Tools -Hand, non-Electric and Old Time

Over the years of being a single parent I had to learn to fix things myself and as a result I collected quite a bit of tools. Oh I have the usual power tools too, but the ones I still use more frequently and the ones that always seem to get "permanently" borrowed are my hand tools.

As I stated in an earlier letter, if you are planning to shelter in place be sure to have all the household type tools and spare parts you might need. This may sound like a copout, however, just as each home has its own unique set of problems and maintenance – so does each homeowner have their own set of knowledge and tools to draw upon. I doubt that anyone can specifically tell you exactly what tools and spare parts to have on hand. Think about it; what good would it do to have a tool that scares you spitless or could kill you during use because of your lack of knowledge? Not much good except for taking up space and praying that someone will come along that you can trust that has the skill and knowledge to use the thing.

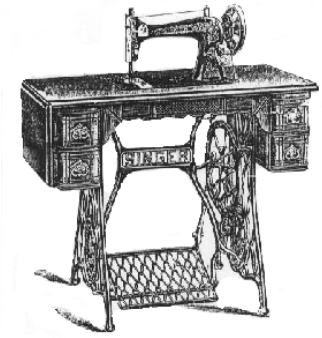
I've also stated that I love history and what it can teach us and this applies to tools and homesteading equipment. So now that I'm "cleaning" house to get ready to move I have had to inventory my tools and got to thinking and researching just what kinds of tools does a homesteading Prepper need anyway?

Below is a list of some tools and links (most are non-electric) along with some history behind these tools. Depending on where you plan to retreat to, what your goals and skills are, you will need some if not all of these tools in some way or another. At the very least this list will get the gears working in your brain to help you start to think, plan, budget and acquire what you will need.

Treadle Sewing Machine

These you can either get used as in expensive and antique, or there is one company that sells a modern day version called Janome 712T that goes for around $600.

Antique machines can cost from a few hundred to thousands depending on the machine and its condition.



Damascus Grand, my first "people powered" machine.

Wash Day Items

Cloths line Tools

Cloths line Kit

Laundry Cart

Hand powered washer

Non electric Wonderwash mini washer and dryer. Cutting down on your electricty and water consumption? How about going 'old school' with non-electric mini washers and dryers? The mini machines sit on your countertop, are portable (the US army uses them in Iraq and Afghanistan), use 90% less water than a conventional machine and in the case of the spin dryer, cuts a household energy usage by 5-10%.

For **Making Your Own Non Electric Laundry Press** see http://www.instructables.com/id/Non-Elelectric-Laundry-Press/?download=pdf or "As part of our non-electric laundry series, this process takes the wet, clean clothes, and presses the water from them before hanging them on the line to dry. You will need 3 buckets, one lid, and a hand drill with a 1/4" wood bit. You can see the bucket washer at http://www.youtube.com/watch?v=TYY7pfAjGIk"

Iron – Yep for your shirts and pants, just because you are homesteading doesn't mean you have to go without fresh pressed shirts. Even living in the boonies you will most likely have something sometime that you want to look crisp and creased. If you want to go non-electric you will need to either make your own antique iron or purchase a travel iron that runs on butane or some such thing. Or as I learned at one Colonial Camp, make one out of a brick:

You will need a good fire brick, aluminum foil (preferably heavy duty), fireplace gloves and a clean flat surface.

1. Heat the brick in a fire.
2. Wrap in aluminum foil
3. Spread the article of clothing on the clean flat surface
4. With your gloved hand "iron" the clothing with the foil wrapped brick.

Here are some examples of non-electric irons.


Heat on the stove 1873


Paraffin burning iron from the UK 1939

Personal Care


Sharpen disposable razor blades


Shaving Soap

Cast Iron Cookware

One thing that many people do not list on their essentials list is cast iron cookware. I find these invaluable in the kitchen and they are practically indestructible to boot.

Enamelware

Another item often forgotten are your everyday plates, bowls, mugs, pots and pans. To me if you are a "Prepper" or Survivalist and you are stocking your retreat it pays to not only select smart for the durability but to select multi-functional as well. When it comes to kitchen ware nothing beats enamelware. If you get the kind where the plates have rims – these can be wide bowls as well as plates. This stuff can also go on the flame. I've even made nachos using these plates.




Rimmed or lipped are the best for plates because they also double as shallow bowls.




They come in all styles, shapes and sizes. Check the camping stores. You cannot put these in the microwave, but they can go in the oven or directly on the flame.

Handy Non-Electric Gadgets for the Kitchen

Sandwich cooker/griller

Toaster

Campfire Popcorn Popper

Can Opener, Bottle Opener, Cork Screw

Non-Electric Slow Cooker

Thermos 4.5 Liter RPC-4500 Thermal Cooker - Non-Electric Slow Cooker can be ordered at http://www.atomicmall.com/view.php?id=848148 for about $170

Other Useful Kitchen Items

Stove Top Canners

Colander

Grain Mill

Dual Speed Hand-Crank Mixer

Sieves

Stove top steam jucier

Drip Coffee Maker

Nut Chopper

Pasta Dryer

Salad Spinner

Fruit Press

Sausage Stuffer

Meat Grinder

Ice Cream Maker/freezer

Cheese Making tools

Butter Molds

Non Electric Food Processor

Juicer

Non Electric Baby Food Maker

Roller Mill Three hardened steel rollers flatten grain for making flakes or crack it.

Noodle Maker

Pea Sheller

French Style Green Beans

The "Foley" Food Mill Quickly mashes, rices and strains, removes seeds and skin and purees or mashes

Wheatgrass Juicer

Juicer

Butter Churn

Mincer

Slicers

Hand Whisk

Stoner Cherry

Peelers

Stoner Plum

Nutcracker

Apple Corer

Masher

Steamer

Oven Thermometer

Scale

Salt & Pepper Mills

Graters

Funnels

Ricer

Mortar & Pestle

Scoopers

Grinders

Kettles

Handy Serving Necessities

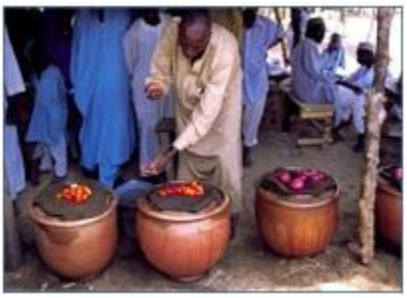
- **Large mixing bowl**. A metal, ceramic or glass mixing bowl can serve as a salad bowl and main course serving bowl in addition to a vessel for mixing cake batter, sauces and other semi-liquid foods.
- **Eating utensils (knife, fork and spoon)**. These three ubiquitous items are crucial for eating, which is the point of stocking the kitchen with cooking, baking and prepping tools in the first place.
- **Flour Sacks** – see WWW.Bagtiques.com

Water Stills

DIY Non-Electric Water Still and Desalinator for Under ~~$50~~ $37 http://dailypundit.com/?p=35912

DIY Non-Electric Refrigeration

This particular article was short, simple and sweet.



http://littledevicesthatcould.blogspot.com/2006/12/non-electric-refrigeration.html … "pot-in-pot refrigerator" It consists of a smaller clay pot inside a larger clay pot. The gap is filled with damp sand. As the sand water evaporates, the inner pot cools. Food that used to spoil in a few days now stays fresh for weeks….

Oil Cans

WD-40 can be purchased by the gallon and not the spray cans, then use these handy tools.

Spring Bottom 

Flex Spout

A neat article called "Setting Up Shop" can be found at http://www.kountrylife.com/articles/handytools.htm and it suggests the following tools to start yourself out.

> Whether your home is large or small, there are a few tools that are really nice have on hand. Some important things to remember: 1) Always buy the best grade of tools that you can afford. They will last much longer. 2) Take care of your tools. Have a place to store them where they can be easily found, clean them before you put them away, and apply a light oil if necessary to metal tools to avoid rusting.

