland" in the Viking sagas) they recognized it and mentioned it as the "wineberry." Translators of the sagas often made the error of translating wineberry as "grape." But grapes were not grown in Scandinavia. Professor Fernald used this and other botanical evidence from the sagas to argue that Viking landings in North America were north of central Maine, since further south the Highland Cranberry grows only above tree line, as on Mt. Washington.

Swamp Cranberry:

The common Swamp Cranberry is frequent in northern sphagnum bogs and other swampy areas across North America. On Cape Cod and elsewhere, it has been brought under intensive cultivation and is an important commercial crop. Cranberries in our markets and most of the jellies and sauces are products of this annual harvest.

The plant is a slender perennial vine whose stems and branches fork freely, often carpeting patches of swamplands. The leaves are narrower, longer, more widely spaced, and much paler green that those of the Mt. Cranberry. The pinkish white flowers rise on wiry pedicels from the upper leaf axils. The dainty pinkish-white flowers have strongly reflexed petals. Fruits ripen in early fall, but may be picked early to avoid infestation by insect larvae. Under cultivation, timely flooding of the

\*Dr. M.L. Fernald, formerly of Harvard University.
bogs is a technique for controlling many of the cranberry insect pests. But wild berries are
gathered when still quite green, since insect con-
trol is impractical.

There are other species of cranberries, usually
less common and less abundant. Certainly where
they grow in sufficient quantities, harvesting can
be worth the effort.

Viburnum

High-bush Cranberry

American High-bush Cranberry:

This large deciduous shrub has opposite,
three-lobed light green leaves somewhat re-
ssembling certain maple leaves. The bright
red berries are borne in flat terminal clusters in
late summer and persist on the plants all winter, or
until eaten by birds. They become somewhat
shriveled and translucent after frost. Each fruit
has a flat seed that is relatively large and the pulp
is very acid but of pleasant flavor. The sauce is
strained to remove the stony seeds and a delicious
jelly of beautiful color can be made.

The native High-bush Cranberry ranges from
Newfoundland to British Columbia and south
rather generally through northern New England.
More locally, it may be found in New Jersey, Pennsyl-
vania and westward.

These shrubs grow in rich thickets, especially
along streams or woodland margins, and may be as
much as twelve feet tall.

Our species should not be confused with the
European Cranberry-Bush (Viburnum opulus L.),
commonly sold by American nurserymen and fre-
quently planted, because the fruits of this related
shrub are very bitter and distasteful to anyone
familiar with our native plant.

Viburnum

Sheepberry, Nannyberry

Black Haw

With Rod

American High-bush Cranberry:

Although several native species of Viburnum
occur in North America and several others
have been introduced for our gardens from
Europe and from Asia, the fruits of most have little
or no value for man. Birds and small mammals may
rely on the fruits or seeds to some extent in certain
localities.

The three species noted here all have bluish or
blackish fruits when ripe, with a thin, dry, sweet
pulp. Although the stones are large in relation to
the pulpy covering, they may be gathered while
walking in the autumn woods, offering a diversion
as well as items pleasant to chew on. Probably
because of the thin flesh, they have not been used in
cooking.

Not only are the fruits of these three species
similar, they are all vigorous shrubs with creamy
or pure white flowers in terminal flat clusters or
cymes in early summer. They grow in shrub
thickets, along hedgerows, stream banks, and
woodland borders. Their leaves are more or less
ovate and of moderate size. Nevertheless, each has
distinctive features and can be identified with
modest effort.

V. lentago ranges throughout eastern North
America from Hudson Bay to Georgia and Mis-
sissippi. V. prunifolium occurs from Connecticut to
Florida and west to Texas. Finally V. cassinoides
may be found from Newfoundland south into North
Carolina and west to Minnesota. Therefore, one or
more of these common Viburnums can provide tas-
ty nibbles in the fall woods.
Building a Log Cabin By Hand

by David VanderZwaag

If wild greens and Euell Gibbons turn you on, why not harvest the ultimate wild bounty — your very own log cabin. If you have 100 softwood trees, a few hundred dollars, and love invigorating work, you’re ready to go!

Here’s how my wife and I built our cozy lodge, without previous experience, on our wilderness island off the Atlantic coast of Nova Scotia.

Tools:
A chain saw certainly saves time and effort. However, we decided in favor of a bow saw; first, to save over $100 on a saw purchase, second, so as not to disturb wildlife, especially a rookery of blue herons nearby, and third, we were so distant from a doctor or hospital in case of serious accident which seemed more likely with a power saw.

Our other equipment included an ax, hammer, chisel, level, ruler, and screwdriver.

Trees:
Straight trees without much taper from trunk to crown make the best building blocks.

Thinking big, we chopped like industrious beavers at our first three foot diameter spruce tree.

As the giant crashed, I suddenly realized that not even four harnessed whales could tote such a Gargantuan out of the woods. Then insight struck. We would have to build with smaller trees which we could carry, about six inches in diameter, and thus, reduce the cabin size to a snug 16' x 12'. Therefore, we cut the trees into 14' and 18' lengths to allow for a one foot overhang at each cabin corner.

To beat a fast approaching winter, we built with green wood, although seasoned trees would have been much lighter.

Stripping the bark off the trees was necessary to prevent insect attack and was easily done with nothing but an ax, as bark almost falls off during spring and summer when the sap runs freely.

Our work plan was to cut and strip four trees a day and to notch four into place. Figuring on about one hundred trees a room, it took us approximately thirty days to complete.

Foundation:
Neither time nor muscle allowed us to build a conventional foundation. Cement was out of the question as one hundred pound bags would surely sink our kayak. Yet we wanted a foundation which would not heave with winter frost — in our area about three feet below ground.
Our solution was to dig a three foot hole at each cabin corner. We then piled flat beach rocks in each hole to make four support piers. Each pier project- ed eighteen inches above ground level to provide a moisture proof base. Although somewhat wobbly at first, the piers stabilized with the added pressure of logs.

After the cabin was completed, we filled in the space between piers with additional rocks for looks, extra support, and additional insulation.

Sill Logs:

Our biggest trees naturally became the bottom logs, not only for a look of solidarity but to save our backs as well.

To prevent the sill logs from rolling off the foundation, we grooved the log ends where they would lay on the piers (diagram 1). We then brushed on creosote preservative over sills, as they are most prone to rot and insect attack. To counteract the tapering effect of trees, the front sill ran thick end to thin end while the rear sill ran thin end to thick end (diagram 1).

A cardinal rule we followed in placing on subsequent logs was a slender end of a tree goes on top of a thick end and vice versa. This formula assured that all walls would end up close to equal in height.

First Cross Logs:

We chose to use the popular and easy saddle notch.

To notch in the first cross logs, we first placed them on top of the sill logs. With a pencil we marked three dots near each cross log end, both inside and out (diagram 2). The lower dots were spaced to match the width of the sill log below while the upper dot was placed approximately at the cross log's midsection. Next, we connected the dots forming a rough arc near each log end, both inside and out (diagram 2).

Positioning the crosslogs on the ground, marked side up, we then hollowed out all the wood inside our lines with an ax and chisel (diagram 3).

The same procedure was repeated for all subsequent layers of logs. If gaps between logs was greater than one inch, we would hollow notches deeper than original lines. If some logs rubbed together due to crooks, we would hew down the problem spots with an ax.

The Floor:

To assure stable and longlasting floor joists, we notched our sawmill 2x4's directly into the sills instead of using spikes. The process involved two main steps; first we chiseled twelve equidistant 2x3x3 inch grooves along inner edge of each sill log (diagram 4). Next we notched twelve 2x4's per dia-

gram 4

gram 5 and set them (A side up) into the sill grooves.

The joists were further stabilized by nailing scrap 2x4's between all joists (diagram 6). For underflooring, we tacked 4x8 foot panels on 1/4-inch exterior plywood to the underside of floor joists. For floor insulation, we stuffed armloads of dry eelgrass, a ribbonlike seaweed tossed up by tons in shallow island coves, between all joists.

Sphagnum moss, however, would have supplied an excellent alternative. For overlay, 1x5 inch spruce planking, planed on the top side, furnished the final rustic look.
Door and Windows:
Unlike many cabin builders who cut out window and door openings when all walls are complete, we chose to notch and spike the frames into place while raising the walls. This not only permitted convenient access to the cabin interior, but also allowed the use of shorter trees where frames were inset.

All frames were constructed of 2x6 inch lumber which providentially washed up after a violent gale. Our door and windows, meanwhile, were salvaged from a quaint fishing cottage on the mainland.

The door frame was notched into the first crosslog as follows; first, we marked the frame width onto the crosslog. Then we made one inch cuts with the bow saw at six inch intervals (diagram 7) which permitted us to easily chip out a uniform groove with the ax. We then set and spiked the door frame into the groove (diagram 8). Subsequent logs around the door were cut into 2 foot and 2 1/2 foot lengths. Outer log ends were saddle notched as usual while inner log ends were spiked to the door frame (diagram 9). The log above the door frame had to be grooved on the underside to complete the framing in process.

Window frames were grooved and spiked into place with the same procedure.

The Roof:
Like many an amateur, we quaked at the prospect of performing acrobatic saw tricks fifteen feet above rocks and shale in an attempt to roof the cabin. Even more, we trembled at the idea of having to repeatedly hoist 200 pound timbers high above our heads. Again insight struck. By stationing the final log tier as a temporary foundation on the ground, we could easily "prefab" our roof on firm earth per diagram 10.

All roof notches were cut in tops of logs (rather than on undersides). Therefore, we notched top sides of A 1 and A 2 to hold log #1; we notched top side of #1 to hold B 1 and B 2 , and so forth. Numbers 1, 2, 3, etc., were our gable logs and had to be tapered at each end to approximate the roof slope. Letters A 1, A 2, B 1, B 2, etc., were poles running the length of the cabin.

When all roof pieces were in place and numbered, we disassembled the structure, and in a matter of a few hours, we hoisted and snapped all the prefitted logs atop the cabin. Rough 1x6 inch planks, nailed to the roof poles, completed the woody rooftop.

Since wooden shingles would have posed a possible fire risk, we chose to waterproof the roof with asphalt shingles.

The Porch:
By cutting our roof poles an extra four feet in length (22 feet), we easily extended the roof beyond the gables to form a protected veranda. Upright poles were spiked to the ridgepole and bottom roof logs to support the overhang.

Chinking:
Because sphagnum moss chinking would harbor insects and because mortar chinking would crumble as our unseasoned logs gradually shrunk in diameter, we settled on oakum, a ropelike caulking (available at most hardware stores) used by plumbers and seamen to plug leaky seams.

With a screwdriver we tightly packed the oakum strands between all log gaps, being careful not to allow oakum to bulge beyond the log exteriors (diagram 11). Protruding oakum would absorb rain which in turn would likely facilitate the rotting of logs.

The Extra Room:
Although constructing a second room concurrently with the first room would have been more structurally sound, we waited until a year later to add our comfortable 10x14' workroom, for hundreds of chores like clearing a garden and digging a well pleaded to be done first.
Erection of the spare room followed our previous procedures, except a few innovations became necessary to couple onto the original cabin:

1. We spiked two upright poles about seven feet in height onto the cabin exterior (A, B / diagram 12) with each upright supported by a pier of rocks.
2. Wall logs of the extra room were then grooved on one end per diagram 13 and spiked to the uprights. Outer log ends were saddle notched as usual.
3. Three poles were nailed in triangular fashion (with vertical braces) above the uprights to support the roof poles (diagram 12, C).
4. Roof poles were supported by gable logs on outer wall (just like diagram 10) but spiked onto the roof support (C, diagram 12) on the inner wall.
5. The window opening was enlarged into a doorway for the new room.
Cost Per Room:

- 12 2x4’s (12 foot lengths) for floor joists $12.00
- 6 ¼ inch exterior plywood (4x8 foot) $60.00 sheets for underflooring
- 39 1x5 inch spruce planks (12 foot lengths) $43.00 planed one side for flooring
- 39 1x5 inch rough spruce for roofing $47.00 (14 foot lengths)
- 90 pounds of plumbers oakum $72.00
- Roofing: shingles, asphalt felt, plastic cement $75.00
- Nails $15.00

Total Cost: $324.00

Prices are bound to vary from area to area, but shopping around definitely pays! By searching out a backwoods sawmill, we saved over $100 on lumber, avoided a middleman, and gave a boost to the “little guy.” Some sawmills will even work out swaps; you bring in 50 trees, they cut 25 into planking and keep 25 trees for payment.

Final Note:
Cabin building, step by step, has so many variations and so much leeway for error that a local oldtimer recently uttered, “The only man who can't put up a log cabin is either darn lazy or dead.” So pick up your ax and give it a try! You'll be surprised at the results.

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Making a Sheepskin Rug

by Amy Alpine

If you’ve been thinking of trying your hand at working with animal hides, making a sheepskin rug is a good place to start. Since you will probably be wanting a soft rug, you will naturally be keeping the fleece on and can skip all the messy and more difficult steps like scraping, de-hairing, and tanning which would be required for making leather. Since the rug will be used on the floor, there’s quite a bit of leeway as to how soft the flesh side can be — from nearly as soft as chamois to almost as tough as rawhide. In fact, for durability’s sake, you may want it on the tougher side. In other words, there is no way you can go wrong. If you start with a sheep hide and are willing to do a little work, you’re bound to end up with a nice soft sheepskin rug for your efforts.

First, of course, you need a hide from a freshly killed sheep. If you don’t know someone who will be butchering a sheep (most people just throw the hide away and you can usually have it for the taking), or if you don’t raise woolies yourself, there are other ways of getting a sheep. During the lambing season (late winter through spring) you can ask sheep farmers for a “bummer” lamb (lamb whose mother has died or refused to accept them). Most will gladly give you one free, and then you can raise it up yourself. This will require quite a bit of attention on your part as the lamb will need to be bottle fed three times a day for several weeks, so be sure you will be able to take on the responsibility. Then, when the lamb is about five months old, be sure that you are emotionally able to handle the butchering — and you’ve got delicious meat for your table as well as your sheepskin pelt. Another way to get a sheep is to buy an aged ewe or ram. Around here, especially in the fall, they often go for as little as $5.00 per head and there again, after butchering you’ve got some good cheap food for your table (mutton this time) and your pelt.

Okay, let’s assume you’ve got your pelt. Now what? The first step is to clean both sides. You’ll want to get all the blood and dirt off. I was really lucky when I did my first sheep skin — we were having our well dug at the time, and our friendly well driller let me open the outlet pipe on his water truck for cleaning my pelt. Otherwise, I would have had to lay the hide out by our hand pump and kept pumping! If you have a hose, turn that on full blast and really go over the hide well. Streams or any other running water work well too. Also, some friends of ours used a washing machine set to cold water and gentle action. Theirs turned out really nice with hardly any effort.

Now comes the only real work — scraping all the meat, fat, and membranes from the flesh side. It’s easiest to do this if you stretch the hide out on a flat surface at about waist level. Then do whatever you have to do and use whatever you find easiest to scrape the hide clean. I use an assortment of old dull knives and files and keep some liquid soap and a nail brush handy to really emulsify and scrub at the fat. A friend of ours swears by a spoon that has been sharpened on one side. Actually, almost any tool with a flat edge will be of help to you since whatever you use, it’s really a matter of persistence and how fine a job you want to do. One of the next steps, salting the hide, will help remove most of the membranes that are missed this first time around, so provided you get off the pieces of fat and meat, it really doesn’t matter if you aren’t able to get the flesh side perfectly clean. However, if you plan to progress beyond making rugs (to making buckskin, for example) it is something that you have to learn to do well and maybe even enjoy.

After getting the hide scraped as clean as you’re willing and able to do, it is time to tack it up for salting. Ideally, the fleece side should be close to dry and the flesh side damp enough for salt to adhere to it. However, if you have a corncrib or some other spot which will allow the fleece side to get some sort of ventilation, you

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can hang the hide up while both sides are quite wet. If you can’t manage this sort of thing, let the fleece side dry and then wet down the flesh side before tacking it up.

Although most books on working with hides say to tack pelts up in a place away from direct sun and heat, I’ve had just as much success tacking mine up in direct sunlight or even behind the wood cook stove. So do what you think best, as long as the skin will be out of the rain.

When tacking the pelt up, you will want to do it in such a way that the finished rug will lie flat and be as big as possible. The best way to do this is to begin at the neck, and using as small a nail as you can get, hammer a row of nails down the center of what was the critter’s back to its tail. Pull the skin back as you go along to prevent wrinkles. Then pull the legs out and tack them, getting both sides to match, and finish it all off by tacking down the rest of the hide. If you keep the nails close to the edge, the nail holes will be less noticeable. If you plan to trim your rug, they’ll probably be trimmed off.

Now comes the easy part. Get a bag of salt (not iodized) and cover every part of the flesh side with it. Be especially generous around the edges or any other part where you were unable to scrape the hide completely free of membranes. (If there’s any grass or other growing things under the spot where you’ve tacked up your hide, be sure to cover them before doing the salting.) Wait a couple of days until the salt has thoroughly dried. Then get a wirebrush and some sandpaper (a mixture from very coarse to fine is best), and you’re ready for the fun part. At least I think it’s fun. I really like the transformation from salted hide to white leather.

