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Advanced axe selection

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- Gear reviews and tests - Edged tools - Axes and hatchets -



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Description :

How to choose the right axe

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Thinking of a chain is the best model in considering the features of an axe. Any weak link in a chain is where it will break regardless of the strength of the other links. It is assumed here that an axe has been selected with a thin blade, a handle with vertical grain, that the head is properly aligned and so on. Those features are the first selection criteria because while you can certainly sharpen a new axe until it meets your expectations, you cannot easily fix the other problems.

I have found in comparing some similar axes with quite a bit of cutting, that there are other features to be considered. These can be checked out in the store too if you know what you are looking for and how to test. These features are all about balance of the axe and accuracy of chops. Chopping through a piece of wood would seem to be a simple process. You cut a V and gradually widen and deepen it. This is easier said than done because to make cuts parallel to the sides of the V and remove the correct thickness of wood demands accuracy. Inaccuracy is cumulative if you are very far out as it will leave a distorted notch to continue cutting into. Naturally some degree of strength is useful in cutting with an axe since you are supporting a weight on the end of a handle. The fact is though that because of inaccuracy a person may have to do between twice and five times as much work in terms of chops. As I said every inaccurate chop distorts the V and will affect later chops.

When I first used the Hults heavy axe I was amazed at how well it cut. What I should have realized was that it is a well-balanced axe, which allows quite a degree of accuracy. Also it is heavy and so chops a deep initial V. that is easy to follow and reduces the total number of chops. It should be easy to find a light axe, which is as accurate - but such was not the case. I had re-handled one good axe head and in doing so made it inaccurate. I had an Ilitis which although a good axe has some accuracy problems. I also had a cheap Canadian Tire axe, which is actually quite an accurate axe: unfortunately in this case the thickness of the axe affects its cutting ability.

Balance

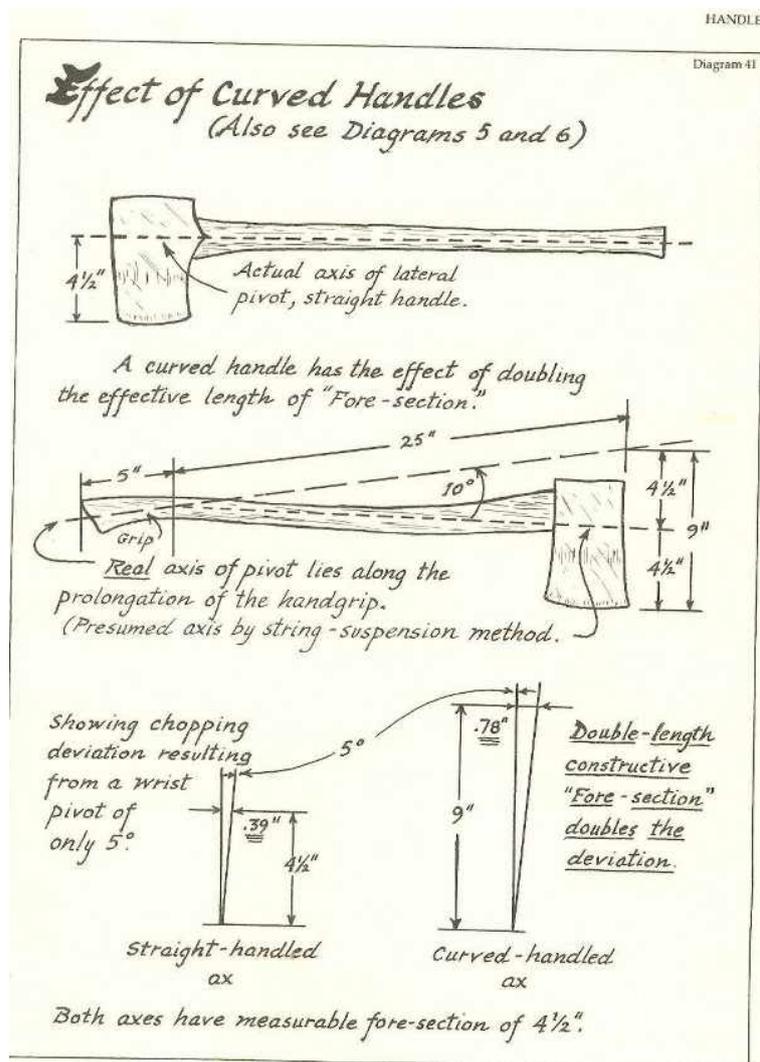
The more I use a set of similar axes the more I become amazed at the balance of the Gransfors. As I've said above you get good materials and finish in these axes but the main advantage to me of getting one is that they are superbly balanced. There shouldn't be any great trick to making such an axe - and I'm sure there isn't. Gransfors just produce axes that have proven designs - simple as that! When you chop with the axe or even the hatchet you come closer to the mark you are aiming at so work is reduced. Now I'm certainly no axe expert who spends his days cutting down trees, and I can't do all the legendary stuff like putting a match into a crack and splitting it with a swing of the axe and having both sides lit. I've got no intention of practising for such stuff either! The fact is though that you do have to come close enough to where you are aiming or else you increase work dramatically. Simply put the Gransfors axes allow more accurate chops. The question is why.