Basic Hand Tools

- General Purpose Hammer
- Variousl sizes of nails and screws
- Phillips Screw Driver (one large tip, one small)
- Flathead Screw Driver (one large tip, one small)
- Hand Saw
- Pliers
- Adjustable Wrench
- Measuring Tape

Specialty Tools

- Sandpaper

- Light Oil
- Hack Saw
- Glue
- Level
- Utility Knife
- C-clamps
- Vise
- Combination Square
- Paint Brushes
- Staple Gun
- Paint Scraper
- Wire Brush
- Tin Ships
- Wire Cutters
- Power Tools

After you've set up your shop with the basics, you might want to consider adding some power tools. Once of the basic and most popular power tools is a variable speed drill. These can be used for drilling and adapters for driving screws are usually available. A circular saw can also be handy. The bottom line in my mind is that you should only pick up power tools for those jobs that are performed frequently. Power tools are usually expensive, so it makes no sense to purchase a tool that will rarely be used. You can rent, borrow or make do with hand tools in those cases.

I've found when I go to purchase a power tool that there are basically three levels of quality and expense. There are the very inexpensive and cheaply made versions, the extremely expensive versions that are meant for the professional, and then there is a "middle-of-the-road" version. Certainly if you can afford the professional version, go for it. Otherwise, always choose the "middle-of-the-road" version over the really cheap ones.

Solar Chargers for power tools http://www.batterycountry.com/ShopSite/solar-chargers.html; http://www.earthtechproducts.com/flexible-solar-panels---portable-solar-battery-chargers.html

A Simple Off-the-Shelf Solar Power System and Off-Grid Power Tools, by K. in Texas can be found at http://www.survivalblog.com/2010/01/a_simple_off-the-shelf_solar_p.html (By James Wesley, Rawles on January 27, 2010 10:58 PM)

DIY Solar Charger to keep your gadgets powered even when the grid fails you http://www.popsci.com/diy/article/2007-07/diy-solar-charger By By Dave Prochnow Posted 07.06.2007

DIY Solar Powered Hand Tool Charger can be found at http://www.thefarm.org/charities/i4at/surv/spht.htm

Hand Tools to Consider

Hand Drills

Many of these new hand drills will take any power drill bit.

Shroeder Hand Drill

Many **Tap & Die** tools are considered hand drills Find then at http://www.hobbylinc.com/prods/rae.htm and are used for small, precise intricate work like models and things.

The **Scratch Awl** is also considered a type of hand drill

Hammers & Sledges

Clamps & Vises

Ratchets & Wrenches

Chisels & Pry Bars

Screwdrivers & Nut Drivers

Pliers

6 Pc Cushion Grip Screwdriver Set ; 6-In-1 Screwdriver - Phillips, Slotted, & Nut Driver ; 7 Pc Nut Driver Set With Storage Rack ; 26 Pc Screwdriver Set - Phillips, Slotted, Torx, & Nut Drivers

Husky 68pc Ultimate Screwdriver Set

Tape Measure

Types of Wrenches

Type	Uses/Features	Example
Adjustable Wrench	• Tightening/loosening nuts and bolts • Moveable lower jaw to adjust wrench size	
Chain Wrench	• Tightening, loosening and turning pipes and other oddly shaped objects	
Pop-Up Wrench (dumbell)	• Installing/removing pop-up plugs and strainer baskets	
Basin Wrench	• Tightening/loosening nuts and hose couplings under sinks and lavatories	

Pedestal Sink Wrench	• Tightening/loosening drain or trap fittings on pedestal sinks	
Internal Pipe Wrench	• Turning pipes, nipples or fittings from the inside	
Pipe Wrench	• Turning metal pipes and fittings	
Allen Wrench (Hex Key)	• Tightening/loosening hex-head screws and bolts	
Combination Wrench	• Tightening/loosening of nuts and bolts • Metric and standard sizes • One open end and one box end (usually the same size)	
Double Box Wrench	• Tightening/loosening of nuts and bolts • Metric and standard sizes • Two box ends (usually different sizes)	
Double Open Wrench	• Tightening/loosening nuts and bolts • Metric and standard sizes • Two open ends (usually different sizes)	

Stubby Wrench

- Tightening/loosening nuts and bolts in tight spaces
- Metric and standard sizes

Speedster Wrench

- Tightening/loosening nuts and bolts
- Metric and standard sizes
- Specially designed to work like a ratchet

Flare Nut Wrench
(Line Wrench)

- Tightening/loosening flare nuts at line connections
- Specially designed to turn flare nuts without stripping

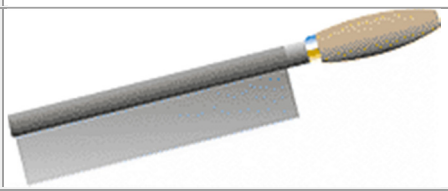
Torque Wrench

- Tightening nuts and bolts to specific foot pounds
- Made in 3/8" and 1/2" drives

Types of Saws

Type	Uses/Features	
Rip	• Use for woodcutting with the wood grain. • Usually 24" to 26" long with 4 to 7 teeth per inch (tpi) • Cut very aggressively and leave slightly rough edge	

Cross Cut	• Use for woodcutting across the wood grain • Usually 24" to 26" long with 8 to 11 tpi • Don't cut as aggressively as rip saws but leave a much smoother edge	
Panel (Short Cut or Box Saw)	• Use for woodcutting across the wood grain • Usually shorter than regular cross cut saws, for easy portability	
Bow	• Use for woodcutting in any direction • Have a tubular steel frame with a ribbon-like, high-tension steel blade	

Coping	• Use for fine woodcutting, coping joints • Have deep steel tension frames and very thin blades to allow the user to make intricate cuts at extreme angles	
Back	• Use for fine woodcutting, molding and trim • Have a rigid piece along the back to prevent the saw from kinking during use	
Pull	• Use for fine woodcutting, molding and trim • Cut on the pull stroke to give greater control and eliminate the possibility of the saw kinking in the kerf	
Dovetail	• Use for wood joint cutting • Have rigid backs like backsaws, but are usually smaller and have finer teeth	

Keyhole	• Use for circle and curve cutting in wood • Have very thin, pointed blades for cutting small, tight radius curves and holes	
Compass	• Use for circle and curve cutting in wood • Have longer, coarser blades than keyhole saws • Designed for slightly heavier work like cutting holes in subflooring for plumbing or electrical wiring	
Drywall	• Use for cutting wallboard, gypsum and backing board • Resemble compass saws but have coarser teeth for cutting through wallboard quickly	
Hacksaw	• Use for metal cutting • Have very fine teeth and thin blades, held under tension in a steel frame	

Mini Hacksaw	• Use for close-quarter metal cutting • Use the same blades as regular hacksaws, held in a small handle without tension.	

Planers

Water Pumps

Good Work Boots

Fuel

Lighting

What Did the Pioneers Use?



Here is a little bit of what I have gathered. This is mostly pictures since most of the tools are simple and just about anyone can make their own.

The axe was a very important tool. With an axe the homesteader built a home, chopped firewood, chopped down trees and cleared the land.

A pickaxe, hoe and spade (shovel) were used for digging and turning over the soil.

A wooden rake was used to level the soil.

Grain or hay was cut with a scythe (a long blade on a stick) or a sickle (a curved blade on a stick) and left to dry in the sun.

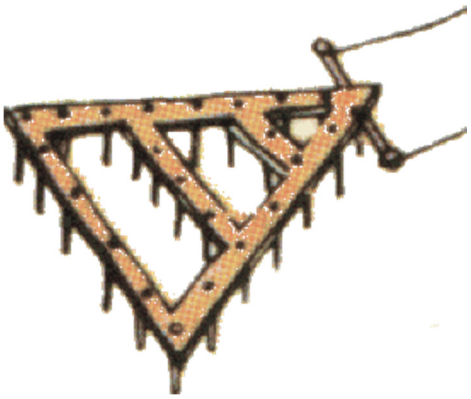
A cradle scythe (also called a hand cradle) cut the hay and also dropped the hay in piles.

A pitchfork was used to gather up the hay or grain into piles. Then the hay or grain was loaded onto a cart or wagon and stored in the barn.

A flail was used to separate the seeds from the rest of the plant.

