The TOOL SHED
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The Belt and Suspenders Plane

by Herb Kean

You ask what a belt and suspenders have to do with a plane? Well, it's a philosophy. I'm sure everyone has heard of the man who wanted to be "completely" sure that his pants would stay up. With some people that's a way of life. Now mind you I'm not criticizing. We all have our "ways". But it fits a puzzle that I'm now going to describe. The puzzle does have to do with tools, so hang in there.

THE PUZZLE:

As I was readying planes for the CRAFTS auction, I noticed that one of them had a "round-eye" escapement on one side and a "straight-edge" escapement on the other side! See Photos #1 and #2. We're talking about a single-iron chamfer plane, 1 3/4" wide with an integral fence and stop in the profile. My first reaction was to put it back in the "non-ready" box, as I felt it was owner-modified. Then I looked closer. It was a crisp, homogeneously patinated JOHN VEIT that was almost flawless, and without the slightest sign of modification.

My Philadelphia plane collector friends told me that this was not a manufacturing error, as Mr. Veit would never allow a defect to get out with his name on it. I didn't know how they knew such a thing, but one friend (whose ethnic back-ground was similar to Mr. Veit) assured me that this was the case. As no one could find any signs of modification, only one conclusion remained: John Veit (who was known for making some pretty specialized tools) experimented with a double escapement, for whatever reason. Maybe it was a special order for a user who had trouble with shaving clearance.

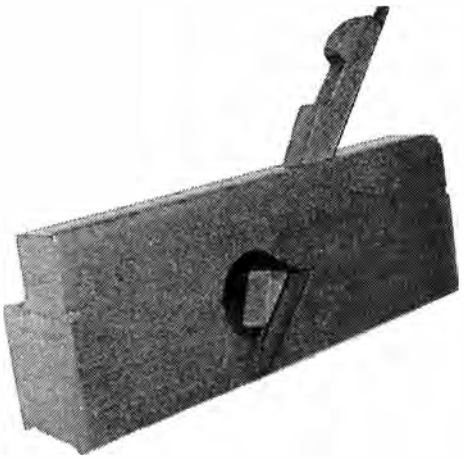

Photo 1. Chamfer plane. Round-eye escapement left-side opening.

Photo 2. Chamfer plane. Straight-edge escapement right-side opening.

I put the plane away for another day. Hopefully, I would get further info. But then the bigger question struck me. Why did some planes have a round-eye escapement (completely through the body) and others a straight-edge escapement (open only on one side of the body)? OK, so it's not a life and death problem, but it does require an insight that is a cut above the average tool question. *(continued on page 4)*

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June 3 - CRAFTS Meeting
High Bridge, New Jersey, Masonic Lodge
Blacksmithing, 1 p.m. program

CRAFTS of New Jersey

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of New Jersey

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The purpose of CRAFTS of New Jersey is to encourage interest in early trades and industries, and in the identification, study, preservation and exhibition of tools and implements used and made in New Jersey as an integral part of our heritage.

Membership in CRAFTS is open to anyone who shares the above interests. Annual dues per person or couple are fifteen dollars for the membership year of July 1 through June 30. Membership fees may be sent to the Treasurer: John Whelan, 38 Colony Court, Murray Hill, NJ 07974 (write check payable to Crafts of New Jersey).

CRAFTS of NJ meets at the HOST Masonic Lodge, High Bridge. Take I-78 to Route 31 exit at Clinton. Go north on Rte. 31 two miles to second traffic light at the High Bridge exit. Turn right and go about half a mile to Dennis Ave. Turn left, then straight to the Masonic Lodge (on the left). Tailgate sales in the parking lot begin at 12 P.M.; meeting starts at 1 P.M.

The TOOL SHED

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CRAFTS 2001 Calendar of Events

June 3 - CRAFTS meeting, High Bridge, N.J.
Sept. 9 - CRAFTS Picnic, Lamington, N.J.

CRAFTS Website

http://craftsofnj.org

Collectible Blacksmithing Tools, What's Hot & What's Not!

June 3 CRAFTS Meeting Presenter
Adam R. Howard,
Blacksmith at the Hunterdon Historical Museum.

Mr. Howard will be speaking about the facts and fictions of the tools of the Blacksmith's trade, and to the value and collectability of the varied tools and machines in today's market. As a full time working Blacksmith, Craft Instructor and Museum Educator, he is very knowledgeable about what may and should be put into service, and what should be conserved as is. He will be able to assist in the appraisal and identification of your own collection items, and will illustrate some simple techniques for figuring out blacksmith's tools on your own. He will also be demonstrating his craft and offering some basic instruction and helpful hints. This promises to be a most interesting topic, and we look forward to seeing you there!