First go over the hide with the wirebrush to remove the salt, rubbing hardest on the spots where membranes were left adhering. On really stubborn spots, use your coarsest grade of sand paper. When you’ve finished, the hide should have a rough suede-like appearance. To get a more chamois-like texture, use the finer grades of sandpaper to remove the rough edges.

When you’ve got it to your liking, take the hide down and lay it on the ground, flesh side down, to decide whether any of the edges need trimming. If any of them are particularly ragged (if whoever skinned it was new at it, they probably are) or if you want a more finished appearance, now’s the time to trim it down. Use a knife for the best results, since scissors will cut the fleece and make your rug look hacked at.

If you like the rough appearance of the fleece side, you’re finished. However, if you want to make your rug as soft as it can be, comb it out. You can use a comb, but this is pretty tedious. A rake brush (the kind dog owners use on their long haired dogs) works best. Don’t worry if some of the fleece comes off in your comb or rake as you brush your rug. It’s to be expected. Save those bits of fleece, though. Birds love to use them during spring nesting season. If you raise rabbits, the fleece is just the thing for providing extra covering for baby bunnies on cold nights.

That’s all there is to it — now you’ve got a sheepskin rug to warm your floor and your pride!
We love the meat of wild game animals. When Dennis was young, his father often hunted, and consequently, wild game was often on the table. "As a youngster," Dennis recalls, "I did not really enjoy game meat. My mother usually cooked it in the traditional American way; that is, well done, and did everything to remove or hide the 'gamey' flavor. Even though my mother was and is an excellent cook, I found out in later years that she didn't like to eat or cook wild game. She did it as a wifely duty for a hunter husband." This illustrates our first point: to get the most out of wild game meat, it must be cooked by a person who enjoys preparing it, for people who enjoy eating it. It must be enjoyed for what it is, a tasty wild harvest from woods or field, and not disguised and made to taste like our nondescript domestic meat. When someone says, "That venison is pretty good; it tastes like beef", it's a blatant insult to the deer that provided the venison. To favorably compare pheasant with agribusiness chicken is like comparing tasty dandelion or lamb's quarters greens with supermarket iceberg lettuce.

A second important factor is the way game is handled from the time it is shot to the time it is turned over to the cook. There are numerous descriptions of how to clean various animals, but we include much more under the heading "handling". Cleaning simply involves separating the edible parts of the animal from the inedible parts. There are many ways to do this and we don't think the technique of how an animal is cleaned is too important. We won't belabor the point here.

When it is cleaned is another matter and it is very important. Some animals should be cleaned immediately upon their death and, believe it or not, the eating qualities of others are improved if you wait awhile to clean them. More on that later.

We believe in proper aging of all meat. How do you expect the meat of a four-year-old, well-muscled, mature deer to be as tender as that of a one-year-old cow if the beef has been aged (all grocery store beef is aged) and the venison has not? Aging under the proper conditions allows the natural bacteria in the meat to begin to break down the muscle fibers and make the meat more tender. Aging also brings out the meat's full, natural flavor. Different species should be aged differently, and it is more important for some than for others.

To properly prepare game, one should know the animal's approximate age. Young animals are naturally more tender than old ones, and it is often
advantageous to prepare them differently, taking more care to tenderize the meat of the older animals.

A general rule is do not overcook. This is just a good general cooking rule, but especially true with game. If you want to enjoy the true, natural quality of the meat, don't cook it into a pile of shoe leather. If you have to do that to make it palatable to you, you really don't like the meat anyway and should give it to someone who does.

Handling Game Birds

Game birds are delicious and vary from the delicate white meat of a ruffed grouse breast to the rather strong-flavored dark meat from the breast of a Wilson's Snipe. Many species of birds can, and we could even say should, be aged uncleaned with their viscera left in.

This statement is almost a sacrilege in North America. It is against our Puritan ethics to think that we should not remove those dirty old guts from an animal as soon as we can. There is plenty of controversy about this in North America and we hope the FDA doesn't come down on us for what we are about to say.

Waterfowl — wild ducks and geese — should definitely be aged undrawn (with their viscera in). Like typical Americans, we were repulsed at the thought of this, but after reading several European cookbooks, I talked Dennis into trying an experiment. Here's how Dennis tells the story: "Several years ago, I had bagged three identical adult male mallards. I plucked and completely cleaned one immediately when I got home and then froze it. I removed the viscera from another, but left the feathers on. I left the third duck entirely intact and aged the latter two ducks for four days in an enclosed back room. The average temperature was about 45 ° - 50 °F. Diane then prepared the three ducks for a meal for four of us. The duck that was aged undrawn won a unanimous first place vote. The duck that was immediately cleaned and frozen was a distant second, and the duck that was aged after being gutted was a close third. The winning duck was very tender and had quite a pleasant duck flavor. The second duck was tough and had a little stronger flavor. The third duck was tender but had quite a strong flavor. Air getting into the body cavity had caused some spoilage."

Since that day, every wild duck or goose we've had has been aged, undrawn. We prefer to age ducks and geese for three or four days at about 40 °F, but we've left ducks for that period at warmer temperatures and they were still excellent. Older birds, especially geese, should be aged longer, and birds less than a year old will probably be tender if not aged at all. One precaution — don't let flies get at them. That's usually not a problem after hard frosts in the North, and when we lived in the South we put the birds in an old refrigerator for three or four days to age them.

Dennis offers this encouragement for the squeamish: "One would think that it would be a smelly mess to clean a duck that had been dead three or four days. It's not! I think duck and goose guts smell to High Heaven when they are fresh and believe it or not, they smell better after the birds have been properly aged. I wouldn't have believed it until I tried it either, and I have told this story hundreds of times in person and don't believe anyone has ever believed me. Maybe I am ruining my credibility by telling it again, but like Jimmy Carter, I'll never lie to you."

We pick ducks and geese by dry-plucking and coating with paraffin, then peeling off the paraffin to finish the job. We usually save the down and breast feathers for pillows.

An additional note about waterfowl: mallards, blackducks, teal and many other puddle ducks are noted for their culinary qualities. Some species, however, are considered inedible by many people. These include mergansers, scoters, goldeneyes and several diving ducks or sea ducks.

"I can tell you from experience," says Dennis, "that it is hard to beat a grain-fed mallard from Saskatchewan, but I have eaten a few diving ducks."
I know two college students from northern Ontario, who lived on duck meat all fall. The only abundant ducks in that country were goldeneyes and mergansers and these were mostly what they ate. They simply filleted out the breast meat, soaked it overnight in salt water, and said it tasted like any other duck. In fact, they did it to all their ducks, even the rare black duck they got. Even though I am basically against this treatment of meat (I know it makes it tough, and believe that it diminishes its nutritional quality), I suppose it is okay if it makes otherwise unpalatable meat palatable. Soaking in salt water is a great equalizer. It would probably make the loin from a young calf taste the same as the breast of a 30-year-old herring gull.

Roast Duck

This is a loose recipe and can be varied where you wish. We prefer our ducks split in half lengthwise like broiler chicks, but you could use whole ducks and make a stuffing. A stuffing of apple slices, chopped celery, a few cranberries, chunks of orange, diced onions, and salt and pepper is good. For whole ducks, increase cooking time by about 10 minutes. You may or may not serve the stuffing. We like it — others say it is for flavoring only.

Batter Sauce

1/3 cup dry red wine
1/3 cup currant jelly or any tart fruit jam, jelly, etc.

Combine in a saucepan and heat to almost boiling. Keep the sauce hot while you are using it. We usually serve duck with a rice pilaf flavored with orange juice and grated rind, pepper, salt, thyme, onions, and celery. A green vegetable, salad, or pickles of some type are also good, and of course, dry, red wine.

We usually handle woodcock the same as waterfowl. The trick with woodcock is in the cooking (never overcook) and we age them or not depending on when there is time to clean them.

How to cook woodcock is a very controversial subject. Most Europeans demand that the bird be cooked undrawn, usually combining the various entrails in a sauce, while others eat only the traditional parts. The Salmis of Woodcock recipe is prepared with the whole bird. The way we most often have woodcock is sautéed. It’s quick, so we do not have to wait so long for the delicacy.

Sautéed Woodcock

Allow at least two woodcock per person and split them down the back (they cook faster this way). Sauté a minced clove of garlic in butter. Add the woodcock, seasoned with salt, pepper, and either thyme, marjoram or rosemary — we prefer marjoram. Turn often and watch carefully. The centers of the breasts should still be red and juicy when done. Cook not more than 10 minutes. We usually serve them accompanied with rice, squash, and a wild berry jam, which really sets it off.
**Salmis of Woodcock**

4 woodcock
1/4 cup dry white wine
1/4 cup rich beef stock
2 lemons
Salt, pepper, and nutmeg
1 1/2 tablespoons dry mustard
6 sliced mushrooms
1 tablespoon butter
1 tablespoon flour
3 tablespoons finely chopped parsley

Roast woodcock slightly (until half-cooked) and cut them into serving pieces. Be sure to cut woodcock on a serving dish to catch blood and juices. Arrange pieces in the blazer pan of a chafing dish. Crush livers and giblets into serving dish with juices; add dry white wine, beef stock and juice of 2 lemons; stir in the finely grated peel of 1 lemon, and season to taste with salt, pepper, nutmeg, and mustard. Add sliced mushrooms, and pour this mixture over woodcock in blazer pan; place over heater and cook, stirring so that each piece of meat is thoroughly moistened and does not stick to the dish. Do not let the Salmis come to a boil. Just before serving, stir in a beurre manie made of butter and flour. Sprinkle with finely chopped parsley. Serves four.

**Galanaceous Birds**

Galanaceous birds (birds in the chicken family) are somewhat different. French cookbooks call for aging insectiverous birds undrawn, but aging seed-eating birds after eviscerating. We have tried it both ways and can't see too much difference. We would certainly age old birds, even if it was only by leaving the cleaned meat in the refrigerator for three days to a week before preparing it.

The white meat of a ruffed grouse breast is tender and delicate and we never let them age after gutting, because leaving the gut cavity exposed too long to air imparts an unpleasant flavor to the meat.

We have aged bobwhite quail and pheasants and not noticed much difference except with old birds, which must be aged to be tender. We heard that sharptail grouse should be gutted in the field immediately when shot, and tried this with some and gutted others about half a day after being shot. Sharptails have rather dark, strong meat anyway, but the ones which were immediately gutted were much superior than the others.

**Sautéé Grouse**

Grouse is another game bird which we prefer sautéed, and we also like it in a Salmis, using the recipe for Salmis of Woodcock. Again, it should never be overcooked, because the meat becomes dry and stringy.

Allow 1 grouse per person. Split lengthwise (sometimes we separate the legs also, since they take less cooking time).

Sauté a minced clove of garlic in plenty of butter. Add grouse halves seasoned with salt, pepper and marjoram leaves. Do not overcook. There should be a hint of pinkness to the deepest part of the breast. Total cooking time is about 20 minutes. Our favorite way of fixing quail (which we seldom seem to have anymore) is as follows:

**Quail With White Grapes**

4 quail
3 tablespoons flour
1/3 cup butter
2 1/3 cup dry white wine
2 tablespoons lemon juice
1/4 cup seedless grapes
2 tablespoons blanched almonds, sliced

Clean quail; rub with a mixture of salt, pepper, and flour. Melt butter in thick-bottomed casseroole and sauté the birds in it until golden on all sides. Add wine and lemon juice; cover and cook over low heat 15-20 minutes. Add seedless grapes and sliced blanched almonds, and cook for 5-10 minutes more, or until the birds are tender. Serves 4.

One of the few ways we are traditionalists is in the way we prefer pheasant — roasted. Most recipes call for strips of bacon placed over the breast, but we prefer to baste the breast with butter every so often. Stuff it with apples and celery.

**Roast Pheasant**

2 young pheasants (about 2-1/2 pounds each)
stuff with: 1 tart apple, coarsely grated
2 stalks celery, chopped
combine with 6 tablespoons softened butter
juice of 1/2 lemon
1/3 cup finely chopped onion
2 tablespoons olive oil
salt and pepper

Season pheasants with salt and pepper. Roast in a 350 °F oven for about 1 hour, or until tender, basting from time to time with butter, chicken stock, and red wine. Make a gravy from skimmed pan juices (about 1/2 cup; add to it with water and red wine), 2/3 cup chicken stock, 3 tablespoons red currant jelly, and 3 tablespoons freshly grated bread crumbs. Simmer gently until thickened. Serve with pheasants. We like baked squash served with pheasants.

**Mammals**

The rule with mammals is entirely different than with birds. They should be bled and gutted as soon after death as possible. Often the shot wound is sufficient to bleed the animal, but field dressing the animals immediately, by opening the gut cavity with a knife and removing the viscera, is a good idea. The remaining blood should be wiped out of the cavity with a paper towel or snow. The meat should then be cooled (not frozen) as soon as possible.

All these rules apply to deer and other large mammals. We have eaten venison which was very
dark and clotted with blood, and it was awful. No wonder venison is not enjoyed by all who eat it! Field dress the animals where they fall, and then cool them as soon as possible. That is usually no problem during deer season in the North, but in other regions it is.

As with most birds, venison should be aged. Especially if the animal is an adult. We age venison with the skin on, but I have known people who age it after skinning and quartering. I don’t know if it makes any difference. If the weather stays below 50 °F, we like to age deer (especially old ones) for two weeks. We then cut, wrap, and freeze the meat. An extremist friend of ours would never freeze his venison. He simply hung it in his cool garage and cut off a piece as he wanted it. He said if it took him from November 20 to January 20 to consume his deer, it got better and more tender with each meal.

We truly love the flavor of venison and thus never try to disguise the flavor by marinating it. Since our venison is always aged, we cook it in the same manner as we do good beef, but use marjoram or rosemary for the main herb; whereas, we usually use sweet basil with beef. We prefer good cuts of both meats cooked rare, especially since venison becomes very dry when overcooked. A bit more butter, olive oil, lard, or other fat must be used since venison is usually not very fat. To us, garlic is a must with venison.

We usually “pan broil” the better cuts of steak. This is a method where the frying pan is heated very hot, without fat, and the venison, seasoned with pepper, rosemary, and garlic, is put in. Cook for a couple of minutes on one side, then flip and cook a couple of minutes on the other side. Any liquid that accumulates is poured off, or the pan is swirled until it evaporates. Using this method, one must keep a close watch over the meat, for it cooks rapidly. Never salt steaks until after they are cooked because the salt draws the juices out, thus making the meat less moist.

Large, tender roasts are prepared by simply seasoning with salt, pepper, and rosemary. Insert slivers of garlic on the surface. Roast for 15 minutes in a very hot oven (to seal in juices), then turn oven to 325 °-350 ° until a meat thermometer registers beef-rare.

All other venison cuts we interchange for beef in recipes, including such things as spaghetti sauces, stews, and venison stroganoff (which cannot be beat). Venison also makes superior stews, pot roasts, and soups, which are cooked long and slowly.

Rabbits, hares, and squirrels are handled almost the same as venison. They are gutted and wiped out in the field, and skinned later at home. After skinning, they are hung and aged for three to four days in the back room. Hopefully, the temperature will stay between 30 °-50 °F and the flies won’t come out. We once compared aged rabbit meat with fresh rabbit meat and the difference in tenderness and flavor was striking. One of the primary advantages of aging meat is that you don’t have to overcook it for it to be tender. The meat can maintain its full, rich, natural flavor.

Fried Baked Rabbit or Squirrel

Take:
1-2 rabbits or squirrels (according to size), cut up.
Dip in milk and shake pieces in paper bag containing flour. Season with salt, pepper, rosemary, thyme, and garlic if you wish. Fry quickly in a mixture of oil and butter — there must be enough to keep meat from sticking. Transfer to baking dish with a bit of the fat, and roast in 325 °F oven for about an hour, or until tender.

Another favorite of ours is game pie, which can be made from any one game meat, or better yet, a combination of several. Make enough pastry for two crusts from your favorite recipe. We use the proportion of: 1 cup flour, 1/2 teaspoon salt, 1/3 cup plus 1 tablespoon lard, and 3-4 tablespoons water, for each crust. For a 10" deep dish pie — line dish with uncooked dough.
Mix together:
2 cups cubed game meat
2-3 carrots, sliced
2 stalks celery, diced
1 diced potato
1 medium chopped onion
1 minced clove garlic
salt, pepper, and a handful of chopped parsley
We can say little about other mammals; i.e., woodchuck, porcupine, raccoon, opossum and the like, because we have eaten very few of these. We vengefully ate a 20-pound 'coon we trapped after it had consumed 12 of our laying hens, and he was delicious. From what we have eaten, all of these other mammals are excellent if prepared properly.

Our mouths water anticipating the wild game of fall, just as they water waiting for those first lamb's quarters and dandelion greens in the spring.