PLOWING AND PLANTING

The land was broken up with a plow (or plough). The plow had a sharp blade that cut into the earth and turned over the soil. The plow was pulled by oxen or horses. The farmer had to keep the blade of the plow in the ground and had to be careful not to hit any large rocks, stumps or roots. Next a harrow was pulled over the soil to break up the lumps and smooth out the ground. A harrow looked like a large rake with rows of teeth.



a harrow broke up the lumps of earth

Then the farmer sowed the seed (planted). Wheat, rye, oats, barley and flax (for making linen) were planted. Then as now; there were many ways that the crop could fail - too many weeds, drought (no rain), floods, frost, hail, insects, plant diseases and prairie fires destroyed crops.

HARVESTING AND THRESHING

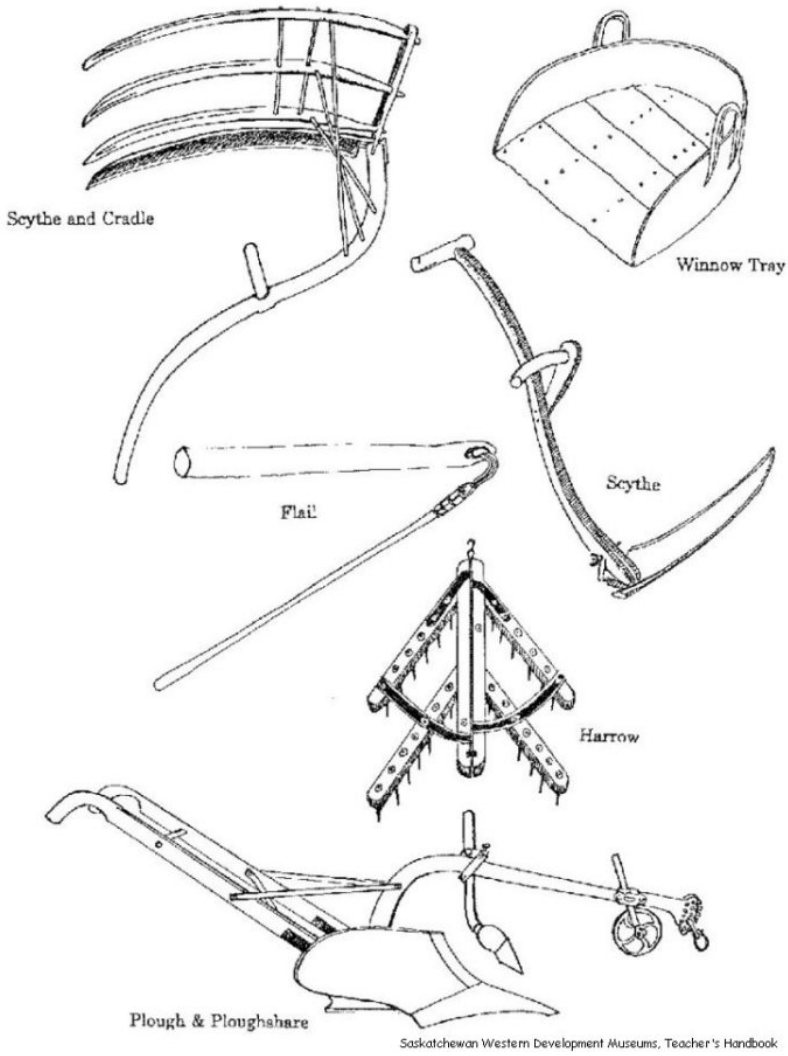
harvesting the crop with a scythe

When a crop was ready to harvest the farmer used a sickle, scythe or cradle scythe to cut the crop. Then the stalks were bundled into sheaves. The bunch of sheaves were leaned against each other so the sheaves stood up. The standing bundles were called stooks . The stooks were left to dry in the field. Later, the sheaves were hauled to the barn.

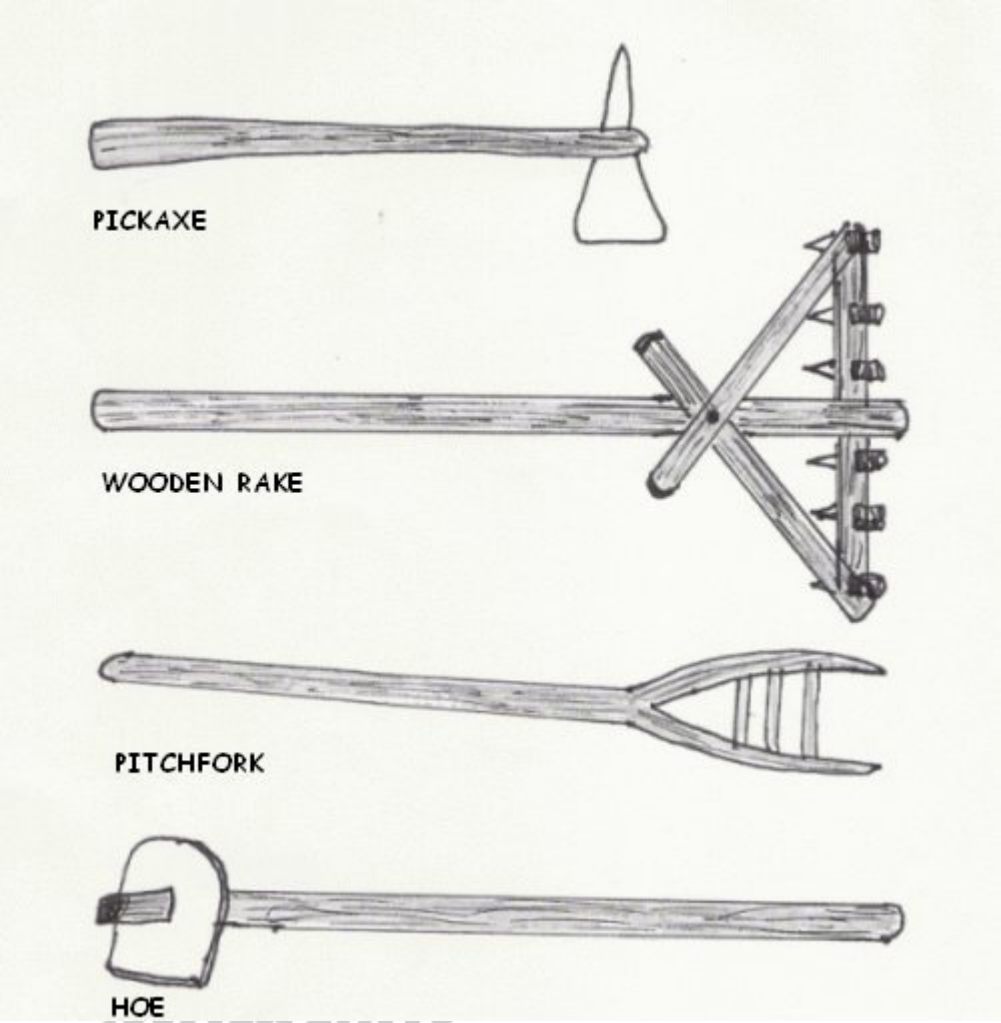
flail was used to pound out the seed grain