It came as a big shock to me when researching axes to find out that most single bit falling axes are designed wrong: not poorly - wrong. Originally single bit axes had straight handles, and when curved handles came into fashion it didn't affect fallers because they'd already moved to double bit axes, which have straight handles. The first book to get to learn about this is Dudley Cook's "Keeping Warm with an Axe". It's reprinted with other titles now. The first advantage of the straight handle is that the grain of the wood is continuous through it. Take a look at any curved handled axe and you'll see that very little continuous grain goes all the way through the handle. That's why it's so important to have vertical grain in the handle of your axe. In the old days fallers would thin down the handles of their axes to increase spring and reduce shock. This is more than just a myth, as you'll see nowadays if you talk to people who use impact tools on a continuous basis. Their maladies are more painful than typists with repetitive stress. Talking of straight handles is sort of academic because you can't get a single bit with a straight handle, and you can't put a straight handle on your single bit because you can't get one unless you make your own (double bit handles won't fit). Learning about straight handles is the start to learning about axe performance though.

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The biggest problem in hitting a mark with an axe is twisting of the wrist holding the back of the handle. If you had a straight handle then the axis of rotation runs right through the handle. Any slight twist of the wrist is amplified though by the distance between this axis of rotation and the edge. If you have a curved handle though then the axis of rotation will be the axis of this bent part.

Here's the picture from Cook's book showing the effect of curved handles and how this brings into play considerations of continuous grain and the real axis of pivot.