Add: 1/4 cup more or less chicken or beef stock, perhaps mixed with white wine. Put in pie shell. Dot with butter. Place crust on top, making slits for air to escape. Bake in 425 °F oven for 15 minutes. Then reduce to 350 °F for about an hour or until meat and vegetables are tender.

We believe a cardinal sin in handling meat, almost any kind, is to soak it in water. After all, would you throw a piece of raw steak in water? Soaking causes the exposed muscle fibers to contract and thus toughens the meat. If there is blood or dirt that needs removing, take a damp cloth and wipe the meat. We shudder when we read a recipe which says “Soak the meat overnight in salt water to remove the blood.” There are better ways to remove the blood in the field, without ruining the meat. The only exception to this rule is for extremely bloodshot pieces where there are shot wounds, or perhaps to make unpalatable meat at least somewhat palatable. We usually grind this kind of meat or use it in soups.

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(Dealer inquiries invited)
Happy in Hendor

by Joan Wells

It takes a heap o' chickens to make a farm a farm. Twenty-five multicolored hens scratch and peck in the sunlight, foraging worms in the tree shadows, bobbing among the meadow grasses. Motely, the king cock, struts the fringes of his harem, while Banty ushers his few ladies into a thicket. A peaceable kingdom. I wonder how I ever lived without them. What are mornings like without a rooster's crow? I puzzle, too, how we stomached pale city eggs all those years.

Chickens were our first farm venture, adopted even before we planted our first seed. When a good neighbor offered twelve of her laying hens plus a rooster, we plunged right in. An 8' by 12' crib-style (of 2' by 4' rejects) chicken house went up in a snap, its windows facing properly south. Four laying boxes, 12'' by 12'' were hung on the short wall, with a rail below for easy mounting, and straight pine branches were laddered up the long wall for roosts.

We then littered the sunken earth floor with woodchips (free from the town mill), and held open house for our new brood. Taking our farm neighbors' advice, we brought the chickens home at dusk and locked them into their quarters so they could get the feel of shelter. Leery, I let the clucking, curious bunch out in the morning to explore their new playground, half afraid they'd run off forever. Instead, they beelined uphill and pecked about the cabin as though it had been home eternally. I was sold. Such loyalty, such adaptation would not go unrewarded. I vowed then and there to become the best chicken farmer on the mountain. (An easy vow; we're the only farm on the mountain.) The next afternoon, I gathered my first precious three eggs, then watched amazed at nightfall when my ladies and their cocky mentor, not missing a grub on the way, headed for their quarters. Was this what farming was like? Nothing to it!

That was four years ago. I'm wiser now, less greenly naive; but I still say chickens are a lovely, simple bunch of creatures to raise. Even better in our money-lean lives, they're the only "stock" we've nurtured so far on our small subsistence farm that's paid for itself — with dividends. When I won second prize for my eggs at the County Fair this year, I felt I had reached some farmy zenith.

In the middle of that first summer, a month after we took on the first chickens, two hens settled firmly in their laying boxes and rudely refused to budge. I consulted my neighbor. They were broody, she advised; a good time to order new chicks. Our order went into the mail that day: two dozen unsexed, mixed day-old chicks. Their kind was the cheapest, and besides, I wanted to add some variety to my Rhode Island Reds, both for beauty and the experience of learning about other breeds.

When, but a few days later, the cheeping box arrived, we moved the two protesting setters into larger quarters — hastily nailed wooden boxes with chicken wire doors. A mayonnaise jar waterer and nice clump of straw completed the decor. Then warily, breath held, I tucked a dozen chicks under each ersatz mother. At that moment, I comprehended completely what the term "like a mother hen" means. Clucking protectively, each hen in turn spread her wings and fluffed her feathers 'til she seemed twice her size. After the twelfth child was admitted, only a subdued cheeping indicated the babes' whereabouts.

After feeding the new families chick mash for three days, and making sure their water wasn't spilled, I opened their doors and invited them into the brave, new world. Mother hens looked cross, scolded my forwarding, but finally, reluctantly, led their wards into the sunlight. The first motherly lesson was how to scratch for food, and the chicks fell to it eagerly. The second was "Thou shalt not stray from my side." If one chick erred and wandered more than inches, mother hen set up a loud scold and rushed to herd the wayward one back to her fluff-feathered circle. "Mother hen" indeed. And another notch in my chicken estimation.

As soon as their first wing feathers appeared, I took the chicks off mash and introduced them to our regular chicken feeding regime: egg laying pellets (store-purchased, sad to say, for we can't buy or grow the appropriate ingredients), wheat, oyster shell, and all the food scraps not already pig apportioned. The chicks thrived and grew quickly, and by Fall, we found ourselves with ten rangey young cocks. Most of these turned out to be sex-links, a large, white, aggressive breed. When they began to wage hourly battles for dominion, we rescheduled our slaughter plans and got them into the pot quickly. The few other roosters, varicolored and of undetermined breed, we saved, staying their execution until Winter, when we'd most need meat on the "hoof." (It was a wise de-
cision, for that Winter we were snowed in for weeks, and without electricity for a meat-keeping freezer, ready chicken dinners proved a healthy salvation.)

Winters are heavy on our mountainside, and I worried how my chickens would fare. When the October temperatures dropped well below freezing, we nailed windows over the chicken coop wire, allowing the weak sun to shine through. When November's first snows fell, the chickens emerged from their unlocked door each morning as always and pecked about the whitened earth as though born to the Arctic. When December's endless snows fell, and drifts buried all the families, the chickens peered from their windows and nagged, their complaints waxing positively shrill. You'd think I had hidden their earth. I consoled them with pans of warm drinking water, with desserts of saved bits of greens from our table. But outside of their peevishness, the weather, which reached 20 below at its bottom, seemed not to affect them a bit. Though brief daylight hours cut down their egg production, I felt it best not to mention this to them; they were touchy enough at the theft of their summer.

Late that Winter, we experienced our first predator tragedy. On reaching the chickens' yard one snowy morning, I was greeted by a tangle of blood and torn carcass. Six of my young hens, I managed to count. In deep mourning, I called on my neighbor. It sounded like weasels, she advised; they could get in to the tiniest places. I examined the coop then, narrow-eyed. Sure enough, one small hole glared from a space of wire above the window. Mending it in quick order, we carved another notch in our chicken learning. Never since that dreadful morning have we left the chickens unprotected by even "the smallest hole," from dark until dawn. And we've never lost a chicken since to a hungry stalker.

By that spring, we had but two young roosters left, the largest and most comely, plus Peter, our original proud cock. However, three roosters was one too many, so with sad hearts and appropriate ceremony, we began a new siege of slaughter. Peter went first, gallantly, then one by one, the original, now two-year-old hens. (I can't divulge much about the process. Mike performs that deadly task, up to the point when each carcass is quite anonymously feathered and plucked. I know it's a cop out, but I can't bring myself to eat a known friend.)

That second Summer, I decided to try to hatch out my own chicks. One of my young hens, Pinky, who had turned out to have some banty in her, obliged first, producing seven bright chicks. In July, Blondie came up with five, Pretty with a puny but welcome three. In August, Dicey settled onto a nest. And sat. And sat. In mid-
September she was still setting. The three mothers paraded their broods by her triumphantly. Dicey clucked and minded her business. Finally one early Fall morning, I heard a single cheep under Dicey's feathers. She winked and looked at me proudly. Unable to find a proper chick waterer right away, I grabbed a pan and filled it, stuck it and a handful of mash in her quarters, and ran up the hill to tell Mike the news. An hour later, I returned for a nursery visit. One new grey chick floated in the water-brimming pan, dead to all worlds. Dicey seemed not even to notice. If Mike hadn't appeared at that moment, I think I might have joined my lifeless charge in suicide, I felt so stupid, so guilty. Another lesson, too sadly impressed: never leave a chick near open water.

This year I again let my hens hatch out their own chicks. But their stars must have been crossed, or the cold summer not to their liking, for only faithful Pinky and one friend produced a family. A few hens brooded like mad, some even nursed their eggs for an age past 21 days. This year's two roosters didn't lack for fertilizing activity. But either the eggs simply didn't hatch, or a potential mother changed nests mid-setting. Worse yet, I discovered one hen methodically pecking at the clutch she sat on until not one was left whole. (She was quickly transformed to stew.) With the number of my egg customers growing, I've determined not to leave so much to chance in the future. The minute good Pinky hunkers down, I'll send off my first order for chicks. Once I have two dozen bought and tucked under feathers, the dear creatures can practice their maternal arts as they wish.

In my four years of hencoop I've lost only two chickens to disease, both of those to internal water cysts. Actually, we didn't lose even them; they simply grew weak and huddled in a corner until Mike put them out of their misery. (The cats loved their remains; nothing goes wasted on this farm.) Visitors remark on how healthy my chickens appear, and, as I mentioned, my egg customers burgeon. I can only thank my stars and my four years of affectionate learning. I think the affection part makes half the success, for I truly believe you have to care about your animals' health, comfort, even, yes, happiness, to raise them properly, to deserve their bounty.

I'd like to share here a few of my means to success:
1. Clean quarters. Not spit and polish, of course, for chickens, for all their endearing qualities, do have messy habits. But their food and water must be fresh and clean, and their quarters relatively free of flies and permeating smells. I clean the coop each spring from stem to stern, shovel out the litter (great stuff, tilled into the garden), remove the windows, wire-brush the boards and roosts. I then lay down 6 inches of fresh litter (wood chips work best, for they stay dry and aerated) and sprinkle it with superphosphate. Once a month I clean the laying nests and sprinkle their new hay with superphosphate, scattering a bit more over the whole coop for good measure.

2. Wholesome food. First of all, I wouldn't raise chickens if I hadn't a large space for them to run free. Mine have an orchard, meadow, and pine-topped hillside, and after harvest, the remains of the crop garden. Though they never range out of sight, they do delight in roaming to search out the banquet of bugs and greens the earth sets out. Before we got a dog, they were, I admit, pests on the porch and impolite with their droppings. But that's dog's territory now, and many a feather has flown upon its invasion.

Footnote: I've found a dollop of vinegar (cider) in the chickens' water keeps them bright-eyed and beautiful. And to save on oyster shell, I return all their remnant shells to them, dried and crushed, whenever we've an accumulation. Since chickens must have fresh water available always, it must be heated in deep winter to keep from freezing. I manage this by taking them a pan of warm water three or four times a sub-zero day.

3. Eggs. Gather twice a day in hot weather. For keeping, always package them with the narrow end down. Clean dirty shells by rubbing lightly with sandpaper, never water. If I've a surplus and have to keep them over a week, I rub the shells with mineral oil to seal them, and store them in the cool root cellar. Eggs can be kept almost just-laid fresh for at least six months this way. If eggshells seem thin or crack too easily, increase the chickens' oyster shell ration. Chickens who eat fresh greens daily produce deep golden yolks. A speck of blood in an egg does no harm; it usually just means the chicken has been bruised slightly ... or had a difficult lay?

4. Attitude. Don't personalize your chickens by naming them or making them pets. I did and I do. And Pinky, Sister, Pretty, Pearly, Silky, Snow White, Nellie Gray will die of old age, properly mourned, drastically uneconomic. But then ... that's half the joy of a farm, getting to know and cherish its creatures. And there's always that passel of look-alike red hens, destined through their anonymity to the stew pot.

If you cannot stand chickens (and I know of a few such crazies), buy your eggs from a neighbor who can. Like all living things, chickens will do as they're done to.

Too often scorned, made jokes of, given bad press, I'd like to elevate the status of chickens, and hereby nominate them as man's second best friend!
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FARMSTEAD MAGAZINE 51
he collecting of antiquities is currently in vogue all over the world. One can visit antique shops in any city, town, or hamlet throughout the United States. One can visit colorful bazaars in such picturesque cities as Peshawar near the Khyber Pass, Old Delhi, Kabul, Hong Kong, or Istanbul where antiques are being bought and sold by merchants who are often more fascinating than their merchandise. In America there are collectors of antique automobiles, bottles, guns and even barbed wire. Certainly there is little novelty in the formation of clubs dedicated to the collecting and preservation of antiques. What may be surprising to many, however, is the existence in the United States of an organization dedicated to the preservation of rare breeds of poultry called the Society for the Preservation of Poultry Antiquities.

At a time when megalopolis and urban sprawl have become a part of our vocabulary, millions of people never see live poultry. They have only a casual awareness of the existence of poultry, mainly through the eggs and chickens which they consume. To most people the common term “chickens” is used to denote anything from a baby chick to a mature fowl. In an era when agriculture is big business, the poultry industry is no exception; the family-run poultry farms here in Maine, for example, are a thing of the not too distant past. Astronomical grain prices have discouraged most individuals from keeping a small flock in their backyards, providing, of course, there are no public ordinances preventing them from otherwise doing so. The country fairs are certainly still flourishing in Maine; in fact, they seem to be increasing after suffering a decline in popularity. There are exhibitors of cattle, sheep, and sundry other exhibits, but no poultry. One by one the fairs here in Maine have discontinued poultry exhibits even though there are enough poultry fanciers in Maine alone to fill an exhibition hall with exotic and rare breeds such as would astound most viewers. For the first time most would realize that a “chicken is not just a chicken!” A number of the New Hampshire fairs have excellent poultry shows and the exhibition of poultry is on the increase in that state. There were actually a few years in the late 1960's and early 1970's when there was not a single poultry show in Maine. Thanks to a small group of dedicated poultry enthusiasts such as C.R. Woodman of Readfield, Maine, the Northern New England Bird Fanciers’ Association has been formed and once again Maine has its own poultry show. Perhaps some of the readers of this article had an opportunity to view the 1976 show held at the Lewiston Shopping Center where exhibitors from several states competed for various awards. Many varieties of standard fowl, bantams, pigeons, turkeys, ducks, geese, and guinea fowl were displayed for the thousands of shoppers to view, many of whom exclaimed with utter astonishment at some of the rare and exquisite breeds which formed a kaleidoscope of colors with their lovely plumage.

Although the term poultry covers everything from geese to guinea fowl, the remainder of this article will focus upon chickens, large fowl or standards as opposed to bantams. Since the poultry industry is now conducted primarily in the form of large corporations, a constant effort is being made to produce so-called sex-linked birds that will shell out eggs at a rate that would shock the farmer of yesterday who earned a good living from keeping a few hundred Rhode Island Reds, White Plymouth Rocks, Barred Rocks, or White Leghorns to name some of the more popular breeds of twen-

Take Antique Chickens Off The Shelf

mature fowl. In an era when agriculture is big business, the poultry industry is no exception; the family-run poultry farms here in Maine, for example, are a thing of the not too distant past. Astronomical grain prices have discouraged most individuals from keeping a small flock in their backyards, providing, of course, there are no public ordinances preventing them from otherwise doing so. The country fairs are certainly still flourishing in Maine; in fact, they seem to be increasing after suffering a decline in popularity. There are exhibitors of cattle, sheep, and sundry other exhibits, but no poultry. One by one the fairs here in Maine have discontinued poultry exhibits even though there are enough poultry fanciers in Maine alone to fill an exhibition hall with exotic and rare breeds such as would astound most viewers. For the first time most would realize that a “chicken is not just a chicken!” A number of the New Hampshire fairs have excellent poultry shows and the exhibition of poultry is on the increase in that state. There were actually a few years in the late 1960's and early 1970's when there was not a single poultry show in Maine. Thanks to a small group of dedicated poultry enthusiasts such as C.R. Woodman of Readfield, Maine, the Northern New England Bird Fanciers’ Association has been formed and once again Maine has its own poultry show. Perhaps some of the readers of this article had an opportunity to view the 1976 show held at the Lewiston Shopping Center where exhibitors from several states competed for various awards. Many varieties of standard fowl, bantams, pigeons, turkeys, ducks, geese, and guinea fowl were displayed for the thousands of shoppers to view, many of whom exclaimed with utter astonishment at some of the rare and exquisite breeds which formed a kaleidoscope of colors with their lovely plumage.

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Jack Barnes, author of “Rural Poland — A Glimpse of Our Past” which appeared in the Summer issue of Farmstead, lives in Hiram, Maine.
or the redwood. It is deplorable and disconcerting to many whenever any species becomes extinct. There is a long list of standard breeds that are on the endangered list, and each year the list seems to grow longer. Some of these breeds are seldom seen even in the largest poultry shows in the United States and Canada. How many have ever heard of, let alone seen, such breeds as the Dominique, La Fleche, Dorsets, Buff Catalans and White-faced Black Spanish to name just a few? As the years pass, the endangered list becomes longer and longer. The Mottled Houdan, Speckled Sussex, Lamona, and even the New Hampshire Red have been added to the more recent list. It is not just the members of the Society for the Preservation of Poultry Antiquities who are striving to keep these breeds from dying out. There are hundreds of other clubs and thousands of exhibitors and nonexhibitors, who belong to no special organization, who are helping to preserve our old and lovely breeds. The problem is that some breeds such as the La Fleche have become so scarce that it is difficult for one to acquire the breed and even more difficult to add new blood lines to one's breeding stock. One of the services that the Society for the Preservation of Poultry Antiquities provides is a directory of all its members and the breeds and variety of breeds which each has. However, even when one locates a breeder of one of the rare breeds for which he has been searching, the breeder may not have extras to spare. If he does, the cost of shipping live birds is outrageously costly and the purchaser must bear the cost which very often is much higher than the cost of the breeding stock. Few breeders will ship chicks as they do not usually hatch on a large scale. Many will ship eggs, but it is always a gamble that they will arrive in good order and the hatchability of shipped eggs is very often low or nil.