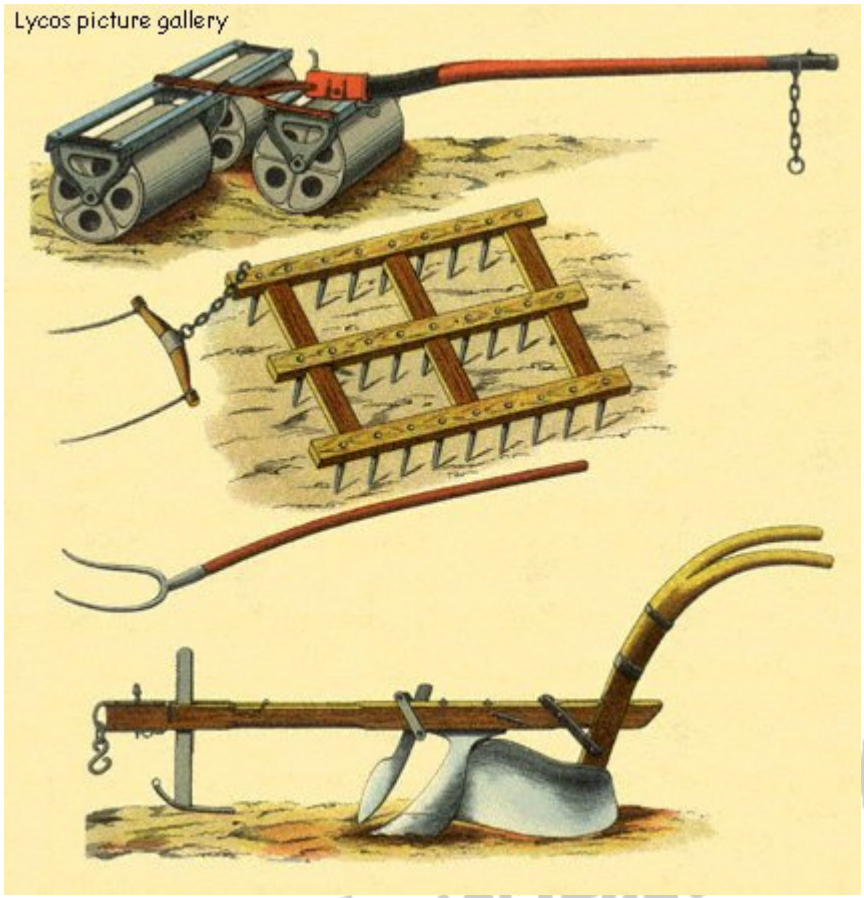
The grain was spread out on the floor of the barn and hit with a flail. Seeds, chaff (bits of seed head) and straw remained. After most of the straw was raked away, the farmer gathered what was left. The grain seeds and chaff were placed in a winnowing tray (or basket) and shaken and tossed on a windy day. The wind blew the light straw and chaff away and the seed would fall back in the tray.

Winnowed grain was stored for animal feed or taken in sacks to the mill to be ground into flour. Stone-ground flour was better than flour ground by hand.



Saskatchewan Western Development Museums, Teacher's Handbook



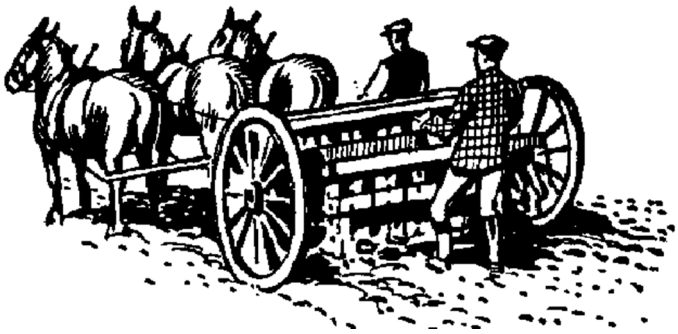


PLANTING CROPS

sowing the seed was mostly by hand

To plant the crop, a farmer carried the seeds in a bag that hung over his shoulder. He scattered handfuls of seed as he walked along.

A seed drill was invented by Jethro Tull (a person not the band) in 1701. Early drills were small and could be pulled by one horse. The drill planted the seeds in rows and covered the seeds. Later, when larger drills were made, a farmer needed more horses to pull the machinery.

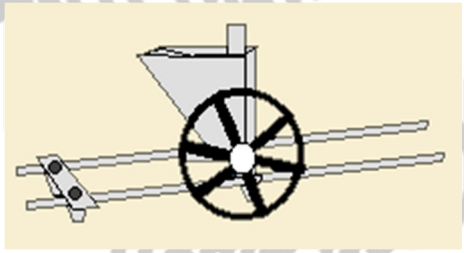


planting with a seed drill

Jethro Tull was one of the first scientific farmers. He realized that the usual way of sowing seeds by scattering them on the ground was wasteful. Many seeds did not take root.

The seed drill, which he invented in 1701, allowed the farmers to sow seeds in well-spaced rows at specific depths. When his invention was used, a larger share of the seed germinated. As a result, crop yields increased even more.

Jethro Tull's seed drill



The following information on Early Farm Tools is complements of http://www.pennridge.org/works/farmtools.html

EARLY FARM TOOLS

SIMPLE HAND TOOLS

The earliest farm tools were simple hand tools. Wooden tools and metal blades attached to wooden handles are typical of such tools. The scythe, hay fork, hay knives, hay rakes, hay hooks, sickles, and corn knife are all examples of such tools used for harvesting.

Cradle Scythe

Hay fork

MANUALLY OPERATED MACHINES

Eventually manually operated machines or those relying on human or animal power were used on farms. A treadmill that was powered by a horse is an example of such a farm tool. Horse drawn rakes (as seen at left hanging in a barn) are another example of manually operated equipment.

A tool powered by the farmer himself was a feed chopper. This machine consisted of a narrow shallow box with a knife blade that pivoted and swung through the box filled with grain or hay. The hay or grain was cut that was a few inches over the end of the trough. After the blade was lifted the farmer or operator of the machine would use a long wooden and iron fork to move the feed along the process. This was repeated many times.

Feed chopper from the Mercer Museum

This large wooden wheel is located at Burnside Plantation in Bethlehem, PA. It was recreated to show how a large wheel powered by cattle or horses could be used to run farm machinery.

The students pull a bar like a horse would have done in the

The large wheel turns a drive belt connected to machinery on an upper

past.

floor in the barn.

POWER EQUIPMENT

Then mechanical power systems were added to the equipment. These tools were powered by gas or oil. Over time these tools became more powerful and could do more work in a shorter amount of time.

An antique engine powers the sharpening wheel seen here. It is restored by a member of the Antique Engine Tractor & Toy Club Inc. (Slatington, PA).

SPINNING & FIBERS*

FIBERS FOR SPINNING

Fibers used for spinning in America are listed below:

FIBER TYPE & SOURCE	FABRIC / USE	CHARACTERISTICS
Flax plant	linen	• durable due to long fibers • will not shrink
Sheep's wool	wool	• durable, warm, fire resistant • easy to dye • continues to shrink with use and water
Cotton plant	cotton	• soft, comfortable easily dyed
Hemp plant	hemp rope and sacks, some fabric	• processed like flax
Silk (uncommon in America)	silk	• very soft • easy to dye

SPINNING PROCESS

To prepare for the making of fabric, fibers are twisted to make yarn. The simplest method uses fibers held between the fingers which are spun on a drop spindle; this method was used through the 1700's. Spindle type wheels were introduced from the Orient to Europe in the middle ages.

The process shown below uses flax and a flyer-type spinning wheel.

	
This spinning wheel is a flyer-type spinning wheel.	The spinster uses a foot pedal to move the flywheel. A string connected to the pedal pulls the flywheel on its circular path.
	
The fiber passed through a groove on the tip of the spindle which held it while the person spinning the fiber drew out the yarn.	Yarn was wound into loose skeins and measured using a variety of tools. After dying, the yarn was ready for weaving.

PLANTING GRAIN - EARLY METHODS

PREPARING THE LAND

When the first settlers came to America they would clear the land by burning down trees.Then they would pull the stumps of the trees out by tying ropes around oxen and then the oxen would pull the stumps out.Then they would plow up all of the rocks and use them as fences.

PLANTING GRAIN

	
This hand plow now serves only as a garden decoration.	The plow itself has a "V" shape where it creates a wedge in the ground as it plows the soil.

In the early years plowing and harrowing was done by hand or with oxen, mules, or horses. Today this work is done by machinery such as tractors. Fields were also planted and weeded (cultivated) with human and animal power. It took a person 90 minutes to sow an acre of wheat by hand. Special tools were designed to separate seeds as they were planted.

Insects, weather, plant viruses and fungi cause difficulties in growing crops. Today farmers are not on their own as in the past; additional scientific support is available from the agricultural agents for farmers who have difficulties with their crops.