While at the Live Free or Die Auction I came across this unique furrier's forge. It is made by the Empire Forge Co. and has two patent dates cast into the base: Nov. 25, 1873 and Sept. 11, 1888. The doors are open in this view, or the whole top can be taken off. It would normally sit on the blacksmith's wagon as he prepared horseshoes.

Auction Manager's Report

by Greg Welsh

While this years auction didn't reach our record from last year, we still did a respectable $94,000. This year we had 150 registered bidders from a great many states. Some came from as far away as California, Maine, and Louisiana. We even had one gent that came from London, England. All this would not have been possible if the members had not consigned the fine selection of tools that they did. I want to thank everyone that helped with the auction from the setting up of the auction on Friday night to the cleaning up after the sale. A very special thanks goes to the girls, Fran Smith, and Markay Zluky, that did the tallying, Dave Nowicki who so abley filled in for our treasurer, Jack Whelan, who could not be there, Joe Houck, Leon Kishishian, and Chuck Granick, who did the clerking, and to Steve Zluky who cataloged the entire sale. And a thank you to all the runners, and the guys that feed the tools to them. They are the people that keep the sale really going smoothly. Last but not least thanks to our great auctioneer Frank Dennis and his assistant Kevin. Please mark your calendars for next years auction which will be April 13, 2002. Consignor sheets will be available November 1st.

PRESIDENT'S CORNER

Well, I guess it is either feast or famine. After a particularly cold winter, and slimmer than usual flea market pickings April ushered in a steady barrage of Saturday auctions. The Brown Auction led off on the 14th followed by our own CRAFTS auction on the 21st. By the Sunday meeting on the 22nd the toll was beginning to show with some members having to finally cut the grass. Others just couldn't get away for another tool event. The "Live Free or Die" auction was still left to be dealt with on the 29th in New Hampshire! Maybe we should start giving out little badges like the Boy Scout Jamboree ones so the tool marathon men (and women) can brag about their physical and financial endurance. I only made it to our sale and I was happy with what I sold and bought overall. I did hope to get a really good deal on crisp Ward and Fletcher molder that I thought for sure I was the only one who noticed that it was made of applewood but, a certain sharp eyed dealer from Avoca, NY obviously noticed it too and got me to pay $150 for it. And that is why you want to consign good items to CRAFTS. Thanks for the great job consignors and workers and especially Steve Zluky and Greg Welsh. Not to be forgotten is the fact that the sale of the Micalizzi tools yielded enough for us to launch our apprentice program. The board of directors will discuss this further at our May 27th board meeting.

Our April meeting on the 22nd featured a demonstration and talk on marquetry by Dan Gordon. His portfolio of work was amazing especially the Muppet desk made Jim Henson's company. While his tools are few and not expensive, his skill, artistry and veneer supply are amazing. Dan went through a history of the craft as well as his own work history and then proceeded to add to a work in progress. Dan was rather generous at the end giving away more than a few pieces of very exotic veneers. He seemed anxious to come again and I see no reason not to do so. After seeing that beautiful marquetry tool chest sell for $4,000 at our auction we might want to learn how to dress up those plain tool chests that are so common and inexpensive.

The speaker at our June meeting is the blacksmith affiliated with the Red Mill Museum Village in Clinton. He would be most interested in seeing particularly elaborate smith work or tools so please bring them if you have them. One final note our June meeting is the one that includes the election of our officers and directors. As I write this in the beginning of May I do not know what the final slate will be. I am sure the club membership will continue to support the board in the fine tradition that has been established. And should you find that you have the time to do more for the group by all means don't be bashful.

I would like to welcome the following new members to our club: Don & Emma Crader, Wills Point, TX; Ronald Dunn, Hopatcong, NJ; Jake & Robyn Gardner, Carrboro, NC; Rodney Houle, Terryville, CT; Mark Marsella, Loch Arbour, NJ; Bradley & Leslie McCullough, Somerset, NJ; Eric Peterson, Lillian, AL; Robert & Joan Rauhauser, Thomasville, PA; Charles Salts, Covington, IN; John & Jane Scelfo, Nutley, NJ; Lloyd & Dorothy Wismer, Quakertown, NJ; Leonard Zolfo, Brooklyn, NY; and Bob Zoni, Hamden, CT. See you at the June meeting. . . . Joe

CRAFTS Presenters

During our April meeting craftsman Daniel Gordon gave a presentation on marquetry. Daniel demon-strated to all that marquetry is more than woodcraft but also art. The way Daniel put the different wood veneers together made us realize how beautiful wood can be. By the use of many colors and grain selection Dan created art before our eyes.

James Travis gave a demonstration at our February meeting on using the Stanley combination planes. Many people were surprised that someone actually used the Stanley 55 when time mattered. James demonstrated proper setup of the planes and cutting techniques. It sure was a sweet sound when he had that Stanley plane cutting elegant moldings.