One who has never attended a large poultry show and who is unfamiliar with all but a few more common breeds, it may come as startling news that there are around 120 different varieties and breeds that have been admitted to the Standard of Perfection. There are many other breeds and varieties that hopefully can be preserved and admitted in the future. To be accepted to the Standard of Perfection, a breed or variety of that breed must be identifiable by certain characteristics such as color pattern, type of comb, size, and shape. All breeds in the Standard of Perfection have been divided into classes. There are at present nine classes: the American, English, French, Mediterranean, Asian, Hamburg, Continental, Polish, and Old English and Modern Games. Almost every breed has more than one variety. The familiar White Leghorn is but one of twelve varieties belonging to the Leghorn breed. To cite a few examples of what constitutes variety, there are Single-Comb Dark Brown Leghorns, Rose-Comb Dark Brown Leghorns, and Single-Comb Black, Buff, Silver, Red, Black-Tailed Red, and Columbian Leghorns. There are fowl with single combs, rose combs, forked combs, pea combs; there are breeds with crests, beards, muffis, and feathered legs; there are those with five toes; there is one breed with white faces; the Araucanas lay blue, pink and green eggs (the low-cholesterol content often attributed to their eggs is fallacious); and, of course, there are breeds and varieties with every color pattern imaginable, including blue. The many color patterns and varieties of combs make raising fancy poultry challenging and exciting. Poultry enthusiasts can only be stereotyped as much as they share a common interest in raising poultry for aesthetic reasons. Doctors, lawyers, teachers, men and women from all occupations, youth and the aged can all be found at a major poultry show sharing their experiences, their successes, and failures. The winners are usually magnanimous in offering helpful tips to the losers, and a convivial atmosphere intermingles with a cacophony of sounds characteristic of the poultry world.

One of the goals that most poultry hobbyists have is to encourage others to take up the hobby. The more poultry enthusiasts there are over the country, the better the chances our rare breeds will have to survive and to perpetuate themselves; the more people involved with poultry, the more clubs and consequently more shows will spring up over
the country. It is a healthy and wholesome hobby. All shows attempt to offer incentives to young people to exhibit birds. I am in the field of education, and each year I realize great satisfaction from taking some of my own birds to my high school and giving lectures on poultry genetics to the biology classes. Having live birds in the biology lecture room always generates a great interest among the students. For most, it is the first time that they have viewed anything but the more common breeds, and they are amazed at the variations of traits in different breeds. A show and tell lecture with poultry is a guarantee of a successful day in the classroom. Like any other hobby, raising a small flock of poultry is therapeutic. Perhaps it is more so than many hobbies because it is more demanding. Poultry should be fed and watered twice a day. Usually when I return to my home in the afternoon, I am carrying an attache case filled with work that must be completed before the following day. Having to care for the poultry gives me a respite from mental pressures. I enjoy feeding and watering the birds, gathering the eggs, checking out the feathering of one of my choice birds, or working with them so that they will not become nervous when they are handled by judges during a show. My birds have compelled me to take that break from my regular work; I feel more relaxed and ready to cope with the evening's work.

or some poultry hobbyists, tracing the origin of their breed or breeds can be fascinating.

The classes of most breeds denote the area of their origin. However, tracing the origin of breeds of poultry can be as complicated as attempting to trace the origin of races, providing, of course, one recognizes that there are distinct races. To be more succinct, Orpingtons are a breed that belongs to the English class since some of its varieties were first developed in England. However, the Orpington was developed in part from Asiatic and Mediterranean breeds. Since facets of my work involve rather extensive travel, I frequently have the opportunity to observe small flocks of poultry running about in the streets and yards of villages around the world. What I am always looking for but seldom see is a flock of one of our standard breeds. Usually the flocks are typical barnyard flocks that have been crossed and recrossed. Surprising, perhaps, are the obvious traits of our American breeds that frequently predominate in the flocks I observe. I specialize in English and French breeds. Along the Champs Elysees, the most fashionable promenade in Paris, there is a section where there are a number of pet shops clustered together. In addition to vampire bats and assorted snakes, there are the more mundane pets including cages of poultry. Each time I pass the shops, I look in vain for Crevecoeurs, Houdans, La Fleche, or Faverolles. Instead I see Rhode Island Reds, White Rocks, Leghorns, and Asiatic breeds. The French breeds are named after the towns or villages where they were first developed. For example, the Mottled Houdan (one of my favorites) was, according to the records, developed in Houdan, a town of 2,100 people located about forty miles from Paris. I once motored out there to see the place of origin of one of my breeds. The fertile green fields and the white-washed houses are still there, but the Houdan has all but vanished from the place of its origin. There are times, however, when my vigil and perseverance are rewarded. For example, one day while hiking along the country roads in Flanders, Belgium, I observed the finest flock of Salmon Faverolles I have ever seen. Although it was not in France that I observed them, the village and setting were somewhat similar to Faverolle, the place of their origin.

One thing I have observed from traveling and breeding poultry is that there seems to be a remarkable likeness between the temperament of the breeds and the indigenous population where the breeds originated. For example, Mediterranean breeds are usually more excitable than English breeds, and the Asiatic breeds such as the Brahmas and Cochins maintain, with few exceptions, a perpetual Asiatic calm.

Few poultry enthusiasts realize a profit from their hobby unless they are able to sell many of their superfluous stock at a good price, but raising poultry does offer some monetary returns directly or indirectly. Many rare breeds are good layers, and most originally were bred for
utilitarian purposes. This means that they are useful for both meat and eggs. One can enjoy his own fresh eggs, sell the surplus to help pay for the grain, and savor fresh chicken when it comes time to cull out the flock. Frequently there are opportunities for one to sell hatching eggs, baby chicks, and breeding stock within the area or across the nation if one wishes to advertise, especially in The Poultry Press, the only publication completely devoted to the needs and interests of the poultry fancier and the preservation of all breeds of poultry. If one takes pride in possessing a beautiful flock, he should also take pride in keeping his pens clean and the floor covered with fresh shavings or some other kind of clean litter. Usually if one keeps poultry, he also maintains a garden. There is no better fertilizer available than poultry manure, providing it is used with some discretion, to make vegetable and flower gardens, lawns, and fields productive. If one cleans out his pens frequently, there will be little odor from the soiled litter; yet, it will contain enough nitrogen to induce almost anything to grow more luxuriantly.

Finally, for those who are contemplating raising a small flock, the following tidbits of information may prove a help. The selection of a breed or breeds is always a problem. There are a few hatcheries in the United States that specialize in hatching rare breeds. Murray McMurray of Webster City, Iowa, advertises sixty-seven varieties. They publish a beautiful and colorful catalogue, free upon request, which is extremely helpful to the novice as almost every breed and variety is pictured, most of them in color. There are rare breed specials where one may acquire a rainbow of chicks at very moderate prices. This is tempting and is a quick way of sampling a number of breeds. It can be exciting as chicks change in appearance from day to day, and soon one finds himself with a mosaic of rapidly maturing pullets and cockerels. In many cases one could end up with perhaps only one of certain breeds. For those who are more serious about becoming successful as exhibitors it is better to focus upon as few breeds as possible. If one is confronted with a problem of lack of space, it is more feasible to limit himself to one or two breeds. The more birds of a single variety, the better the odds that there will be a few which will somewhat approach the approximate standards set for that particular breed or variety. If one wishes to hatch his own chickens from his own breeding stock, it is advisable to have more than a single pen of breeders. One must consider the mortality rate even among healthy flocks. There is always an element of risk in showing birds because they are vulnerable to a number of diseases, especially forms of respiratory diseases. It is often tempting to purchase a large number of chicks, especially at bargain prices. Remember that the price of grain is very high, and growing chicks have prodigious appetites.

One may soon lament the fact that he yielded to the temptation to purchase too many. Twenty-five to fifty chicks is what I personally recommend. As far as breeds are concerned, that is a matter upon which only the individual can decide. It may take several years of experimenting before one can settle upon one or more breeds which he really feels are his favorites. Hopefully raising and perhaps exhibiting poultry will become a family hobby, not just a hobby for an individual member of the family. There is a dire need for more family oriented hobbies at a time when families seem to find little time to share experiences. Over the years I have been attending shows throughout New England, I have observed that some of the most successful exhibitors are those who make up a family team. Last of all, if one wishes to exhibit or just learn more about raising poultry, he should join a poultry association. It is only through the strength of hundreds of clubs and associations throughout the United States and other nations of the world that many of the rare and exotic breeds will be saved from extinction.
Juniper & Bayberry

by Darrell A. Rolerson

Probably no two shrubs are more characteristic of the landscape in Maine than juniper and bayberry. They can be seen in stoney pastures everywhere, and flourishing by the sea — straight out to the cliff's edge. Their homeliness and their charm have established them even in the literature of this land. Sarah Orne Jewett, describing a Maine pasture in Country of the Pointed Firs said that “I could see the rich green of flavor gin, and I have read that the English sometimes put the berries in their cider. Cooks sometimes use them as a condiment with game, also. The flavor of venison and pheasant and wild rabbit especially is enhanced by a couple of juniper berries ground through a pepper mill. A couple of these berries also can be planted whole in the stuffing of a wild duck. Or try a few in a crock of sauerkraut.

bayberry bushes here and there, where the rocks made room. The air was very sweet . . .” And travelling “upcountry” she speaks pleasantly of shady roads where the woods stood close on the right . . . “on the left were narrow fields and pastures where there were as many acres of spruces and pines as there were of bay and juniper and bunchberry.” Edna St. Vincent Millet, also, in her poem entitled Journey praises the “dim, shady woods redolent of fern and bayberry.” And more than once she talks of the smell of “bayberry hot in the sun.”

While every farmer and every fisherman throughout the state is familiar with juniper and bayberry, and everyone appreciates these shrubs to some degree, few people know their full value. The most common use of juniper berries, of course, is to

Beyond its culinary use juniper is one of the more important medicinal plants — taken generally in a tea made by steeping a few tablespoonsful of the berries in a pint of boiling water. A cup of this can be sipped through the day to stimulate the appetite and aid digestion, and to help eliminate mucous due to colds. The tea is also an excellent wash for mosquito bites and bee stings, and due to its antiseptic qualities it is an excellent spray to disinfect a room in which a patient with a contagious disease has been kept. In days of plague the sickroom attendants used to chew these berries, which work like a charm for immunity. They purify the breath better than anything I know, so long as you don't get accused of nipping off the gin bottle.

One of the most tried uses of the juniper berry has been in the treatment of kidney, urinary, and bladder troubles. The old herbalists are quite explicit about this. Joseph Meyer in The Herbalist says that juniper berries “impart to the urine the smell of violets.”

Darrell Rolerson, writer and herbalist, lives in Islesboro, Maine.
The American Indians had developed their own uses for juniper berries. They used them as a method of birth control, to help in curing certain types of venereal diseases and to ease the pains of arthritis. Also, they dried the berries to string as beads and used them to dye their hair and fabric.

Juniper berries require from two to three years to ripen — so that the blue and the green berries appear simultaneously on the same stem. Only the blue berries should be picked — and just prior to their perfect ripeness, for then they contain their highest amounts of volatile oil — their "principal constituent," Mrs. Grieves says. In more progressed stages of ripeness the volatile oil changes to resin. The berries turn slightly darker, perhaps even black.

Juniper should never be eradicated from pastures, nor treated as a weed in areas where animals graze. Goats, sheep and horses seek the young shoots out. For them juniper is a tonic. It cures acid milk in cows, and helps speed impurities from the blood, liver and kidneys. It is especially beneficial to animals which have been confined alot, after a long winter. Veterinarians sometimes use the volatile oil with lard or any good salve base (vaseline is great) over exposed sores to help heal while it repels flies.

It is interesting to note that on the island of
Monhegan, about twenty miles off the coast of Maine, juniper is called "trailing yew"; it is the custom of the natives there to include it with bay and other sweet-scented "posies" in old-fashioned nosegays — which they give to especially favored guests from "Away".

The bayberry bush is most commonly known as sweet gale, though candleberry and wax myrtle are a couple of its names, also — both indicating its utilitarian value. Like juniper, bayberry's most popular use seems to be as a flavoring for alcohol (I think probably this has been one of the most popular uses at one time or another for just about every herb). Mrs. Grieves in her *Modern Herbal* says that "its branches have been used as a substitute for hops in Yorkshire, and put into a beer called there 'Gale Beer.'" You can take Mrs. Grieves' word that "it is extremely good to alleviate thirst.”

Jethro Kloss in *Back to Eden* calls bayberry “one of the most valuable and useful herbs.” It is an old-fashioned American folk remedy of real distinction — the bark and leaves and the flowers, all three, being the parts used. A combination of the three, I have found, works best. The flowers and the leaves are gathered at the same time, early in the spring. As it is true with all herbs whose flowers are used these will be most potent just as the plant begins to bloom. Bouquets can be hung to dry in any warm attic where the air circulates freely, or in a haymow, or under the hot roof of a shed — as long as they are in the shade. The best time to dig the roots of bay is in the late fall when the bush is dormant, when all the plant's powers are accumulated most intensely underground. To cure the roots, wash them first; then spread them to dry in a barely warm oven for a day — in a wood-oven, perhaps, with the door slightly ajar. When they are thoroughly dry — meaning brittle — grind them with a mortar and pestle and store them in dark containers, having combined them with the dried leaves and flowers of the herb. The container should be well-sealed.

This combination is aromatic, astringent, tonic and stimulant. Steep a tablespoon of it in a pint of boiling water for half an hour. Add a little honey if you like, and drink it freely. Women find it helps to check profuse menstruation (Kloss calls it an "unfailing remedy" for this when combined with capsicum). Gargle with this tea for bleeding gums and cankers. It also promotes perspiration and improves circulation, which makes it especially good for colds — combined with yarrow, catnip, sage or peppermint, or the needles from white pine (the five-needled pine).

If this mixture of bayleaves, flowers, and root is ground extremely fine it can be "snorted" up the nose a pinch at a time for allling adenoids and to cut mucous — though I prefer personally to snort the lukewarm tea from the palm of my hand, up one nostril at a time. In yoga terminology this is known as a "kriya" — or cleansing process, and is not at all an unpleasant thing to do. People who have been swimming in the sea and snorted salt water accidently up their nose may make an unpleasant association between these two experiences, while really there is no comparison. People with a "stuff-dup-doze" will be glad to breath again.

As for the ground mixture, I prefer to take it in capsules — which usually can be purchased empty from a drug store. Taken this way the bayleaves, flowers, and root help to clean the stomach. Even without the capsules this powder can be applied to infected sores. Documented cases exist in which it has healed gangrene.

The wax used in making bay candles comes from the berries. These can be found clustered along their stem like the eggs which hold to the tail of a seed lobster. To obtain their wax boil the berries in water. The wax will float to the surface, to be removed when it has become cold and hardened. A pure bayberry candle, considering the number of berries it takes to yield that amount of wax, is worth its weight in gold. Though far be it from me to discourage anyone from undertaking the job. The value of some things can't be measured in time nor effort nor the money it takes to acquire them. A pure bay candle burns with a radiant light: a true dispeller of darkness, lasting much longer than a paraffin candle. And talk about a pure fragrance! The smell of a bay candle burning will elevate a person into a sublime state even when nothing else will.
From Stump to Stove

by Jack Bulger

Wood is one of the best alternatives to oil heat in the Northeast. An added advantage is that firewood harvest can actually be used to improve forest stands and greatly increase the value of forests to the landowner. Poorer quality trees can be thinned from the stand for firewood, leaving the better quality trees to grow for valuable wood products. By proper forest management, we can have our cake and eat it too.

In the broken farmland of the Northeast, most every farm has its woodlot. By not practicing sound forest management, farmsteaders are missing an important potential source of farm income. The purpose of this article is to help farmsteaders harvest firewood while improving their forest stands. If you are fortunate enough to own or have access to a woodlot, pull up a chair, put your feet up on your now cold stove, and read on.

Firewood cutting can improve forests stands by thinning, releasing and properly spacing the best quality trees for other valuable uses. This is possible because any species of any size and form can be used for firewood.

Furthermore, no small benefit will be realized in savings and satisfaction by using firewood one has cut and “fitted” from the woodlot. Not only real benefits are resultant, but that special something that defies identification will embrace the firewood user. There is something about the heat from a wood stove that penetrates chilled bones and envelops the user in a warm, stimulating blanket that could never be duplicated by any central heating system. By now, you must be able to feel this warmth, so, on to specifics.

Before going further, I should define and explain several terms used in forest management and firewood use, in order to avoid any confusion among the readers.