HARVESTING GRAIN - EARLY METHODS

Special tools were developed for harvesting specific types of plants. Tools for harvesting and preparing grain will be examined below.

REAPING

The sickle and scythe (seen at right) are tools that are used to cut and harvest wheat in the past.Though unusual in our country, some cultures still use these hand tools today to harvest wheat. Mechanical reapers eventually replaced the hand tools.

THRESHING

Threshing is the separating of the grain or seeds from the plant material. A person used a flail to beat the grain out of the grain head. Early Threshing machines were used when the internal combustion engine became available. After World War I the cutting and threshing process was combined into one machine called the combine. It could cut wheat, thresh out the grain, and store it in a bin on the machine.

WINNOWING

The process of separating threshed grain from the chaff is called winnowing. After threshing, the grain and shaft left on the floor were tossed in the air in the wind using a winnowing basket (shallow basket as seen at right). The basket was lifted up and the mixture was tossed in the air. The wind blew away the lighter shaft and the heavier grain fell back into the basket. Winnowing usually took place in a barn between two open doors with a continual air flow.

In the beginning of the 1800's fanning mills or grain fans were used to winnow grain from some farms. Due to expense of the equipment, the hand method of winnowing was used well into the 1900's. Winnowed grain was stored for animal feed or taken in sacks to the mill to be ground into flour.

Fanning mill on display outside the Mercer Museum in Doylestown, PA.

A view from the top of the inside of the same fanning mill.

The fanning mill is also known as a grain fan or winnower. Inside this machine were several wooden blades connected to a shaft. A handle outside the box was used to turn the blades and create a blast of air in the machine. The grain and shaft was fed into the funnel-shaped hopper at the top of the machine.The lighter shaft, dust and straw was blown out of the open end of the box; the heavier grain fell into a container placed at the bottom of the machine.

TRANSPORTING GRAIN

When grain was ready to be ground, early settlers had the challenge of getting the grain to the mill with few roads. Footpaths through the woods were used and sleighs could be used in the winter. Stone-ground flour was much preferred to flour ground by hand.

When roads became available, the grain was transported to the mill in horse drawn wagons. Farmers took their grain to the local mills for grinding into flour. At left is the Savocool Mill in South Perkasie, PA(now Richland Feed Co). After processing at the mill, a horse drawn wagon was loaded with bags of grain or flour. The product was then transported to the local store or railway line.

Beginning in 1889, the railway schedule improved in Perkasie. The railway lines could connect the farmer and his products to surrounding communities and regional cities such as Philadelphia and Allentown and Bethlehem. Eventually motorized trucks would replace the horse drawn vehicles, but many horses were still used in this area of Southeastern Pennsylvania until World War II (1942).

South Perkasie Flour and Feed Mill on Walnut Street then owned by Jas. N. Savage

South Perkasie Flour and Feed Mill in 1939.

The examples above are from the town of Perkasie, PA. Similar local mills were found in communities throughout the United States.

FLAX

FLAX PROCESS

The flax process is used to make linen fabric. Egyptian tomb paintings document the early use of the flax plant to make linen thread.This process is time consuming, especially when done by hand as the early Americans colonists did.Today machines are used to make linen fabric. They planted the flax in April and harvested it in July.

The photos of the flax process are from a demonstration by Christian Zinzendorf at the Mercer Museum Folk Fest in May 2001.

After soaked (or retted) flax has dried, the stem is cracked on a tool called a flax break. Small bundles of flax are placed across the lower wooden blades; the upper blades break the outside chaff.

The inner soft fibers are the part of the plant used for the fabric.

Once the flax has been worked on the flax break it is flexible.

The scutching knife is struck against a vertical wooden board to remove the loose pieces of stem from the fiber.

A comb (or hatchel) separated the long fibers and removed the short ones. The short fibers (or tow) were used for bags and ropes.

Fibers from the finer comb (or hatchel) were used for work clothes. Skill is required to avoid cutting the fingers on the spikes of the comb.

After combing the hatchelled flax, the long fibers are very soft.

This foot powered machine turns a wheel; the spokes of the wheel beat the fibers as they are clustered in a bundle.

A twist is made from the bundle of fibers by turning one end over the other (almost like making a rope). A twist is made to store the fibers for winter spinning.

This set of twists is from a Lehigh County, PA farmhouse in the year 1843 shows the durability of the fibers. At that time the canals brought cheap fabric at 7 to 12 cents a yard. The twists were not thrown out by the German farmer.

OLIVER EVANS and the CREATION OF THE MILL

Oliver Evans was born in Newport, Delaware on September 13, 1755. When he was sixteen years old, he started his career as an inventor. Two years later Oliver Evans planned the idea of a high-pressure steam engine that was later used in locomotives. He continued his career as an inventor by creating tools for textile industries, and different milling devices. In 1782 he was not only known as an inventor but became known as an engineer of milling by building the first automatic mill near Newport, Delaware. HE also wrote The Young Mill-wright and Miller's Guide which was published in Philadelphia in 1795; it includes many illustrations of different types of wheels and equipment.

Early Farm Plows and Cultivators

America's first Farm plows were made in Europe and imported

Norse "Eagle" Plow

John Deere self cleaning plow

Pennsylvania Plow

Carey Plow

Another John Deere Plow

Cultivators

"A" shaped cultivator had spikes which loosened the soil

Early Cultivators looked like the "A" shaped cultivator but were adjustable

Later Cultivators had a hook shape claw often spring mounted

Current Day Cultivator

.

Early Farm Power

Early dog powered water pump.

Dog powered Butter maker.

Horse powered tread mill used in running threshing machines.

Where can I get this stuff?

Well any hand tool you can get at Ace Hardware, Lowel's, Home Depot or True Value hardware chain store. If you have a really good "mom'n'pop" hardware store in your area go there. Check the web for sites like Cash and Carry, Tractor Supply, Agway as well as antique shops and my favorites – garage/estate sales and flea markets. Most of my everyday hand tools were purchased at these types of places. For my hand drill, that was a steal at an estate sale as it is the modern type complete with the drill and bits, etc. I can do just about anything with this that I can with my cordless power drill – even cut the hole for a doorknob!

Now is the time for all good men and women to put on their MacGyver hats.

Some "Survival" Tools

Matchless/Fluidless Fire Starter
Also nice to have is a Magnesium fire starter, butane lighter and or waterproof matches plus a small baggie of tinder or fire starter pellets.

High Calorie Protein Bars and some vitamins (multi, C) or if room 72hrs worth of MRE's

Flashlight

Backpacker Hammock

Water Purification Supplies – tablets or portable filter

First Aid Kit, Snakebite and Dental Kit

Metal Cup or small backpacker type mess kit

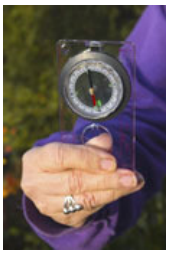
Knife


Multi-purpose Tool


Space blanket



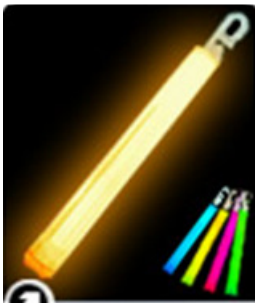

Plastic Trash Bag or two or three – lawn and garden size for turning into a tarp, poncho – get my drift



Compass

Backpacker candle

All purpose cord apx 100 ft. but at least 50



Glow sticks


Wire Saw or Pocket Chainsaw: these are perfect for backpacks, extremely lightweight and small

Backpackers Mirror – these are not made of glass

Whistle

Machete if you know you will be in deep heavy woodlands or jungles

Emergency GPS Beacon if you want to be found

Emergency hand crank or solar Radio for retreat, vehicle, home

Firearm & Ammo

Axe, Shovel (the kind designed for backpackers)

Backpacker Stove

Binoculars – backpacker sized


Flares and or Flare Gun




Pencil, Paper, Sharpener


An Emergency Kit for your home, boat, ATV, vehicle or plane

A Little History Can Go A Long Way

A great site for information on historical tools (mostly in England) going as far back as the 1600's is http://www.antiquefarmtools.info/index.htm Another is http://www.historylink101.com/lessons/farm-city/story-of-farming.htm and http://www.historylink101.com/lessons/farm-city/early_farm_plows.htm

History of Screws and Screwdrivers By Mary Bellis

What is a Screw? What is a Screwdriver?