The Belt and Suspenders Plane

by Herb Kean (continued from page 1)

Next were the phone calls to friends who had knowledge of the geometry of planes. Although no one had a firm answer, there were threads of logic wafting through. Many of the answers stated meaningful variables such as thickness of shaving, type of wood, pitch of blade, type of cut etc., but none could explain all the exceptions that I found. An unfailing reason had to be found. (In other words: the thing was bugging me.)

THE SEARCH:

One of the best ways to solve problems is to look at the data effecting the problem. My friends and I looked at all our wooden planes and sorted out almost all of the variables.

There were a few exceptions, some explainable, and a very small number (mostly homemade planes) were not. Here's a condensation of the thousand or so side-escapement planes that we looked at:

1) Almost every molding plane had a straight opening only on the right side of the plane. There were explainable exceptions, such as completely profiled "left-handed" planes. Integral fences and/or stops were part of almost every profile, and therefore the blade did not extend beyond both sides of the body. See Photo #3.

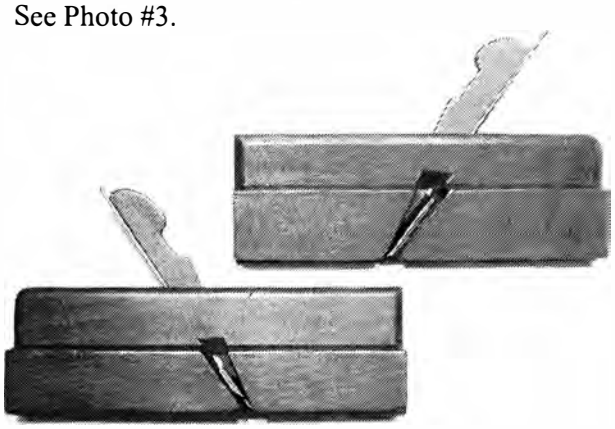


Photo 3. Top: Left-handed molding plane with left-side straight escapement.
Bottom: Standard right-handed molding plane with right-side straight escapement.

2) Most of the rabbet planes and all of the dado planes had skewed blades with a leading right edge. Both had round openings completely through the body. Most openings were tapered to be larger on the left side, to match the skew of the blade. See Photo #4. Some rabbet blades were not skewed (e.g. coach rabbets) and as such the opening was not tapered.

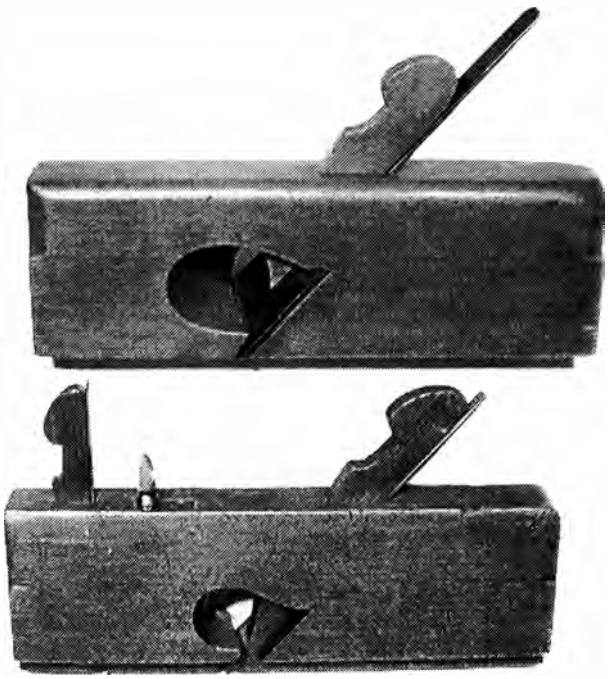


Photo 4. Top: Skewed Rabbet plane with left-side round tapered escapement.
Bottom: Skewed Dado plane with left-side round tapered escapement.

An exception was a wide square-blade rabbet that had the opening tapered from the centerline of the plane body outward in both directions. See Photo #5. As integral fences and stops were not part of the profile on either rabbets or dados, the blade extended slightly beyond the body on both sides to allow it to sink the cut without interference from the body. In machine shop parlance this is called plunging.

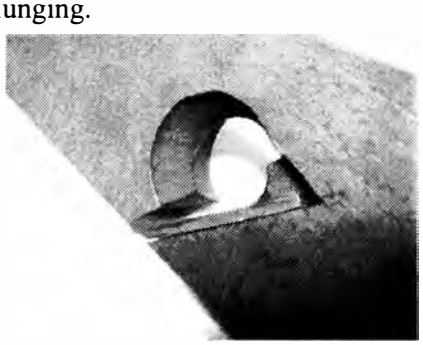


Photo 5. Square-blade rabbet plane with double tapered round escapement.