Cord — A stack of wood four feet x eight feet x four feet. In some areas cord wood is usually cut into four foot lengths, and a pile four feet high by eight feet wide equals a cord. In other areas, cord wood is cut in eight foot lengths and thus the pile needs to be only four feet high and four feet wide. A smaller cord measure used in some areas is a face cord, which is a pile four feet high by eight feet wide. A face cord is always smaller than a regular cord.

BTU (British Thermal Unit) — The amount of heat required to raise one pound of water one degree Fahrenheit.

Stand — A forest stand is simply any definable area which is relatively uniform and composed of the same mixture of species throughout.

Forest Type — A forest type is a larger area with similar species and soil conditions throughout. You may have several stands on your property of the same forest type.

Jack Bulger, author of "Plague and Pestilence in Your Woodlot" which appeared in the Summer 1975 issue of Farmstead, is a District Service Forester for the Bureau of Forestry, State of Maine. Illustrations are by Liz Buell.
Site quality — A term used to delineate the value of a specific area for growing trees. On a good or high site, trees grow more rapidly and are taller at any given age. On a poor or low site, trees grow more slowly and do not get as tall. Usually, if an area has tall straight trees that do not taper rapidly from the trunk on up the stem, it is of good site quality. If the trees are relatively short and taper rapidly, it is a poor site. Diameter growth is usually related more to tree spacing and the history of the particular stand, than it is to site quality.

Form — The form of a tree relates to its shape. A tree with good form is one that is tall and straight and does not taper rapidly from the bottom to the top. The better the form, the more valuable the tree is for use as saw timber.

Pulpwood — Wood sold to make pulp and paper.

Saw timber and saw logs — Wood sold to make dimension lumber.

Bolt wood — Wood sold to make dowels, spools, wooden handles, etc.

Veneer logs — Usually hardwood logs used for making paneling.

Softwood — A term used for all evergreen or coniferous tree species, such as pines, spruces, and firs.

Hardwood — Deciduous species that lose their leaves each year.

Forest types are sometimes confusing and there are several systems of classification. Basically, however, forest types may be broken down to softwood, mixed wood, and hardwood. But in reality, this is too general a classification to be of great help in choosing fuelwood harvest areas. I feel it is important to separate these three basic types into upland areas and wetland areas, because the species composition and management practices vary so much.

Let’s talk about upland hardwoods, wetland hardwoods, upland mixed wood, and wetland mixed wood for a start, because these are the areas that may be most suitable for firewood management. The forest types I will describe are representative of Northern New England, the northern Great Lakes area, and Eastern Canada. All of these types do not occur outside this area, but it should be possible for the reader to interpolate to his own situation.

Upland hardwoods may consist of the following species: sugar maple, red maple, American beech; white, gray, and yellow birch, all commonly associated with hemlock; elm, basswood, white pine and some white spruce. The beech, birch, and maples are the most abundant.

Wetland hardwoods will consist in the majority of red maple, black ash, small amounts of white ash, American beech, basswood, and American elm, along with scattered balsam fir and Eastern larch.

Upland mixed wood will include white and red pine, associated with Northern red oak, white spruce, balsam fir, American beech, Eastern hemlock, sugar maple (few) together with a small component of white ash, bigtooth and trembling aspen, white birch and gray birch.

Weland mixed wood consists predominantly of red maple, Eastern larch, balsam fir and hornbeam (few), along with a minority component of gray birch and an occasional white pine. Generally, these are grassy, wet areas varying in size from small pockets to large swamps.

The softwood types, both upland and wetland, are often not suited for management for firewood. They usually contain only a small component of hardwood species, but where there are hardwoods, these types too can be improved by cutting firewood.

The first step in managing your forest for firewood is to identify these types and determine approximately how much of each type you have. Then you should determine the best stands in which to concentrate your firewood harvesting efforts.

There are a number of criteria you should consider when selecting your best stands. Access, site quality, equipment available for use, species present, age, size, and density of trees, are among these criteria.

How much land will you need to produce your firewood? That’s also an important early question in your forest management planning.

The growth rate is the most important factor in determining how much land you’ll need for a perpetual harvest. In Northern New England the accepted growth rate is about a half cord per acre per year. This is for unmanaged stands, however, and with management, the growth rate can be increased substantially. Using the conservative figure, however, 10 acres would produce five cords of wood per year. If you are considering using thinnings, cull trees, and inferior species for firewood; while leaving the better quality trees of better species to grow for other wood products, it might take 20 acres to produce the five cords/year over the long run. At this moment in time, however, most forest lands in the Northeast in small private ownership are dense and in need of improvement cuttings. You could certainly consider taking half a cord per acre per year for some time, while still leaving the better trees to grow for future crops.

Access is another important consideration. Many farmsteads will have old skid or logging roads which were used in the past. These roads can be difficult to locate, as they may be grown over with new forest cover. Look for old wheel ruts, and start with openings which may appear more readily at field edges. Usually, these roads will require very little work to make them passable other than cutting small trees and down timber, and will also serve the areas of best timber growth. If no old roads can be located, you must choose a location to establish new roads.

Establishment of a road system will result in more than the benefit of access for fuelwood. These roads may be used for fire control, insect and disease control, and most certainly result in access for other benefits such as hunting and scenic trails for.
the owner. Establishment of a new road system is
time-consuming however, and will require much
work. In most cases, wood removed during road
building will be utilized for firewood or pulpwod.
In choosing a road site, be aware of slopes, final dis-
tance from point of firewood use, and impassable
areas such as streams and bogs. Stay away from
steep slopes, try and follow the contour of the land,
and most certainly, walk the entire proposed road
before cutting any trees.

Your decision to build or utilize a wood road will
also depend on the type of equipment you have
available for use. Most farmsteads have some type
of farm tractor, or wheeled vehicle for use around
the farm. These vehicles will serve during winter to
skid the harvested wood to where it may be
utilized. I have talked with some owners who were
skidding small trees with a snowsled, so if one
should be available, make use of it.

Upland hardwoods will yield an abundance of
firewood. An average cord of dried hardwood will
produce the equivalent heat of 193 gallons of home
heating oil. All species of wood produce almost an
equal amount of heat per pound of wood, but the
density of wood varies greatly. The species which
produce the most heat per cord are hardwoods (Ta-
ble 1) and this should be considered when selecting
firewood.

### TABLE 1

<table>
<thead>
<tr>
<th>SPECIES</th>
<th>HEATING VALUE (Millions of BTUs Per Cord, Air Dried)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hickory</td>
<td>25.4</td>
</tr>
<tr>
<td>White oak</td>
<td>23.9</td>
</tr>
<tr>
<td>Beech</td>
<td>21.8</td>
</tr>
<tr>
<td>Sugar Maple</td>
<td>21.8</td>
</tr>
<tr>
<td>Red Oak</td>
<td>21.7</td>
</tr>
<tr>
<td>Yellow Birch</td>
<td>21.3</td>
</tr>
<tr>
<td>White ash</td>
<td>20.0</td>
</tr>
<tr>
<td>Red Maple</td>
<td>19.1</td>
</tr>
<tr>
<td>Tamarack</td>
<td>19.1</td>
</tr>
<tr>
<td>Black Cherry</td>
<td>18.5</td>
</tr>
<tr>
<td>White Birch</td>
<td>18.2</td>
</tr>
<tr>
<td>Red Pine</td>
<td>17.8</td>
</tr>
<tr>
<td>Elm</td>
<td>17.7</td>
</tr>
<tr>
<td>Gray Birch</td>
<td>17.5</td>
</tr>
<tr>
<td>Hemlock</td>
<td>15.0</td>
</tr>
<tr>
<td>Spruce</td>
<td>15.0</td>
</tr>
<tr>
<td>Aspen</td>
<td>14.1</td>
</tr>
<tr>
<td>Balsam Fir</td>
<td>13.5</td>
</tr>
<tr>
<td>White Pine</td>
<td>13.3</td>
</tr>
<tr>
<td>Basswood</td>
<td>12.6</td>
</tr>
</tbody>
</table>

The species to be found in Northern New
England in upland hardwoods which will serve as
good firewood are: Sugar maple, red maple,
American beech, the birches, and a few elms.
Criteria for selection to cut must be established
because many of these species have higher value if
utilized for other products. Initially, every tree con-
sidered for cutting should be examined on the
following basis: form, size, health, and vigor.

Many species which may be utilized for
higher value products, such as boltwood,
sawlogs, and veneer logs, may be separated
on the basis of form. If a tree has small diameter
branches, a good straight bole or stem, and a small
number of branches on the lower bole area, pro-
bably this tree should be left as a high value tree
and not removed for firewood. If, on the other
hand, a crooked stem, many large branches, and
generally poor form are apparent, the tree may be
put to better use as firewood.

The size of the tree, or diameter of the bole at
about four feet above ground, should also be taken
into account. Timber stand improvement, which
basically means an improvement in light, moisture,
nutrients, room to grow, etc. as applied to the trees
you will not cut, should be a consideration. The
younger stems will respond to improvement work
much better than the older veterans.

The best size of tree to leave in an improvement
program would be demonstrated by leaving a good
species of tree of about three to eight or nine inches
in diameter at breast height. The larger veterans,
from about 10 inches and up, may be removed to in-
sure more light, moisture, and room to grow, for
some of the smaller crop trees you plan to leave. Of
course, some smaller trees of good species may be
taken due to poor form, or disease, as ascertained
by your first selection.

The first selection should also include an inspection
for health and vigor. Many times what appears
to be a good tree to leave will have some defect
which will affect your selection. For example, trees
with dead branches extending upward and which
are located in the main lower bole will have a cer-
tain amount of decay inside. Also, some decay fungi
will leave an apparent blemish on the stem. Damage from nature or by man’s activities, which
is located on the main stem, will also reduce the
value of the tree. These trees should be selected for
firewood if they suit your criteria for size in felling,
bucking, and splitting. Vigor, or apparent ag-
gressive competition with adjacent trees is also an
important consideration. A tree of good form, with
a large crown or leaf area in relation to its size,
with good uniform green color and which shows
dominance over its neighbor to some extent, is
growing valuable wood for you, and, if of the proper
species, should be left to compound its value over
future years. Each of the foregoing criteria should
be considered for each different area and for each
different tree you plan to examine for firewood.

A word about site quality. Site quality is
measured by the height of the dominant trees in re-
lation to their age. Site quality can be estimated by
visual examination of the existing dominant trees.
If the dominant trees in a stand have exceptional
height growth in relation to other trees of the same
species you have noticed in other areas, the site
quality is probably pretty good. A little practice in
observation will aid the farmstead in site de-
termination. Site quality is an important criteria in
choosing an area to harvest for firewood because if
you desire the added benefit of timber stand improvement, it is best to begin on the better sites.

It would be impossible to tell you exactly which trees to save during timber stand improvement, because it would depend on your specific stand, local conditions, and local markets. A few examples, however, might illustrate how to select the valuable trees which should not be cut for firewood.

Local markets are important. The farmsteader interested in obtaining maximum value from his woods must investigate local markets and determine which forest products are most valuable. Select grade hardwoods; straight and with very few knots are often very valuable. If there is a veneer mill close, good quality sugar maple, yellow birch, large white birch, and elm can be worth $200 or more per thousand board feet in the woods. Ash and oak are also valuable wood if the trees are straight, tall, and with few lower limbs. White birch bolt wood is much more valuable than firewood if there is a mill near that makes dowels and spools. Clear white pine sawlogs are becoming more valuable all the time, and good spruce logs are used mainly for construction timbers. Hardwood species that should be selected as firewood because they have little other value are red maple, beech, and gray birch. Other hardwoods should be selected on the basis of form.

Wetland hardwoods will serve for fuelwood harvest during winter months when the ground is frozen. Red maple, ash, beech, elm, and basswood can be selected for firewood in this type. All the above-mentioned criteria for selection should be applied to each of the areas you intend to work in. Upland mixed wood produces oak, beech, maple, birch, and some ash. These are the species to prefer for firewood. Wetland mixed wood areas may be harvested for red maple, birch, and black ash. The majority of the hardwood species mentioned for each area will serve adequately for firewood because of the heat output, and if selected by the correct criteria, will result in improved woodland areas for future harvest of higher value products much earlier than if left alone.

There are often some hardwoods in the softwood forest types and softwood types can be improved by firewood cutting, but the amount of good firewood per acre is limited and it would be time-consuming to harvest it. The softwoods species can also be used for firewood, but conifer thinnings are probably more valuable as pulpwood if there is a good pulpwood market in the area. Tamarack has the same heating value as red maple and is the only softwood species which makes good firewood. At any rate, softwood types would have to be considered low priority areas for improvement with firewood cutting. If that's all you have to choose from, however, by all means use it.

With the preceding information in mind, the worst thing you can do is grab your saw and head out to cut some trees. Before any cutting, examine the areas on the ground and select the trees to remove beforehand and mark them. Nothing is more confusing than to try and select trees to cut during the process of harvest.
Once the trees are marked and cut, and after they are transported to the area that you will "fit" and use them, the trees should be split to suit your stove and stacked for drying where the wind and sun can do their work.

Wood dries almost 100 percent from the cut ends rather than the side or bark area. Pile your wood so that the ends will be open to the wind and sun. Fuelwood should be dried for at least one year before burning. The amount of heat you receive from wood is greatly increased if the wood is dry. Also, much less creosote is produced by dry wood.

Time can be saved in drying wood by a process called "wilting." This is done by cutting the trees in June or early July after leaf growth has matured. The tree is left intact, and the leaves draw moisture from the stem. The trees are then cut up and split in the fall, and stored for use. Not as much moisture will be removed as in cutting, splitting, and drying, but a sufficient amount will be removed to insure good burning. This practice should be a second choice to proper drying methods. One problem with wilting is that you must determine how many cords you have cut while the wood is still in tree length. A rule of thumb would be that for eight-inch diameter trees, about 12 trees will be required to make a cord.

### TABLE 2

<table>
<thead>
<tr>
<th>Percent Moisture</th>
<th>Available Heat BTU's</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 overdried</td>
<td>7100</td>
</tr>
<tr>
<td>10</td>
<td>6300</td>
</tr>
<tr>
<td>20 air-dried</td>
<td>5400</td>
</tr>
<tr>
<td>30</td>
<td>4500</td>
</tr>
<tr>
<td>40</td>
<td>3600</td>
</tr>
<tr>
<td>50</td>
<td>2900</td>
</tr>
<tr>
<td>60</td>
<td>2100</td>
</tr>
</tbody>
</table>

Splitting chores are time-consuming, but a few hints will save time and much energy. Split in line with end checks or cracks; split parallel to knots rather than at right angles; split parallel to a spiral grain; and generally, green wood splits more easily than dry wood. Frozen wood also splits more easily. The choice of tools for splitting will also be a factor of time saving.

If you rent a splitter, much wood may be split in a very short time, and may well be worth the expense. Splitting mauls, axes, and steel wedges may also be used. I find the easiest method for me is to use a steel wedge with a short-handled mason sledge hammer. Less effort is used with this method than with swinging a maul or an axe over long periods. Be sure to protect your eyes with safety glasses when using any method of splitting; you only have one pair, so be sure to keep them in good operation. Speaking of safety, always use caution when using all tools and equipment. Most of the equipment used in woods work is quite dangerous, and all safety precautions should be taken at all times.

Fall has come, there’s a chill to the air, and you’re ready to enjoy the fruits of your labor. Before loading the stove, be sure all pipes and flues have been moved to insure good burning. This practice should be a second choice to proper drying methods. One problem with wilting is that you must determine how many cords you have cut while the wood is still in tree length. A rule of thumb would be that for eight-inch diameter trees, about 12 trees will be required to make a cord.

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are clear and tight, and check all dampers to be sure you have control. Remember, there is an art to burning wood in a stove. Some like to mix a little softwood in for a quick fire, using the hardwood for longer lasting heat production and formation of coals. Some like to add a little apple, or cherry wood to appreciate the fragrance in an open fire. Whatever your choice or method, remember that the greener the wood, the hotter the fire needs to be. Moisture that remains in the wood must be changed to water vapor before you obtain any heat value from the wood.

Many stoves are available on the market today; stoves which will hold a fire for 10 to 12 hours, and stoves which must be charged every few hours. One point to remember is that the slower you burn the wood to make the fire last, the more creosote that will be formed due to the incomplete combustion at lower temperatures. So if you are using one of the air-tight stoves, be sure to check the chimney periodically and keep it clean to prevent chimney fires.

When the first light mantle of frost greets you some morning, and when the first few white flakes begin swirling 'round the leaden sky, cheer up, just load up the old cast-iron pot, put your feet up, and let the cheery warmth of your firewood sink in.

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FARMSTEAD MAGAZINE 65
If you want to buy a high efficiency stove, but don’t really know how to compare one modern stove with another or if you’ve bought what you think is a high efficiency stove and want to know how it works and how you can most effectively fire it, then this guide is written for you.