A screw is any shaft with a corkscrew-shaped groove formed on its surface. Screws are used to fasten two objects together. A screwdriver is a tool for driving (turning) screws; screwdrivers have a tip that fits into the head of a screw.

Early Screws

Around the first century, screw shaped tools became common, however, historians do not know who invented the first. Early screws were made from wood and were used in wine presses, olive oil presses, and for pressing clothes. Metal screws and nuts used to fasten two objects together first appeared in the fifteenth century.

Mass Production of Screws

In 1770, English instrument maker, Jesse Ramsden (1735-1800) invented the first satisfactory screw-cutting lathe. Ramsden inspired other inventors. In 1797, Englishmen, Henry Maudslay (1771-1831) invented a large screw-cutting lathe that made it possible to mass-produce accurately sized screws. In 1798, American David Wilkinson also invented machinery for the mass production of threaded metal screws.

Robertson Screw

In 1908, square-drive screws were invented by Canadian P. L. Robertson. Twenty-eight years before Henry Phillips patented his Phillips head screws, which are also square-drive screws.The Robertson screw is considered the "first recess-drive type fastener practical for production usage." The design became a North American standard, as published in the sixth edition of Industrial Fasteners Institute Metric and Inch Standards. A square-drive head on a screw can be better than a slot head because the screwdriver will not slip out of the screw's head during installation. The Model T car made by the Ford Motor Company (one of Robertson's first customers) used over seven hundred Robertson screws.

Phillips Head Screw

In the early 1930s, the Phillips head screw was invented by Henry Phillips. Automobile manufacturers now used car assembly lines. They needed screws that could take greater torque and could provide tighter fastenings. The Phillips head screw was compatible with the automated screwdrivers used in assembly line.

Ironically, there is a Philips Screw Company that never made Phillips screws or drivers. Henry Phillips died in 1958 at the age of sixty-eight.

Allen Key

A hexagonal or hex screw head has a hexagonal hole turned by a Allen key. An Allen key is a hexagonal shaped wrench. The Allen key may have been invented by American, Gilbert F. Heublein, however, this is still being researched and should not be considered a fact. Heublein was an importer and distributor of foods and beverage. who in 1892 introduced "The Club Cocktails", the world's first bottled cocktails.

Screwdriver

In 1744, the flat-bladed bit for the carpenter's brace was invented, the precursor to the first simple screwdriver. Handheld screwdrivers first appeared after 1800.

Types of Screws

- Cap screw has a convex head, usually hexagonal, designed to be driven by a spanner or wrench.
- Wood screw has a tapered shaft allowing it to penetrate undrilled wood.
- Machine screw has a cylindrical shaft and fits into a nut or a tapped hole, a small bolt.
- Self-tapping screw has a cylindrical shaft and a sharp thread that cuts its own hole, often used in sheet metal or plastic.
- Drywall screw is a specialized self-tapping screw with a cylindrical shaft that has proved to have uses far beyond its original application.
- Set screw has no head, and is designed to be inserted flush with or below the surface of the workpiece.

- Double-ended screw is a wood-screw with two pointed ends and no head, used for making hidden joints between two pieces of wood.

Shapes of Screw Head

- Pan head: disc with chamfered outer edge.
- Cheese head: disc with cylindrical outer edge.
- Countersunk: conical, with flat outer face and tapering inner face allowing it to sink into the material, very common for wood screws.
- Button or dome head: flat inner face and hemispherical outer face.
- Mirror screw head: countersunk head with a tapped hole to receive a separate screw-in chrome-plated cover, used for attaching mirrors.

Types of Screw Drive

A variety of tools exist to drive screws into the material to be fixed. The hand-tool used to drive slot-headed and cross-headed screws is called a screwdriver. A power tool that does the same job is a power screwdriver. The hand-tool for driving cap screws and other types is called a spanner (UK usage) or wrench (US usage).

- Slot head is driven by a flat-bladed screwdriver.
- Cross-head, or Phillips screw has an X-shaped slot and is driven by a cross-head screwdriver, designed originally in the 1930s for use with mechanical screwing machines, intentionally made so the driver will ride out, or cam out, under strain to prevent over-tightening.
- Pozidriv is patented, similar to cross-head but with better resistance to slipping, or cam-out.
- Hexagonal or hex screw head has a hexagonal hole and is driven by a hexagonal wrench, sometimes called an Allen key, or a power tool with a hexagonal bit.
- Robertson drive head has a square hole and is driven by a special power-tool bit or screwdriver (this is a low-cost version of the hex head for domestic use).
- Torx head has a splined socket and receives a driver with a splined shaft.
- Tamper-proof torx is similar to torx but the drive socket has a projection to prevent a standard torx driver being inserted.
- Tri-Wing screws are used by Nintendo on its Gameboys. This discourages even minor home repairs to the units.

Nuts

Nuts are square, round, or hexagonal metal blocks with a screw thread on the inside. Nuts help fasten objects together and are used with screws or bolts. This page uses material from the Wikipedia article "Screw" licensed under the GNU Free Documentation License.

History of Hand Tools

The history of hand tools is as old as history of human civilization. Though an exact history of hand tools is difficult to figure out, studies have shown that tools were used even at the early stone age. There is evidence of humans using knives at the stone age. With the beginning of civilization, sophisticated hand tools were developed and today with advanced technology, there is a wide selection of hand tools in different shapes and sizes, to serve different purposes.

Hand Tools and Animals

According to philosophers, hand tools were not only used by humans but also by other species like monkeys, apes, several corvids, sea otters, and others. Later, proper observations revealed that not only humans had the ability to make tools but also birds and monkeys. Later on philosophers came to the conclusion that that we are the only species that uses tools to make other tools.

Hand Tools and Human Civilization

Most research scholars believe that the use of hand tools was an important step in the evolution of mankind. Hand tools tell us about the society that made them. The more developed a society, the more tools it produces, and the more tools it uses. While discovering and inventing many new things, humans had evolved an opposable thumb, which was useful in holding tools, and increased dramatically in intelligence, which helped in the use of tools.

Evolution of Hand Tools

The story of the evolution of hand tools was not one of continual development as there are periods when progress was slow or even went backwards. The first sign of use of hand tools came in the stone age. There is evidence of Romans making and using tools and some tools of the Roman age are still used today. Machine tools occasioned a rise in producing new hand tools in the industrial revolution of eighteenth century. During the Victorian period, a craftsman's hand tools were his main source of earning. Specialist crafts and hand tools were developed period after period to turn wood and metal into useful things. Carpenters, sawyers, carvers, joiners etc. have all used the different types of hand tools in their operation. Every stage of the manufacturing process had its special tool, from hammers, saws and axes to chisels and gouges.

Hand tools were by craftsmen in manual operations, like chopping, sawing, chiseling, forging, filing since a long time. Some tools were found in northern Kenya in 1969 and after research, it was found that they were about 2,600,000 years old.

Tool	Stone Age	Bronze Age	Early Iron Age	Greek and Roman	Dark Ages	Middle		
Ages	**1600 to 1800**	**1800 to 1962**						
Axe	X	X	X	X	X	X	X	X
Knife	X	X	X	X	X	X	X	X
Adze	X	X	X	X	X	X	X	X
Auger	X	X	X	X	X	X	X	X
Chisel	X	X	X	X	X	X	X	X
Hand-saw		X	X	X	X	X	X	X
Bow drill		X	X	X	X	X	X	X

Cross-cut saw		X	X	X	X	X	X	X
Drawknife			X	X	X	X	X	X
Plane, smooth				X	X	X	X	X
Rule				X	X	X	X	X
" jack				X	X	X	X	X
moulding "				X	X	X	X	X
" plough				X	X	X	X	X
T-axe					X	X	X	X
Breast auger					X	X	X	X
Brace						X	X	X
Saw, fret						X	X	X
tenon "							X	X
Spokeshave							X	X
Marking gauge							X	X
Breast drill								X
Screwdriver								X
Twist bits								X
Metal brace								X

Chronology : <u>Woodworking Hand Tools in History</u>

William L. Goodman, a self-taught carpenter and teacher of woodworking skills in an English boy's school in 1964, published the study of woodworking tools in history under the name, "History of Woodworking Tools". The schema that he constructed and printed in the book is reproduced here because it describes the historical evolution of the tool kits of both English carpenters and their colonial and American descendants.