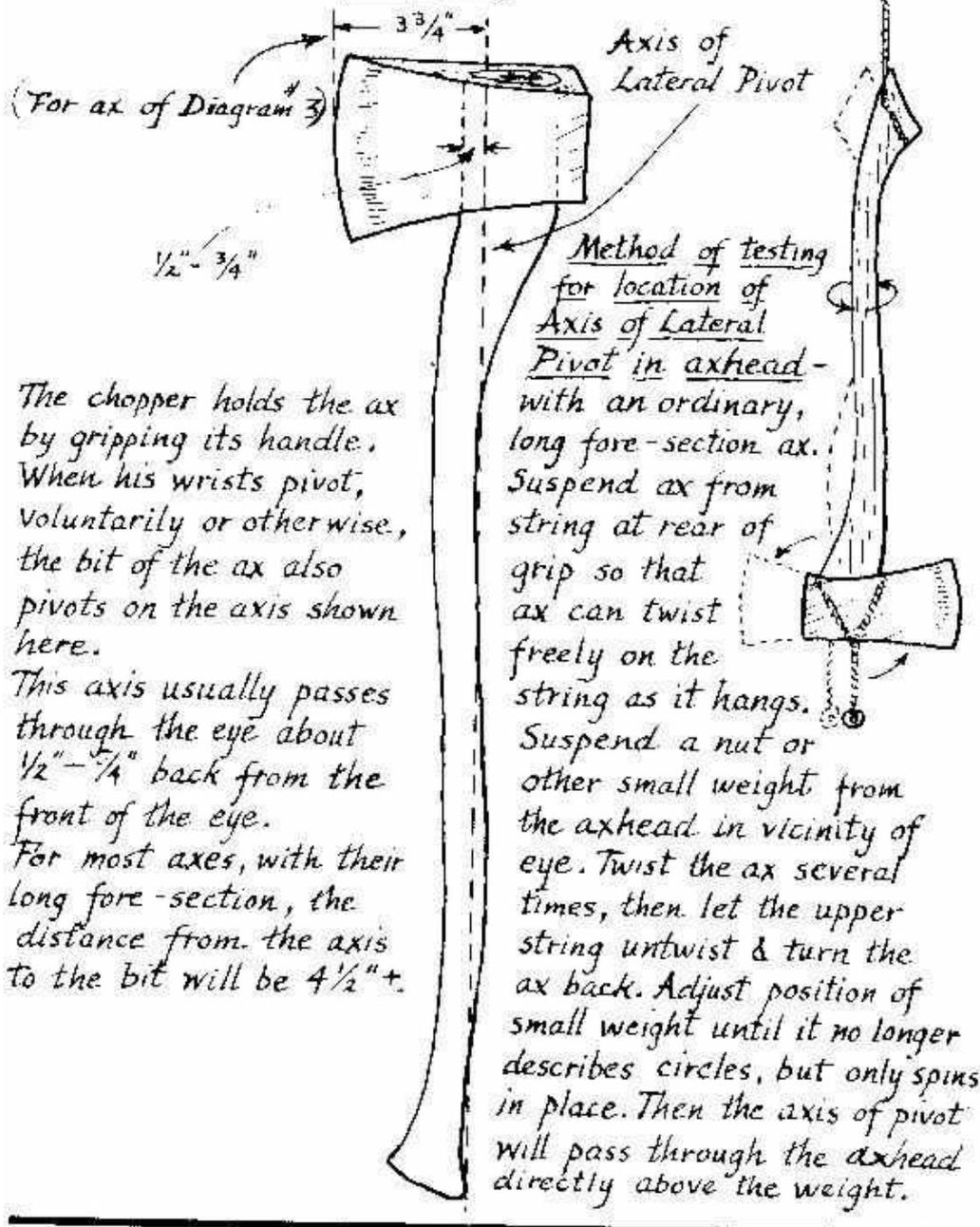


Cook also believed that once a swing was started and wrist rotation came into play that the point where the head twists around is important too - or rather the distance between this centre of mass and the edge. I agree - what do you think?

Axis of Lateral Pivot

Diagram 5

The less the distance from axis to bit, the more accurate the ax.



The chopper holds the ax by gripping its handle. When his wrists pivot, voluntarily or otherwise, the bit of the ax also pivots on the axis shown here.

This axis usually passes through the eye about $\frac{1}{2}'' - \frac{3}{4}''$ back from the front of the eye.

For most axes, with their long fore-section, the distance from the axis to the bit will be $4\frac{1}{2}'' +$.

I don't believe I'd be going to the store looking to hang their axes from the ceiling with suspended weights! For most purposes you can suspend the axe by your fingers or by a pencil stuck through the hole in the handle - allowing the axe to swing freely. Hanging a plumb line from the pencil or your fingers will indicate the centre of mass of the head close enough. You can then measure from that line to the edge.

Conclusion:

There's a lot more to things than even all of this. Handle length, and using too heavy an axe will have an effect if you are not somewhat accurate to begin with. The middle curve of the handle will affect accuracy if you hold the axe solidly in two hands and chop along a straight line rather than in an arc. That's not a great way to chop, but is safer - a big factor for people like me who go alone and just can't afford an accident.

About the only point to all of this detail is to explain why Gransfors axes work so well. I'm looking forward to getting an American Falling Axe with a straight handle, and now everyone knows why. Eventually I'll be able to collect some numbers from people on various axes and we'll see if this balance stuff holds up for others as it does for me.

Post-scriptum :

If you have questions, criticisms, or things to add - email me please.

Original article at [OldJimbo's site](#).