In order to achieve maximum efficiency a stove must meet five basic requirements in design, construction, fuel, and operating practice:

1. Dry wood (preferably hardwood) seasoned for 8-12 months.
2. An adequate oxygen supply for the complete combustion of both the charcoal and combustible gases.
3. A means of slowing down and directing the air flow and draft within the stove so as to allow for complete combustion of the volatile gases before they are lofted out of the stove.
4. Sufficient heat retaining mass or other means to achieve the 1200 degrees F. minimum temperature requirement for combustion of the charcoal and the volatile gases, particularly in the upper portions of the stove where the volatile gases are most likely to be found.
5. Safe, durable, high quality design and construction.

Why use dry wood? Wood that has been well-cured or seasoned is roughly 1/3 charcoal, 1/3 volatile gases and 1/3 water. Water does not burn in a stove. Charcoal and gases do. Wet wood has a higher water content than dry wood. Some green (wet) woods are more than 50% moisture. The water in well-cured or seasoned dry wood is chemically “locked-in” water and is not released until the wood itself is burned. The process of releasing water vapor and volatile gases from wood through the application of heat is called “destructive distillation”.

The temperature required to burn wood charcoal is the same as the temperature required to burn volatile gases released from the wood: 1200 degrees Fahrenheit. Large amounts of moisture in a firebox (via green wood) have the effect of absorbing heat and lowering the firebox temperature, especially in the “vapor” or upper zone of the firebox. Furthermore, water vapor has the tendency to encapsulate combustible particles and gases in the firebox and make them inaccessible to combustion.

Unburned gases will condense (the laws of physics) as soon as they enter a cool enough zone.

Woodburning Basics

An exposed stove pipe cooled by convection currents or a fan or a cold chimney is easily cool enough to cause this condensation. The higher the moisture content of the wood, the less effective the combustion will be, thereby not only lowering heating efficiency but also increasing flammable deposits on the stove pipe and chimney interior.

Very few stoves achieve complete combustion. Complete combustion involves the burning of both the charcoal and the volatile gases. Compared to burning the gases, burning the charcoal is child’s play. Proud owners of Ashleys will gladly proclaim the ability of their stoves to consume wet wood, rarely realizing that the stove is consuming almost none of the gases.

Until charcoal is reduced to a fine ash, it is quite willing to remain in one spot, but gases are totally uncooperative in this regard. Heated gases rapidly rise out of the 1200 degree F. primary fire zone at the charcoal level and become invulnerable to combustion. In order for the gases to be consumed, they must either be forced back through the primary combustion zone or travel through other parts of the stove that are maintained at a temperature greater than 1200 degrees F. More on this in a moment...

In addition to providing a space for wood fuel, stoves must also allow means for oxygen-carrying air to enter the stove and a means for spent gases to exit the stove. The purpose of the air is to provide the oxygen so critical to combustion. Choked of air, a fire will die just as surely as a car will stall. While air assists in combustion of the fuel, its entry into, and exit from, the firebox usually creates a movement of air up and through the firebox. This updraft effect has three primary negative effects:

1. In the case of a fireplace, often more heat can move from the room through the fireplace and up the chimney than the fireplace itself can radiate into the room. The rapid movement of air from the room and out the chimney literally vacuums the room of warm air in a surprisingly short time. Abhorring a vacuum, nature does its best to re-supply the room with air from the closest available source, the out-of-doors, sucked in through leaky foundations, window seals and cracks around doors.
One of the major efforts in the advancement of wood heating design has been to slow down this air movement through the firebox to a negligible point, so that the fire will receive adequate oxygen without the negative effects of a strong updraft and subsequent heat loss. An open fireplace or Franklin stove must have this flow of air, however, to avoid the consequences which anyone who has lit a fire in a fireplace with the damper closed can smokily attest to. If the smoke isn’t sucked out (along with warm room air) or contained (as in a stove) it will consider the room itself its natural home. (2) Secondly, air movement through the stove has the effect of removing not only the warm room air, as in the case of a fireplace, but also the heated air produced within the stove itself. A rush of air through a firebox will have the effect of cooling the interior surface of the firebox through which the stove is intended to radiate heat to the room. Most older stoves improved greatly on the fireplace design by not creating a vacuum of the warmed room air quite so quickly, but they still lost a considerable amount of the heat they produced up the chimney. This strong warm chimney draft had one positive side effect; it created such heat and air movement in the chimney that condensation and creosote deposits were not as severe as they often are in modern stoves. (3) Point three is that the air flow carries the heated gases out of the fireplace before they are consumed and thereby eliminates their heat gain potential to the room’s heating needs.

One attempt to solve the problem is to maximize control over both the amount of air introduced to the stove and the flow pattern of the air and gases within the stove, with the latter being easily as important as the first. A basic feature which all high efficiency stoves share is that they are “air-tight”. This does not mean that the stove should be operated with no air allowed to enter. This will effectively put out the fire and produce tremendous amounts of creosote while the fire is dying. It does mean that all sides or sections of the stove are effectively sealed or welded so that the only air that enters the stove does so through carefully placed draft inlets. These air inlets, in turn, have a large degree of either automatically or manually adjustable air-tightness. To clarify: realize that air is not generally blown through a stove, it is sucked through it by the natural convection currents created in the chimney and by the passage of warm air through the chimney. If a stove has loose joints, air will enter the stove wherever there is a crack. This additional supply of oxygen to the fire will cause the fire to burn hotter but not necessarily heat the room better, because, as explained above, much of the heat will be lost up the chimney. People with older stoves would be wise to completely seal all joints with furnace cement to increase the efficiency of their stoves.

In newer stoves advertised as high efficiency units, the critical point for air tightness is the door seal. If the door and seal is poorly made or subject (as in the case of very thin steel stoves) to warpage under heat stress, then the stove will almost undoubtedly have great difficulty achieving high efficiency.

If you can establish that the stove you are considering is air-tight at the joints and at the door seal and can be expected to remain so under long-term firing conditions, then the next feature of air control to consider is the draft intake and the internal structure of the stove. In a relatively small stove of cast iron construction, air-tight joints and door seal (no more than a paper thickness gap) and well-machined draft controls may be all that is required to eliminate excessive movement or draft through the stove. In some of these smaller stoves, the firebox is so small that the temperature throughout the firebox is high enough to consume a significant proportion of the volatile gases. In lighter weight and/or larger stoves, however, either unique placement of the air intake and/or the presence of one or more baffles is necessary to slow down and divert the normal up-and-out movement of the volatile gases so that they can be subjected to a burn before escaping.

The first technique or device we can consider in this regard is something called a “vertical baffle design”.
Regardless of where the draft air is introduced, it will, when mixed with the heated gases, want to rise and escape. Instead of providing for a means of escape at the top or top rear of the stove, a vertical baffle can be inserted which forces the gases to flow back down through the combustion zone before they can depart. Allowance for the addition of preheated air on the other side of this baffle in what is called the “secondary combustion chamber” allows for combustion of the gases to continue throughout the time they remain in the stove. The only stoves readily available offering this kind of vertical baffle in combination with a secondary combustion chamber are the widely distributed Riteway heaters and the new less-known Vermont Downdrafter, so named because it draws the volatile gases not only into the fire zone as in the Riteway, but also through and below the stainless steel grates where secondary air is introduced for an additional burn. Various other features on the Downdrafter make it one of the most sophisticated high efficiency stoves on the market.

In addition to vertical baffle designs, there are also horizontal baffle designs. The Jotul stoves were the first stoves in this country to offer this feature common to many European imports. Horizontal baffles do at least three things contributing to high efficiency combustion: (1) they force the gases to remain closer to the intense heat of the charcoal zone for a longer period of time, (2) they force the gases to remain in the stove for a long period of heat transfer as they exit from the fire zone, and (3) they create a burn pattern which allows the logs to burn from end to end like a cigar, thereby minimizing creosote production during a slow burn, maximizing the length of time that a load of wood will burn and creating an even heat output throughout the burn cycle. The illustrations below show a typical burn cycle in a horizontal baffle stove.

Many people buy one of the smaller baffled European stoves and try to get them to burn overnight by shutting the draft controls. This action encourages creosote production through oxygen starvation, poor combustion, low firebox temperatures and rapid condensation. The smaller stoves, such as the Jotul 602, are not designed to hold a steady fire overnight and should not be purchased with that hope in mind. Be very careful when buying a stove to get a stove with design capabilities equal to your heating needs. This may not always mean you need a larger stove if you are willing to tend fires more frequently, or if you have heat retaining mass in your house. Use your common sense and do not try to operate a stove beyond its basic design capabilities.

Some stoves, by adding an arch or other form of additional chamber atop the primary burning chamber, create more mass for heat transfer, slow down and make more efficient use of the escaping warm gases and air.

Early Shaker stoves sometimes had an additional chamber or super heater added to the top of the primary stove. The well-known do-it-yourself Alaskan Drum Stove made from 55 gallon drums features this dual chamber. Jotul, Lange and Morso all offer arch design models. The big Lange arch model has doors under the arch which allow the user to bake under the arch. In the case of the heavy, completely firebrick-lined Styria stoves from Austria, one or two chambers sit atop the basic firebox. The SEVCA stove, manufactured from discarded high pressure gas tanks, utilizes a combination of a horizontal baffle, a secondary heating chamber and a uniquely placed secondary air intake at the rear of the stove.
The problems of air flow, combustion rate and volatile gas combustion efficiency are tackled with the careful and unique placement of air intakes alone in the Tempwood stove (illus.). Air is introduced through two pipes in the top surface of the stove, supplying maximum oxygen to volatile gases and limiting oxygen for a slow burn to the charcoal zone. The air tubes also set up an air flow which counters the natural updraft of the heated air in the firebox.

Having talked about the wisdom of using dry wood and the need for adequate oxygen and the desirability and means available for slowing down and altering the draft flow through a stove, we come now to a discussion of heat retaining materials and other materials used in stove construction.

The material traditionally associated with stovemaking is cast iron. In recent years, costs for cast iron stoves have skyrocketed for several reasons with higher wages, high raw materials costs, and stiffer environmental and worker safety standards among them. Cast iron stoves are cast as pieces from molten iron poured into molds. When cooled and removed from the molds, the pieces are cleaned and carefully machined to create the tight fit necessary for a quality stove. Joints are sealed with furnace cement and the various sections are bolted together. If the cast stoves you are looking at do not have carefully machined, well-matched parts; if they are very porous or badly pitted or show great variations of thickness; if they lack adequate furnace cement and are crudely bolted together (many American and Far Eastern cast stoves fall in this category); then they must be considered an inferior product. Door and stove lid seals should be tight.

Fired under normal conditions, a well-made cast stove will not crack or warp. In the high efficiency stoves, the most vulnerable points for cracking seem to be where uniform thickness is difficult to achieve, such as along a high relief side panel. Don’t be afraid to scrutinize very carefully all parts of even very well-known stoves before you purchase one and while you assemble it. Severe warpage that one sees in antique cast stoves may have frequently been the result of burning coal (which burns hotter than wood) without an adequate grate. Owners of used cast cookstoves should be warned to replace missing liners, as the castings of the ovens in such stoves are quite thin and can easily crack during a year or two of unprotected use.

Steel is another material now commonly used in stove manufacture. Stove buyers traditionally have looked askance on all steel stoves and not without some reason. Steel stoves have in the past often been the product of some backyard tinkerer who had not the knowledge or the tools to design a truly high efficiency stove. Even the best made of such stoves usually fail miserably on door construction techniques. Such stoves generally offer the user very little degree of control over the fire and its rate of burn.
More recently, steel has gained more and more legitimate respect as a suitable stove building material when used in an adequate thickness or in combination with other materials such as firebrick and cast iron. Manufacturers differ widely in their claims as to what an adequate thickness of steel for stoves is. Steel, unlike cast iron, can be produced and worked at extremely thin thicknesses. Fires can and have been built in containers either adapted or designed for use as stoves, with a thickness no greater than a heavy tin can. Localized hot spots can result in such stoves because of steel’s relative inability to spread heat laterally through itself. On the other hand, cooks, young and old, will testify to cast iron’s marvelous ability to spread localized heat even throughout cast cookware. Cast cookware is, however, by definition, heavy. Were cooks to use steel of similar weight and thickness, they might be surprised to find how evenly the material heated up.

Consider also that even the most careful wood burner may make a mistake and subject the stove (by leaving a draft wide open) to stress greater than that under which the stove is normally fired. Additional thickness of other built-in safety features may be an important consideration in this regard.

How thick is thick enough? Better ‘n’ Ben’s which uses 11-gauge low-carbon steel in its construction has produced and sold several thousand units with little or no warpage. Their literature reads: “We have not been able to warp, crack or burn out the stove under the severest of conditions. We do, however, specify in our guarantee, that the stove must be run under control in order not to VOID the guarantee. To run the stove out of control is to let the stove heat to a point where it is red hot over a period of time. No wood stove, no matter what it is constructed of, should be allowed to run out of control.”

Another basic material used in much stove construction is firebrick. Firebrick comes in either precast bricks of various sizes or in a castable form. Both forms are ideal for do-it-yourselfers. It also makes repairs to firebrick linings relatively easy. Some people complain that firebrick is too brittle, but the best stoves that use it protect the most vulnerable surfaces with metal and make replacement of the brick quite easy. Firebrick has the capability of holding heat for some time, thereby maintaining a high temperature in a firebox with minimum oxygen. When used in combination with steel and a limited amount of castiron, a firebrick-lined stove can prove to be a very fine product.

Stainless steel, though expensive, is very highly resistant to corrosion and is finding wider use as a suitable firebox liner. Stainless steel has already established itself in relation to wood heaters as a fine material for pre-fab chimney construction. It is worth remembering, however, that when copper and stainless steel and other metals begin to grow scarcer in the future, brick and clay tile will still be with us.
By Clarice L. Moon

The Ancient Romans knew the principles for making sauerkraut. Finely shredded cabbage was placed in pots or vats and allowed to ferment, and acquired a slightly sour taste. This art seems to have disappeared from Europe with the fall of the Roman Empire.

The Asians who invaded Eastern Europe in the thirteenth and fourteenth centuries brought the art with them. In Asia, sauerkraut was said to originate in China. It came to America from Europe, with the colonists. Cabbage is one of the hardiest vegetables grown and is cultivated over most of the world. Sauerkraut is now popular everywhere.

Sauerkraut is a very versatile dish. It is served winter and summer in the most humble kitchens and in the best restaurants. It can be served with ham, bacon, pork, partridge, duck, goose, different kinds of sausages, and frankfurters.

For our ancestors, sauerkraut was an important winter source of Vitamin C, and was used to cure scurvy on sea voyages. Research on sauerkraut has found that the fermentation process causes little loss in the Vitamin C content of the kraut. Research has shown that sauerkraut has a high lactic acid content which aids digestion and helps kill harmful bacteria in the digestive tract.

Sauerkraut in a Stoneware Jar

Put a thick layer of fine-cut cabbage (five pounds) in a large earthenware jar, add 1/4 cup salt. Tamp down firmly with potato masher or heavy stick. The juice will begin to come out of the cabbage. Repeat this process until the jar is about four inches from the top. Tamp down well. Put a dry linen cloth over the top of a plate. Then invert the plate and cloth over the cabbage and weigh down with washed stones. Tie another cloth over the top of the jar. Let stand two weeks. Take off cloth and replace rinse, remove a little brine and replace cloth, plate, and weights. Let it stand again. This process requires six weeks. Sauerkraut can be used from the jar if it is kept in a cool room. If not, it can be canned in sterilized jars, and processed in a hot water bath for 15 minutes.

Sauerkraut Made in Jars

Slice cabbage with a kraut cutter. Pack cabbage solidly in sterilized fruit jars with 1 teaspoon salt per jar. Fill jars with cold water. Put on cap, screwing band firmly tight. Put jars in container, as the jars will ferment three or four days and the juice will run over. It will be ready for use in four to six weeks, at which time the jars may be tightly sealed and processed in the hot water bath for 15 minutes.
SAUERKRAUT STUFFING FOR GOOSE

2-1/2 pounds sauerkraut
1 grated potato
1 grated carrot
1 minced onion
1 cup salami or other smoked meat, cubed
1 cup dried bread crumbs
1 tablespoon goose or bacon fat

Mix together all the above ingredients. Stuff into goose prepared to roasting. Roast in 350 °F oven for 2 hours or until done, uncovered. Pour off fat occasionally.

PIGS’ KNUCKLES, SAUERKRAUT AND DUMPLINGS

4 quarts sauerkraut
6 pigs’ knuckles or 3 pounds country-style spare ribs

After washing pigs’ knuckles or spare ribs, place in large saucepan with sauerkraut and cold water to cover. Boil until tender; about 1-1/2 hours. About 20 minutes before serving, mix up dumplings and drop by spoonfuls into the pot. Cover tightly and cook for 20 minutes.

SAUERKRAUT DUMPLINGS

1 egg, beaten
1/8 teaspoon salt
1 tablespoon dill
1/2 teaspoon baking powder
1/2 cup flour

Make into paste, Drop into boiling kraut. Cook for 20 minutes in tightly covered pot. Serve with parsley potatoes.