The History of Hardware Tools

Photo: Portable tool box and assorted modern hand tools

Hardware hand tools are used by craftsmen in manual operations, such as chopping, chiseling, sawing, filing, forging, and more. The date of the earliest tools is uncertain. Tools found in northern Kenya in 1969 maybe about 2,600,000 years old, and even older tools may remain to be discovered.

Bourdon Tube Pressure Gauge

In 1849, the Bourdon tube pressure gauge was patented in France by Eugene Bourdon.

Drills - Drill Chucks

Jacob's Chuck

A. I. Jacobs invented the first three jaw drill chuck, Jacob's Chuck. The Jacobs® Chuck Manufacturing Company was founded in 1902 by the inventor.

Martin Cherrington invented the horizontal directional drilling in 1972.

Flashlight

"*Let There Be Light*" -- The flashlight was invented in 1898 and the biblical quote of "*Let There Be Light*" was on the cover of the 1899 Eveready catalog.

Hand Tools

Illustration: Handheld hammer

Hammer

A hammer is a tool designed for pounding or delivering repeated blows. The hand held hammer is an ancient invention no one inventor can be named. A “hammer” is distinguished by many other names, such as pounder, beetle, mallet, maul, pestle, sledge, and others.

Pneumatic Hammer

Charles Brady King of Detroit invented the **pneumatic hammer** (a hammer which is driven by compressed air) in 1890, which he patented on January 28, 1894. Charles King exhibited two of his inventions at the 1893 Worlds Columbia Exposition; a pneumatic hammer for riveting and caulking and a steel brake beam for railroad road cars.

Hydraulic Jack

Richard Dudgeon, Inc. was founded in New York City as a machine shop. In 1851, founder and inventor Richard Dudgeon was granted a patent for a "portable hydraulic press" - the hydraulic jack, a jack which proved to be vastly superior to the screw jacks in use at the time. In 1855, Richard Dudgeon astounded New Yorkers by driving from his home to his place of business in an innovative steam carriage. The noise and vibration generated by the "Red Devil Steamer" frightened horses so badly that city authorities confined it to one street. Although the inventor claimed the carriage could carry 10 people at 14 m.p.h. on one barrel of anthracite coal, it was too far ahead of its time and failed to gain popular favor. Other inventions attributed to Dudgeon include: roller boiler tube expanders, pulling jacks, filter press jacks, steam forging hammers, railroad lifting equipment, heavy plate hydraulic hole punches, and many types and sizes of lifting jacks.

Lawn Mowers

The first patent for a "Machine for mowing lawns, etc." was granted to Edwin Beard Budding (1795-1846) from Stroud, Gloucestershire, England, on August 31, 1830.

Paint Roller

The paint roller was invented by Norman Breakey of Toronto in 1940.

Pliers - Tongs, Pincers, Plyers

Simple pliers are an ancient invention - no one inventor can be named. Two sticks probably served as the first uncertain holders, but bronze bars may have replaced wooden tongs as early as 3000 BC.

Saws

Saws are toosl with a thin metal strip with teeth on one edge or a thin metal disk with teeth on the periphery. In 1777, Samuel Miller invented the **circular saw** in England, the round metal disk type of saw that cuts by spinning and is used hand-held or table-mounted. Large circular saws are found in saw mills and are used to produce lumber. In 1813, Shaker-Sister, Tabitha Babbitt (1784-1854) invented the first circular saw used in a saw mill. Babbitt was working in the spinning house at the Harvard Shaker community in Massachusetts, when she decided to invent an improvement to the two-man pit saws that were being used for lumber production. Tabitha Babbitt is also credited with inventing an improved version of cut nails, a new method of making false teeth, and an improved spinning wheel head.

In 1807, William Newberry invented a **band saw**. In 1780, Gervinus also invented a **circular saw**, however, a more primitive one.

Screws and Screwdrivers

Early Screws - Archimedes Screw - Phillips Head Screw - Robertson Screw - Square Drive Screws - Screwdriver

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Scissors

There is history behind this cutting invention.

Photo: Modern retractable metal tape measure

Tape Measure - Alvin J. Fellows - 1868

On July 14, 1868, Alvin J. Fellows of New Haven, CT patented the tape measure. Alvin's measurements were 40-46-42.

Tool Chests

The look of tool chests can tell us much about workers and workplaces.

Illustration: Modern handheld wrench

Wrenches, Monkey Wrench, Ratchetless Wrench

A wrench is also called a spanner, it's a tool, usually operated by hand, for tightening bolts and nuts. Solymon Merrick patented the first wrench in 1835.

Welding Tools and Welding History

In 1885, Nikolai Benardos and Stanislav Olszewski were granted a patent for an electric arc welder with a carbon electrode called the Electrogefest. Benardos and Olszewski are considered the inventors of welding apparatus.

images provided by webclipart.about.com

http://www.scienceclarified.com/Ga-He/Hand-Tools.html

The earliest hand tools date back to the Old Stone Age (of the Paleolithic period), the earliest period of human development, which started roughly two million years ago. These early hand tools included sticks and rocks picked up

and used to pound, dig, or throw. Modern technologies make hand tools that are battery powered, so they are still portable yet easier to use than their predecessors.

A plane's basic design has not changed over time. *(Reproduced by permission of*

Field Mark Publications

Earliest stone and metal tools

Technology begins in human history when the first stone flints or spear tips were deliberately cut. These are known as Oldowan tools or eoliths. It is often difficult for archaeologists to prove that the sharpened edges of some stone artifacts are human-made rather than the result of naturally occurring processes. However, certain improvised tools such as pebbles and animal bones show clear signs of the wear and tear of use. Other tools that have been found with human remains in areas that archaeologists have defined as settlements are clearly human-made.

About one-and-a-half-million years ago, an improvement was made upon the basic carved tool. The newer tools fall into three categories: hand axes, picks, and cleavers. Hand axes from this period are flaked on both sides and often shaped carefully into teardrops. Picks are long tools, with either one sharp edge or two. Cleavers are smoothed into U-shapes with a sharp point on one side. Archaeologists have a long list of possible uses for these artifacts, which may have served more than one purpose. Butchering animals, digging for roots or water sources, and making other tools are the most common suggestions.

The Bronze Age, which began about 3500 B.C. , is the period in human history when metals were first used regularly in the creation of tools and weapons. Metal alloys like bronze were deliberately crafted to improve the durability and efficiency of hand tools. Handcrafted knives were important for nomadic (wandering) peoples who hunted to survive. Swords became crucial tools in warfare. The invention of the metal plow brought agriculture a huge step forward, since it made systematic planting over wide areas possible.

Development of modern tools

Some hand tools have gone out of style or are used only rarely. The cobbler (old term for shoemaker) used to make shoes by hand, but now people buy mass-produced shoes and only take them to a repair shop to be worked on by hand. However, a sewing needle has not changed in centuries—it is still a common household object. Even though people now have access to big sewing machines, it is still easier to fix a button or darn a small tear with a plain needle.

During colonial times only the metal parts of a tool would be sold to a user, who would then make his own handle out of wood to fit in his hand perfectly. Many things made with metal nowadays, like nails and shovels, were then made from wood. This is why older buildings and tools have aged well, without problems such as rusting.