BEEF AND SAUERKRAUT

3 pounds brisket of beef or other beef roast
1 quart sauerkraut
2 tablespoons flour
1 teaspoon salt
1/2 teaspoon pepper
1 tablespoon brown sugar
1 tart apple, grated
1 small onion, minced

In large saucepan, put half the sauerkraut. Sprinkle with flour. Add meat, onion, apple, and sugar. Sprinkle with salt and pepper. Lay rest of sauerkraut on top. Cover with boiling water. Cover tightly and cook for 1-1/2 to 2 hours.

SAUERKRAUT SALAD

1 large can sauerkraut with liquid
1 cup white sugar or substitute
1/2 cup vegetable oil
1 onion, cut fine
1/2 green pepper
1 red pimento, diced

Mix all ingredients and let stand overnight in refrigerator.

SAUERKRAUT CASSEROLE

2 pounds sauerkraut
2 cups diced smoked ham
1/2 cup diced smoked sausage
1/2 cup diced bacon
1 large carrot, diced
1 onion, minced
1 large apple, diced
1 large potato, pared and grated
12 peppercorns
1 cup stock or water
1 cup dry white wine

Arrange all ingredients in layers in buttered casserole. Pour over all the stock and wine. Bake, closely covered, in a 350 °F oven for 1-1/2 to 2 hours, when it should be fairly dry.
Herbs in the Fall Garden

by Madeleine H. Siegler

Herb gardens are at their best in early fall. Herbs seem to put forth their best efforts from mid-August until they are cut down by the first killing frost. They seem to know that their days are numbered. It is now or never.

In my herb garden, here at Monk's Hill, the crushed rock paths are half hidden under the heavy growth of lemon balm, parsley, salad burnet, lady's mantle, sage, lavender, and mint. It is time to make one final cutting and fill the shed and house with huge bouquets of fragrant foliage. All the herbs have been cut at least once, usually just before they come into flower. That harvest is the richest in aroma and flavor.

The lemon balm has long since flowered with the tiny, white-lipped blooms set close to the stem. Now it is rank and tall. We will cut it back one more time. The parsley has been snipped all summer, always taking the outer stalks, so that new growth will continue from the center of the plants. This last harvest will be snipped finely with scissors and frozen for use all winter. Salad burnet was at its best in early spring when the tender leaves, with their faint hint of cucumber, flavor salads. During the summer, some of the older plants are allowed to blossom and then are consigned to the compost pile. Others are trimmed back and continue to send out new growth all summer.

Lady's mantle blossomed in late June. The chartreuse flowers are very effective in fresh flower arrangements; they also hold their color well for use as dried flowers. The leaves of this handsome herb are on stems that grow from the base of the plant. They are tightly pleated like a fan and gradually unfold to a nearly round four or five inch diameter. Rain and dewdrops linger on their surface all through a sunny day. I like to call them my diamonds shining in the sun.

Sage and Lavender

All the sage plants have been cut back twice during the summer. This final cutting will be a light one. Sage is a hardy perennial herb. Older plants become small shrubs with gnarled, woody stems. A common mistake is to cut all the leaves from the

Ms. Siegler owns and operates Monk's Hill Herbs in Winthrop, Maine. Photos are by George Frangoulis.
plant in the fall, on the theory that the frost will kill them anyway. This guarantees the death of the plant. As one herbalist advises, “Send sage into winter with a full head of leaves.” The plant needs them for its nourishment and survival.

The lavender border contains about seven full-grown plants. Each one spreads to a diameter of about eighteen inches. All the flowering stalks were cut in early July just before the flowers were completely open. Since these plants are crowded, and have suffered some browning near the base from lack of sufficient air circulation, I have already taken some divisions from the sides of the plants and rooted them. These side divisions can never be pruned to make as well-shaped a plant as one grown from seed or from top cuttings, but they are usually very strong plants and produce a lot of blossoms the following year. Any pruning needed for good shape on these large plants was done immediately after the flowers were cut in July so that none of the new growth which was developing next year’s flowers was damaged. Any stray side shoots that overhang the path are cut in July also. These and earlier prunings I dry for the potpourri jar. While the flowers carry the strongest scent, the leaves are also fragrant.

Success in growing lavender seems to depend on a sunny well-drained location in light soil that has been well limed. If you scatter the ground with lime until it looks like a light snowfall — that is well limed. Many gardeners advise working old plaster rubble into the soil. This would be especially good if the soil is heavy; it would lighten as well as lime.

Mints

After suffering for five years with a hodge-podge mint section in the herb garden, we have finally consigned the peppermint and spearmint to new beds of their own where they can run to their heart’s content. Eventually the herb garden will contain only the tall woolly mint, which I call applemint, and the lovely orange mint which does not seem to be as aggressive as the others. Right now, the curly spearmint is still rambling about within the herb garden and completely hiding the path near it. The tall woolly mint stays only because it is the one variety that tolerates sun.

One would think that because it is such an aggressive plant, that mint was one of the easiest herbs to grow. In many respects it is, but it does have peculiarities. If the roots become too thickly bound together, the top growth will suffer. The plant becomes prone to fungus and to insect damage. For this reason, it is recommended that any mint bed be dug and reset every three years. This is especially true, if like me, you have started too many varieties too close together. Repeated advice in all herb books is never to use manure on mint. It carries the spores of a fungus that can destroy the crop. There is a fungicide that will control the damage, but why ask for trouble? Since mint is a heavy feeder, I fertilize with bone meal once a year.
There are at least two schools of thought on how best to transfer a plant from garden to house with no severe damage. One way is to bring it inside before the heating system starts its endless running. The other method is to pot the plants and leave them outside on a protected porch or close to the house for a few weeks. I have had good results with the latter method.

First I find pots that I think will be the right size. Clay pots are soaked for several hours in the rain barrel. This is essential, otherwise the plant is always thirsty, as most of the water you give it is absorbed by the dry pot. To digress for a bit, if you like the appearance of clay pots but have already discovered how often they need watering, you can coat the inside with melted paraffin. I cannot remember who shared this hint with me, but there it is. I have not tried it yet, but plan to this year.

Dig the plant carefully and shake all the soil from the roots. This gives you a chance to make sure no sowbugs or earthworms are going into the pot. Worms are invaluable in the garden and there is where they should stay. Your potting soil will not feed both them and your plant all winter. Steal some good rich soil from your best garden spot to fill your pots. I do not think it is necessary to sterilize it, nor do I bother with pre-packaged potting soil. Put a few stones or pieces of broken clay in the pot for drainage if you like. I don’t think this makes much difference, although I’ve done it for years. Now put two inches of soil in the pot, and position the root mass on it. Add soil carefully, making sure there are no air pockets among the roots. A sharp tap of the pot will help settle the soil and sift it in among the roots. Try to end up with the plant at the same level that it was growing in the garden. If it appears that after all this the pot is too small or too large, take time to do it all over again. Your choice specimen is going to spend six months in that container, so do the best for it you can. Usually the right size pot is one that holds the root mass easily, with some space for new growth. Next, give it a good watering and let it rest in the shade for a few days. Always wash the foliage or spray with an insecticide before bringing them into the house.

My plants are usually potted early enough so that they spend a few more weeks out in the fresh air recovering from the rude shock of being dug before they are subjected to the further indignity of being exposed to central heating. Although a humidifier helps us to overcome the effects of dry, heated air, most plants, especially the rosemaries, need frequent misting with room temperature water.

Herb Presents
What do we do with all that dried material once we have gathered it? The uses are limited only by our imaginations or our skill in copying ideas. Most of the products I make from my herbs take very little time and they all are used either to enhance our home or as gifts for others.
Take catnip, for example. If you planted this herb, you probably have quantities of it. You could make catnip mice and give them to all your friends’ cats for Christmas. You really don’t need a pattern. Cut a remnant of sturdy fabric to any shape that resembles a mouse, stitch, stuff, sew on a thick yarn tail, embroider an eye if you feel like it, and you have a mouse. If it doesn’t look like a mouse, call it a catnip critter. The same dried catnip that is so exciting to the cat makes a fine cup of tea that I call one of nature’s tranquilizers. Wouldn’t a few people on your Christmas list like some of it?

Make closet bags of southernwood, wormwood, tansy, or woodruff. Add a few cloves to the herbs and you have a moth repellent as effective as moth balls and far more pleasant to smell.

Strip all the culinary herbs from their stems and store in opaque airtight containers to use for good cooking all winter long. If you have a surplus, fill empty vitamin bottles with them and give as gifts to your very best friends. You will be giving seasonings that are more fresh and pure than any that can be bought in stores at any price.

Fill a big wooden bowl with a fragrant mixture of lemon balm, sage, mint, comfrey, and a few lady’s mantel leaves, for herb tea. Blend them all together and crush slightly with your hands. Whole leaf blends keep their aroma and flavor better than if they have been pulverized. If you have any dried calendulas or elder flowers, add them to the mixture for color and further good benefits. Package in any way you like, and you have another unique gift. All the above herbs make fine tea, either alone or in any combination. In making the blend, use less sage, as it is a strong herb and can overpower the bouquet of the more delicate ones. Comfrey has very little flavor, so I add any of the mints to it.

Try a cup of your herb tea. Put a generous teaspoon for each cup of water into a teapot, add boiling water, let it steep for ten minutes, strain into cups, sweeten with a bit of honey and enjoy! Combine assorted bags of teas with a few small containers of cooking herbs, put them in an inexpensive bread basket, tie it all up with a ribbon, and you have made another unique gift.

Crush some heads of lavender flowers, add crushed lavender leaves and some orris root for a fixative, and you have a lavender sachet. Put some in a dainty satin bag edged with lace and gathered with ribbon to match, and you have produced the perfect gift for any woman on your list. If you have only a small amount of lavender, make tiny sachets of ribbon. A yard of two-inch width ribbon would make several.

After all the herbs are gathered and hung to dry, we relax a bit. There is still much to be done before the gardens are ready for winter, but with the precious crop safely inside, we do not worry about the heavy rains that are due, or the increasingly chilly nights that rob the herbs of aroma and flavor. We can almost accept with serenity the long winter that is close upon us. It will be a time of reinforcement; there will be time to read all the books we dutifully put aside for the summer, time to record successes and failures in our garden journal, time to sketch plans for new gardens, and most of all, time to enjoy with all our five senses the herbs we grew this year.
A WOK FULL OF BOK CHOY

by Lynda Diane Gutowski

Stir-frying, which is a basic technique of Chinese cooking, consists of sauteing chunks of vegetables (with or without meat or fish) very briefly in oil, then steaming them for just a few minutes until they are tender but still crisp. It is an excellent way to prepare virtually all vegetables commonly grown in New England gardens — the short cooking time does not destroy either their flavor or their nutritional value. A stir-fried vegetable dish, served with rice, makes a delicious and filling meal; stir-fries also make excellent accompaniments for plain meat, poultry, or fish.

Once you master the basic stir-frying technique, infinite variations are possible both in the combinations of vegetables used and in the sauces and condiments (domestic and Chinese) which you can add. Special cooking utensils are not necessary: while it...
is fun to prepare the vegetables in a wok (a Chinese cooker which resembles a hubcap in shape), any heavy skillet with a tight-fitting lid will do just as well.

For the purpose of stir-frying, all vegetables are divided into two categories: those which contain a lot of water and therefore may be cooked with little or no added liquid, and those which are drier and require the addition of at least one-half cup of water or stock per pound. To ensure even cooking, both types should be cut in small, uniform pieces — sliced, diced or shredded, depending on the nature of the plant.

High moisture vegetables include the following: kale, cabbage, lettuce, spinach, Swiss chard, and other leafy greens; Chinese cabbage, cucumbers and onions. To use tomatoes, select those which are ripe but firm and cut into wedges. Those vegetables which must be cooked with added liquid include asparagus, broccoli, cauliflower, brussels sprouts, celery, eggplant, green and red peppers, kohlrabi, turnips, and rutabaga. Others in the low-moisture group are lima and fava beans, green beans, peas, snow or edible-podded peas, white and sweet potatoes, carrots, radishes, okra, and both winter and summer squash (stir-frying in various sauces is an excellent way to avoid monotony in serving that never-ending supply of zucchini).

The basic recipe for stir-fried vegetables starts with one pound of any vegetable, peeled and cut as needed, or any combination of prepared vegetables. When using a combination, try to select vegetables with similar cooking times as well as those whose flavor, color and textures make an attractive and tasty mixture — leaf vegetables, for instance, will be overcooked long before potatoes, winter squash or carrots will become tender. If you wish to combine fast-cooking vegetables with slow ones, parboil the slow-cookers before stir-frying or add the quick-cooking ones after the slowpokes have steamed a few minutes. Frozen vegetables may be used instead of the fresh — thaw them first, and steam them for a shorter time.

Assemble the following ingredients:

- 2 tbsp, vegetable oil (not olive) or chicken or bacon fat
- 1 or 2 garlic cloves (optional)
- 2 one-inch slices of fresh ginger root (optional)*
- 1/2 tsp. salt
- dash of pepper (optional)

One pound any one vegetable, prepared as directed above, or a combination of prepared vegetables

- 1/2 c. or more stock, bouillion, or water (use less or none with high-moisture vegetables, unless you want a lot of sauce)
- 1-2 tbsp. soy sauce
- 1/2 tsp. sugar

Binding mixture: combine 1 tbsp. cornstarch

- 1/4 c. water
- 1 tbsp. rice wine or dry sherry (optional)

*Fresh ginger root is available in the produce departments of many larger supermarkets — if you don't see it, ask for it. If you must substitute ground ginger, use it sparingly — 1/4 tsp. is quite sufficient for one pound of vegetables.

In a skillet or wok, heat the oil or fat over medium-high heat. Add the garlic, ginger, salt and pepper. Stir-fry the seasonings — using a fork or large spoon, toss them quickly until all the surfaces are coated with oil — for a few seconds, then remove ginger and garlic. If you prefer a stronger flavor, the ginger and garlic may be minced, instead of using larger pieces, and allowed to remain in the skillet.

Add the prepared vegetable(s) and stir-fry until they are well-coated with oil — about ten more seconds. Lower the heat to medium and add the liquid, sugar, and soy sauce. Cover, and steam until the vegetables are tender but still crisp — the cooking time will vary according to the type of vegetables used, the quantity, and how they are cut: greens and tomatoes may require only one or two minutes after coming to a boil, while firmer vegetables often require five minutes or longer.

Do not overcook: what you want are tender but clearly-defined chunks of individual vegetables, not a soggy, indistinguishable mass. As soon as the vegetables are cooked but still crisp, add the binding mixture. Stir for a few seconds until the sauce thick, translucent and glossy. Remove from the heat and serve immediately — if you wish, sprinkle the stir-fries with toasted sesame seeds, nuts, or chopped chives or scallions.

You have now mastered the technique of preparing stir-fried dishes using common garden vegetables and other ingredients readily available in supermarkets. If you are adventurous, you may want to go on to more exotic recipes which require the addition of special Chinese ingredients. Some of these you could try growing in your own garden; others are most easily obtained by visiting an Oriental grocery in Boston or New York (a trip to Chinatown can be a highlight of any visit to either city). They can occasionally be found in gourmet sections of department or grocery stores, or in some health food stores; they may also be ordered by mail. Stores which ship some Oriental items include the following:

- Aphrodisia, 28 Carmine Street, New York, NY 10014 (Send $1.00 for catalog)
- The Delicacies Shop, Bloomingdale’s, Lexington Ave. and 59th Street, New York, NY 10022 (Has no catalog but will ship available items on request)
- Wing Fat Company, 35 Mott Street, New York, NY 10013 (Send for catalog)

Some ingredients which will add a special Chinese touch to your stir-fries are described below. Listed first are a few fresh, canned and dried Oriental vegetables which may be stir-fried instead of or as an addition to your own produce. These are followed by Chinese sauces and condiments which can be used to make delicious variations on the basic stir-fry recipe.
Vegetables

Bamboo Shoots — Available in cans in the Chinese foods section of almost all supermarkets, these are already sliced into thin pieces. Drained and used with any vegetable combination for stir-frying, they add a special taste and crunchy texture. The liquid they are packed in may be reserved and used along with or instead of the stock or water.

Bok Choy (Chinese chard cabbage) — A leafy dark green vegetable with a white stem, bok choy is excellent in stir-fries by itself or with other produce — prepare it like Swiss chard, which it resembles in appearance but not in taste. It is only available fresh in Chinese markets and thus cannot be shipped. It will keep about one week under refrigeration. Seeds are available for growing your own bok choy.

Chinese Mustard Greens (Kai Choy) — Another fresh green leafy vegetable, good alone or in combination stir-fries. Prepare and store like bok choy.

Cloud Ears (Wood Ears) — A dried fungus which makes a tasty and nutritious addition to stir-fries. Soaked first in warm water for about one-half hour, it will expand to many times its original size and assume a fluffy cloud shape. Slice the soaked fungus into thin strips and stir-fry with other vegetables. Available only from Oriental markets, cloud ears will keep indefinitely without refrigeration. Tree ears are similar but smaller and thinner.

Dried Forest Mushrooms — Delicious, meaty-tasting mushrooms which also add a great deal of flavor to stir-fried dishes. Soak them in hot water until soft — about fifteen minutes. Discard the tough stems and cut into thick strips. Occasionally dried European mushrooms may be found in supermarkets; they make an excellent substitute.

Golden Needles (Lily Buds) — These dried buds from the lotus flower are another unusual vegetable to add to your stir-fries, and are often used in combination with cloud ears. Soak them in cool water for about ten minutes before using. Like all dried foods, they will keep indefinitely without refrigeration.

Glutinous Rice — A short-grained white rice also known as sweet or sticky rice, it is very rich in B vitamins and makes an excellent accompaniment to stir-fried vegetable dishes. To prepare, soak the rice in cold water for at least two hours, then drain. Cover with fresh water in a pot with a tight-fitting lid, and bring to a boil; lower the heat and steam until soft, adding extra water if necessary.

Water Chestnuts — Like bamboo shoots, these are available canned in the Chinese foods section of most supermarkets. They should be drained and thinly-sliced before using in a stir-fry to add a delicious, sweet, nut-like crunchiness. Their liquid may be reserved and used like that of bamboo shoots. Water chestnuts may also be bought in dried form in Chinese groceries — soak the slices in hot water for several hours before using. Dried water chestnuts will keep indefinitely without refrigeration if stored in a moisture-proof container. Some people use Jerusalem artichokes in place of water chestnuts.

Sauces and Condiments

Fermented Black Beans — These small, very pungent black beans are preserved in salt. They are soaked in warm water for a few minutes, drained, and then mashed thoroughly before being used in a sauce. They can be bought in plastic bags at Oriental markets and stored without refrigeration. Canned black bean sauce — the beans are already mashed — is also available but more difficult to find.

Brown Bean Sauce — Available in cans from Chinese markets, this thick fermented sauce is also known as yellow bean or ground bean sauce. It resembles soy sauce in flavor, only stronger and saltier; hence, it is never used with salt, and soy sauce is used very sparingly. It should be removed from the can and refrigerated in a tightly-sealed container.

Hoisin Sauce — A spicy, mildly sweet thick sauce which, when used in moderation, gives a delicious exotic taste to some stir-fries. It is made of soybeans, sugar, and seasonings. Stored in a tightly-sealed container, it will keep indefinitely in the refrigerator.

Oyster Sauce — A thick, brown sauce made of oysters, clams, and soy sauce, it may be substituted for soy sauce in virtually all recipes, and can also be used as a dip or table condiment. It, too, will keep for a long time if refrigerated.

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The Chinese sauces and condiments described above can be used to make the following variations on the basic stir-fry recipe:

**Stir-fries with Black Bean Sauce** — Black beans are always used with ginger and garlic. To the basic ingredients add 2 tbsp. black beans and 1 tsp. dry sherry; omit the salt beans as previously directed, or use the already-prepared black bean sauce. Combine with the minced ginger and garlic (not optional here). Heat with oil in the skillet — add the bean mixture and stir-fry ten seconds. Add the vegetables (sweet or bland vegetables such as white or sweet potatoes and winter squash are particularly good with this pungent sauce) and stir-fry ten more seconds to coat with oil and beans. Add the soy, sherry, sugar and water and proceed according to the basic recipe; do not add sherry to the binding mixture.

**Stir-fries with Brown Bean Sauce** — To the basic recipe ingredients add 1 tbsp. brown bean sauce; omit the salt, and use only 2 tsp. soy sauce. Heat the oil in the skillet and stir-fry the optional garlic, ginger and pepper for ten seconds (if used). Add first the brown beans and then the vegetables; stir-fry ten more seconds until the vegetables are well-coated with brown beans and oil. Add the soy, sugar and liquid and steam as directed until the vegetable is crispy-tender. Add the binder, cook until glossy, and then toss in a few drops of sesame oil — more or less to taste. Serve at once.

**Stir-fries with Hoisin Sauces** — Combine the following ingredients and set aside:
1 tbsp. soy sauce
1 tbsp. hoisin sauce
1/2 tsp. salt
1/2 tsp. sugar
1/2 C. water
Heat 2 tbsp. oil in skillet and add 1 lb. prepared vegetable (asparagus are especially good with this sauce). Stir-fry a few seconds. Add the sauce mixture; cover, and steam until the vegetables are crispy-tender. Add the binding mixture and cook until the sauce is thick and glossy. Serve at once, sprinkled with sesame seeds if desired.

**Stir-fries with Sweet and Sour Sauce** — Combine the following ingredients and set aside:
1/4 C. vinegar
1/4 C. brown sugar
1 tbsp. soy sauce
2 tbsp. orange juice
2 tbsp. pineapple juice
2 tbsp. tomato paste

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Heat 2 tbsp. oil in skillet and add 1 lb. prepared vegetable (peppers and carrots are particularly good with this sauce). Stir-fry a few seconds. Add the sauce mixture; cover, and steam until the vegetables are done. Add the binding mixture, and cook until the sauce is thick and glossy. Serve. Pineapple chunks may be combined with vegetables in sweet and sour sauce.

Still more variations may be created by adding meat or fish. Ground beef or pork may be put in the skillet at the beginning, with the salt, garlic and ginger, and the basic recipe followed from then on. Other meats, boneless poultry, or fish may be cut into small pieces (this is easiest to do when they are partially frozen), cooked with the seasonings until not quite done, removed from the skillet and then put back when the vegetables are nearly completed. Cooked, leftover meat, diced or thinly sliced, may also be used — add it to the skillet with the vegetables. Only a small quantity of meat is needed: about one cup to one pound of vegetables. The possibilities are endless — do not be afraid to experiment. Once you have tried stir-frying your harvest, Chinese style, you will never go back to soggy, overcooked vegetables again.

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Backyard Gardener gets an A+ for charisma.

In a moment, I'll get around to praising it from a scientific point of view for being such a complete, informative, localized book on gardening.

However, I was so impressed with its witty, good-humored writing style that I have to slip in a few words about that first. After all, who wants to read a dull, dried-out textbook on gardening, no matter how factually superior it is? In fact, what good is a factually superior gardening book if you can't wade your way through it?

Backyard Gardener, compiled by Maine Times staff members Peter Cox, Sandra Gregory, M.J. Parker, Lucy Martin, and Barbara Riegel, reads like a letter from a friend — a very imaginative friend. The descriptions are picturesque, to say the least.

Earwigs, for example, "lurk in damp, dark places and are triggered into rapid slitherings when garbage can lids or flower pots are lifted. They hide in cracks in foundations and in the damp garden foliage they probably gnawed the night before." (Shudder ... I hope I never meet an earwig in a dark alley.)

The cutworm is "a stout, greasy looking hairless grub ... soft bodied, dark brown to black backed, and up to two inches long, depending on maturity. His mouth is equipped for biting and chewing, and he has fleshy little legs on his pale abdomen."

These two evil characters come under the Foes section; the earthworm, of course, is described under Friends.

"Their shovel-like lip loosens the soil as the worms burrow along. The ingested soil, sucked into their mouths by muscular action, passes into their tough, thick-walled grinding gizzards ... which pulverizes the food-containing soil as it is rubbed against sand particles swallowed with it."

See what I mean? These authors don't hold back on description.

Little jabs of wit pop up unexpectedly through the book — like in the Garden Schedule, which "even if you ignore it most of the time ... is handy to have." Under January's list of things to do, you are reminded to order seed catalogues; in February, you are reminded to order seeds; in March, you are reminded to "do all the things you didn't do in January and February."

Did I mention that the book is well-illustrated and designed? Small aesthetic points, perhaps, but the little things add up. Both the photographs, by Tom Jones, and the drawings, by Margaret Campbell, are great — but I guess you'll have see them for yourself, since I really can't reprint and re-draw them here for you.

The book design, by Meredith Herzog, is delightful. The print, you see, is fairly large and bold, and there are nice little breathing spaces of white between sections, sub-sections, and sub-sub-sections.

Backyard Gardener is a much needed book, for it is custom-written for the cold Maine climate and is geared to Downeast weather patterns. It includes a map of local frost dates and a garden almanac from first planting to last frost, compiled by Peter Cox. "TUESDAY, JUNE 10; There was a frost last night. Some of the tomatoes had leaves killed, but everything survived. (This turned out to be the last frost.) Cutworms seem to be decreasing. Garden about a month behind on crops cutworms hit, due to replanting. But there will be peas by the Fourth of July."

The book covers all the topics that you'd expect, and some you wouldn't.

Most important, all this information came from the personal experiences of Maine gardeners, including the authors.

Yet, as the authors point out in the beginning, "There is no one way to plant, Gardeners tend to develop their pet methods of soil preparation and sowing, and of course, there are all kinds of variables in success and/or non-success: soil, weather and the greatest variable of all, personality. So the following guide is just that; a guide."

This is a book you'll enjoy being guided by.

By Madeleine H. Siegler

A new and very practical book for the vegetable gardener has just come to our attention. It is called Vegetables Money Can't Buy But You Can Grow, David Godine Press, Boston, $4.95 and is written by...
Nancy Bubel. The title is eye-catching and provocative, and Nancy Bubel is a plain dirt farmer whose name is familiar to many of us. She has written consistently sensible articles for Organic Gardening for as many years as I have read that magazine, and her name and authorship is one I have come to trust.

“When did you last see spaghetti squash for sale in your local market? How about sugar peas, burpless cucumbers...small crunchy kohlriabi, mild savoy cabbage...or plum tomatoes? I won’t even ask whether you can buy leaf lettuce, salsify, leeks, or Oriental radishes.” That is the opener in the preface. If you always thought prefaces were dull things you will change your mind when you pick up Mrs. Bubel’s book. Read it and whimper a bit as you realize that everything she says about supermarket vegetables is true.

Granted, produce managers in every market have earned their ulcers, they handle highly perishable products displayed openly and at the mercy of every strong thumbed shopper. Have you ever watched strong-minded shoppers try to shove their thumbs through every tomato or peach on the rack? We do the market managers an injustice to blame them for the plastic tomatoes or wooden carrots that are so often the best they can offer.

Celeriac, sorrel, New Zealand spinach, kale, and soybeans are a few of the exotics she tells us how to grow. Malabar spinach and tampala are two spinach-like vegetables that tolerate heat and sound like fine eating. Rooted parsley, also known as Hamburg parsley is another vegetable new to most of us.

The book not only describes the virtues of many different vegetables, it gives completely practical directions for growing them. The author gardens in Pennsylvania but makes her advice universal by suggesting that you plant “when the daffodils are blooming, or when the apple blossoms have just gone by.” This surely beats the narrow view of the gardener who writes that “here we plant peas on March 20th.” The Bubels have gardened organically for enough years to know the vices and virtues of this method. The reader can have confidence in taking any advice given.

Many tempting recipes are given using the new vegetables as well as some fine variations for cooking old standbys.

A detailed glossary tells the reader where hard-to-find seeds may be found. The text is brightened by the use of many original woodcuts from the pages of antique seed catalogs. The book is available in hard cover or in a well bound paperback edition.

Informative books on plants do not need to resemble textbooks. No book makes this point as plainly as a recent offering from The Yeoman Group in New York. Called The Good Humoured Gardener and written by two Dutch girls who possess both a wicked wit and uncommon good sense about plants, this book surely deserves attention. Treeske Blase and Anneke Hohmann first collaborated on this work as a comic strip which appeared in an Amsterdam newspaper. The strip was highly popular and was published in book form in Holland in 1970. Translated by Inge Bourke-Nieuwstraten and edited for American idiom by Elaine Mueller, it made its debut in this country in 1975.

Who could resist a book that manages to cover a variety of subjects from how to prune a rangy philodendron to how to have a perfect lawn and manages all this in a four frame comic strip? The piece on azaleas describes this greenhouse plant as captivating and capricious and is accompanied by a sketch of a female who is just that. The ladies advise that a man not give his love an azalea unless her thumbnail is a deep emerald green, time is no object with her, and her love of plants borders on mania. If she does not meet these requirements object with her, and her love of plants borders on mania. If she does not meet these requirements they suggest giving her jade or a jade plant. Then in the remaining sketches they give all the tips necessary to keep gift azaleas growing happily.

It is painful to criticize a book as cheerful and charismatic as this one, but the comic strip format produces a narrow book, 5 by 14 inches. This makes it unwieldy for bookcases but it will be a bright addition to any coffee table.

If you cannot find this delight at your favorite bookstore, why not ask for it? Most bookshop owners are delighted to order any book not in stock.
storing seeds

A new way to store seeds has been developed at the University of California, Davis. Put seed packets in canning jars with two heaping tablespoons of fresh, powdered dry milk wrapped in four thicknesses of facial tissue and secured with a rubberband or tape. The tissues keep the milk from sifting out and prevent the seeds from touching the moist dessicant. Make sure there is an airtight seal on the jar and change the milk packet once or twice a year.

petroprotein

One of America's newest natural foods is called Torutein, the trade name of a product made by Amoco Foods. Michael Harris, in an article in the August issue of Mother Jones, reports that it is a Torula yeast *Candida utilis* grown on hydrocarbons distilled from petroleum. It has been sold to U.S. food processors since 1975 and is used as an additive in meat products, baked goods, frozen foods, infant dinners, margarines, soups, gravies, tortilla chops, and pizzas.

Torutein is used primarily by producers of institutional food, and a high protein macaroni product has been accepted by the government for use in federally sponsored school lunch programs. You'll probably never know if it's in the food you eat because by FDA regulations, if it's used as a flavor enhancer, it can be indicated on the label as "natural flavorings." If it is used as a protein booster, it is described as "torula yeast." FDA approved the product "on the basis of existing FDA regulation", but admits it has done no tests to determine if the product is safe. The FDA file contains only one 13-week study of the petroprotein being added to the diet of test animals with no adverse effects. The study was conducted by Amoco.

On the other hand, Japanese studies of yeast cultures grown on petroleum have found cancer-causing benzopyrenes and related substances. Also, the heavy metals lead, mercury and arsenic were found in the yeast. Japanese companies discontinued their efforts to produce petroprotein, even for animal feed, in 1973.

British, Venezuelan, and Italian governments have also held up approval of petroproteins. An Amoco Vice President said, "We now have 112 food processors in the United States using our product."

chimney fires

According to the Chimney Sweep Guild, there were 41,000 chimney fires last year, causing $19 million in damages. Before you start up the wood stove, check the chimney.

climate and coal

A recent report released by the National Academy of Sciences concluded "The climatic effects of carbon dioxide release may be the primary limiting factor on energy production from fossil fuels over the next few centuries." Since the beginning of the Industrial Revolution, a 13 per cent rise in the atmospheric concentration of CO2 has taken place, including a 5 per cent rise in just the last 15 years. If present trends in energy use continue, and most of this energy comes from fossil fuel, the report predicts that CO2 levels will double by 2050. Climatic modeling, though admittedly imperfect, predicts a 5 degree F rise in average temperatures with each doubling of atmospheric CO2 concentration.
pollution impairs crop productivity

According to a recent statement issued by EPA Administrator Douglas M. Costle, air pollution is costing the nation "millions of dollars a year in reduced agricultural productivity." Results of a study conducted by the Boyce Thompson Institute for Plant Research in New York, indicate that yields of alfalfa and sweetcorn were reduced by 15 percent when exposed to smog as compared with those crops protected from air pollution. Similar experiments demonstrate that bean production was reduced by 25 percent and tomato production by one-third when exposed to air pollution.

*Conservation News, June 15, 1977*

sea water irrigation

Barley has been successfully grown on sea water-irrigated soils by Emanuel Epstein and J.D. Norlyn of the University of California at Davis. By vigorously selecting varieties that grew in saline conditions, the scientists have attained yields of up to 1,242 kg/ha on plots irrigated with pure sea water. Since many of the world's prime irrigated agricultural lands are suffering from increased salinization, this research might imply that at least some plants can be adapted to saline conditions through plant breeding.

*Science, July 15, 1977.*

farm bulletins

Several new farm bulletins have been started this past year or two. *Maine-ly Agriculture* is a weekly market bulletin published by the Maine Department of Agriculture. *New Hampshire Market Bulletin* is a similar publication by New Hampshire's Department of Agriculture. *Massachusetts Farm Bulletin* is published every two weeks by the New England Farm and Home Association, Sudbury, Mass. *Rural Delivery* is published monthly by Dirk van Loon in Port Joli, Nova Scotia. All these publications feature classified ads and state and provincial news for small farmers. Classified ads are usually free to subscribers.

common ground country fair

A Celebration of Rural Living will take place September 23-24-25 at the Litchfield Fairgrounds in Litchfield, Maine. Sponsored by the Maine Organic Farmers and Gardeners Association in cooperation with supporting groups, the event returns to Maine and New England the large old-fashioned country fair. An outgrowth of the popular rediscovery of rural lifestyles, Common Ground Country Fair will be a marriage of the best of New England agricultural traditions with the excitement of the new spirit of country living and local agriculture.
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