Modern technology

Simple hand tools, which cut, pound, or assemble, are now sold with attached metal or plastic handles. Their basic designs and operations, however, have not changed over time. Drills are still used to bore holes, saws to cut hard materials, screwdrivers to attach screws, wrenches to tighten nuts and bolts, and planes and files to smooth down metal or wood surfaces. Some of these tools, such as drills and saws, are now primarily electric, which saves time and effort. Other present-day tools combine modern technology with time-tested operation. Squares and levels now measure inclines and angles with liquid crystal digital displays, but they otherwise look, feel, and perform like their old-fashioned counterparts.

Scissors Are One Of The Hand Tools With A History http://www.articlesbase.com/small-business-articles/scissors-are-one-of-the-hand-tools-with-a-history-1009175.html

Posted: Jul 02, 2009

Scissors are one of the more fascinating hand tools. Throughout history they have been used as a tool, a traditional gift, an art object, and after the industrial revolution, a specialized utensil for advanced and delicate work. A brief look at scissors shows a wide range of uses for such a simple tool.

Back in the eleventh century, simple scissors were made by the craft guild for scissor-makers. Designs were simple and elegant with the focus on function rather than form. Further back in history, ornate scissors have been found in Turkey from the second century and there are beautiful examples in several museums of Chinese scissors from the Tang Dynasty (7th to 9th century).

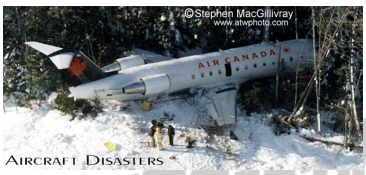
But in Europe, scissors were used mostly by the lower classes until the development of communication with Eastern countries. Calligraphy came into style among the upper classes and more delicate, flexible scissors were developed that could work with paper. Decorations were added and designs began to include more ornate styles. Around the fourteenth century, scissors in an elegantly decorated leather sheath were a mandatory part of an admirer's "love box", a present sent to a lady of rank from a potential suitor.

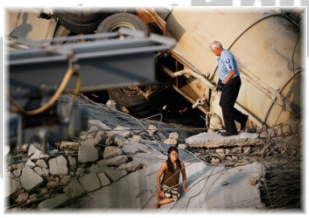
Hand tools are usually a part of everyday work for those who deal with the daily routines of life, but they're not always highly decorated. After scissor designs became more ornate due to the demands of the upper classes, the more intricate designs trickled down to everyday use. Curled handles, etched images and intricate fretwork was added to the scissors, making them works of art to rival their historical counterparts in the Far East. For a few centuries, scissors were made with decorations and added embellishments, bringing a taste for decoration into everyday life and adding a bit of beauty to daily routines.

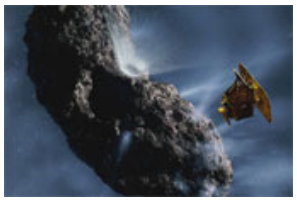
The industrial revolution brought scissors back to a cleaner, more functional design. Today's scissors are made from a wide range of materials, including stainless steel, and have an enormous range of uses. From angled micro scissors used in medicine and electronics to long blade scissors that make crafts easier, there are beautifully designed scissors to meet any need in any field. Scissors are hand tools that have a long history of making life easier, and today's versions are more diverse than ever.

By Louis Wright FCS (ArticlesBase SC #1009175)

Prep On - One just never knows what's around the corner ;-}







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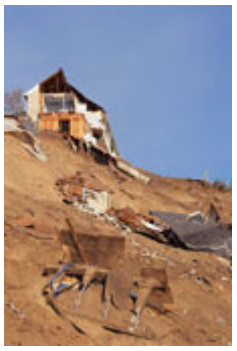

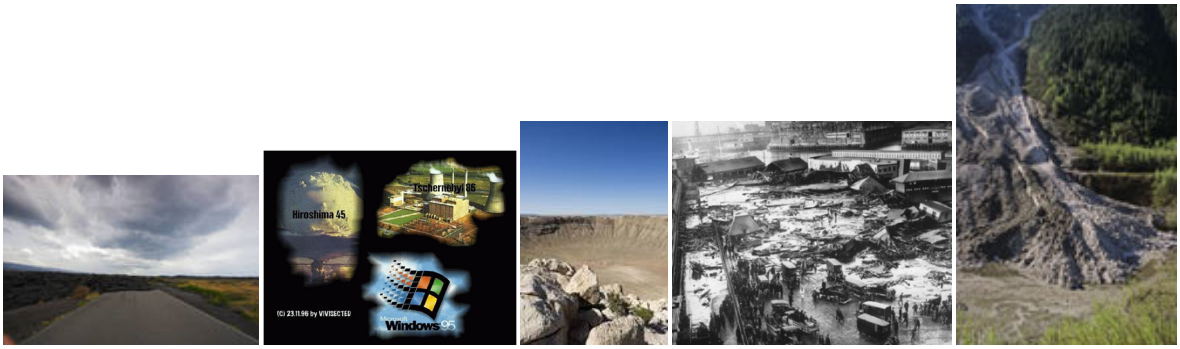

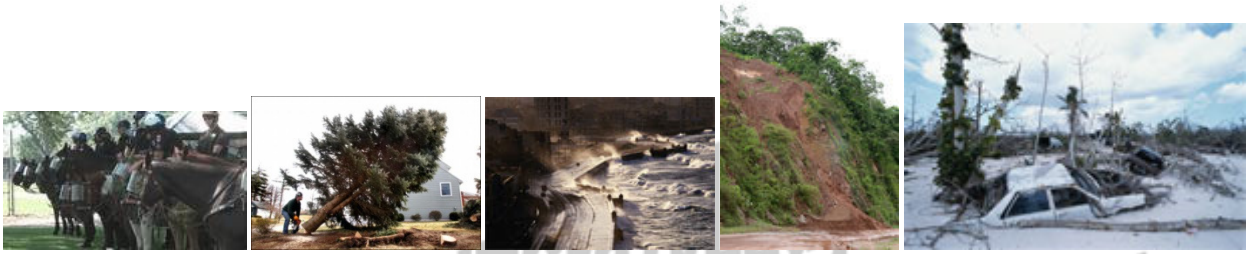

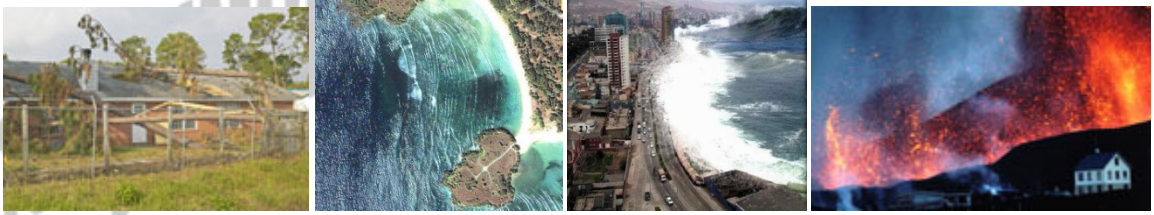

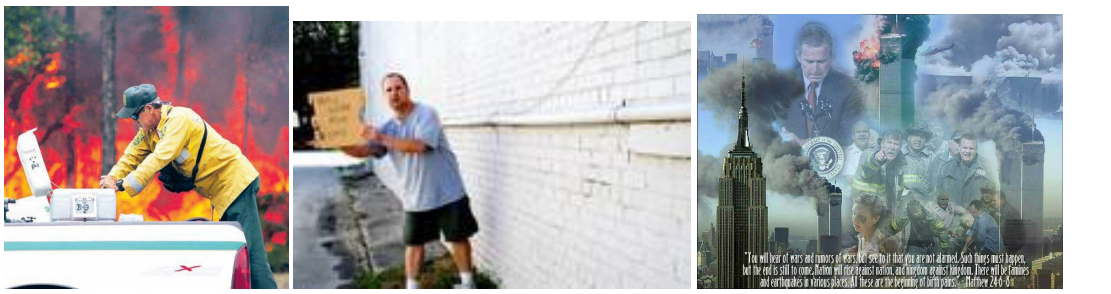




"By failing to prepare
you are preparing to fail."
Benjamin Franklin

TNT

A 50 something, no longer so urban or in NM, homesteading Prepper ;-}