3) The sash filletsters, sometimes called "back filletsters" because they cut on the far (or back) side of the work, were of two styles. Both styles had straight openings, and both had fences attached to arms. One style (Photo #6, mostly Philadelphia makers) opened on the right side, and the second style (Photo #7, mostly English makers) opened on the left side. However, as sash filletsters cut the putty rabbet that seats the glass (which is not very deep), the full width of the blade rarely, if ever, came into play.

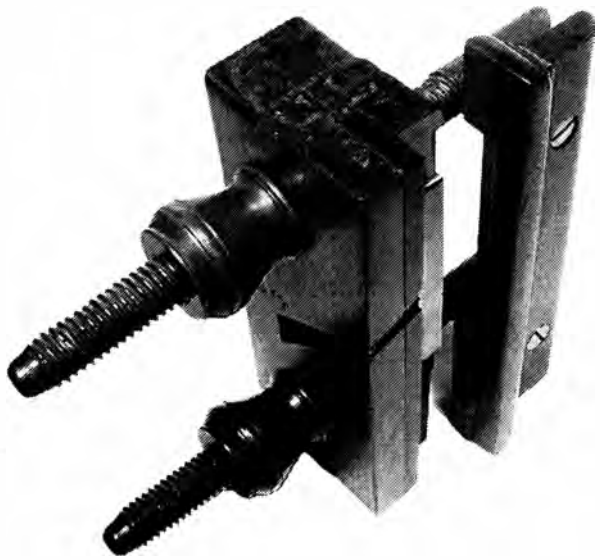


Photo 6. Sash Filletster, Philadelphia style with right-side straight escapement.

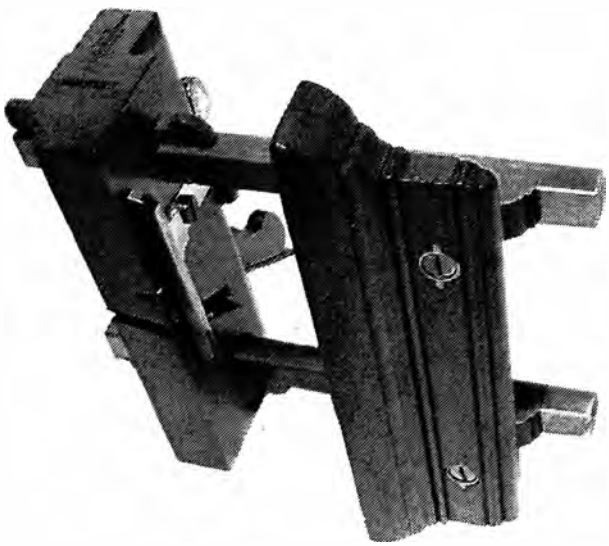


Photo 7. Sash Filletster, English style with left-side straight escapement.

Both styles had skewed blades: the right-side opening planes had the left-leading tip of the blade into the shoulder, and the left-side opening planes had the right-trailing corner of the blade into the shoulder. Most all the skewed planes that I checked (of all types), had the tip of the blade into the shoulder. It tended to hold the plane into the cut better, and it also acted as a nicker, when an individual nicker was not present. However the sash filletster (mentioned above) with the trailing edge into the shoulder worked very well for me. Probably because the fence on the opposite side locked it into the cut, and there was a nicker present.

4) The moving filletsters, sometimes called "fore filletsters" because they cut on the near (or fore) side of the work, were also of two styles: fenced without arms (the more common type) and fenced with arms (much rarer). Here is where the cheese really started to bind. The ones without arms and with an underslung fence sliding on screws that were in the sole, all had straight openings on the right side. The fence hid a portion of the blade no matter where it was positioned. See Photo #8. A rare model with short arms, which also disallowed the fence to uncover the blade fully, had the straight opening on the right side too. BUT, the second style, with the fence on full-length arms, had a round opening on the left side! See Photo #9. Both styles had skewed blades with the right edge leading into the shoulder.

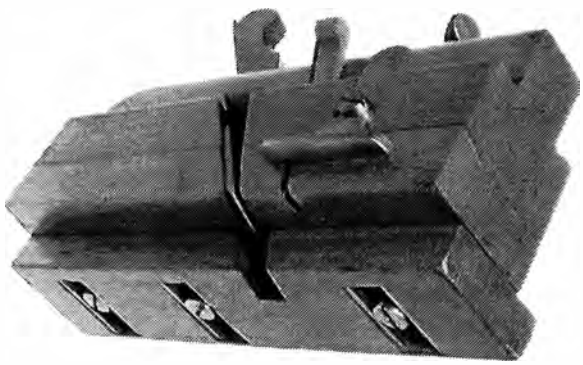


Photo 8. Moving Fillletster, without arms with right-side straight escapement.

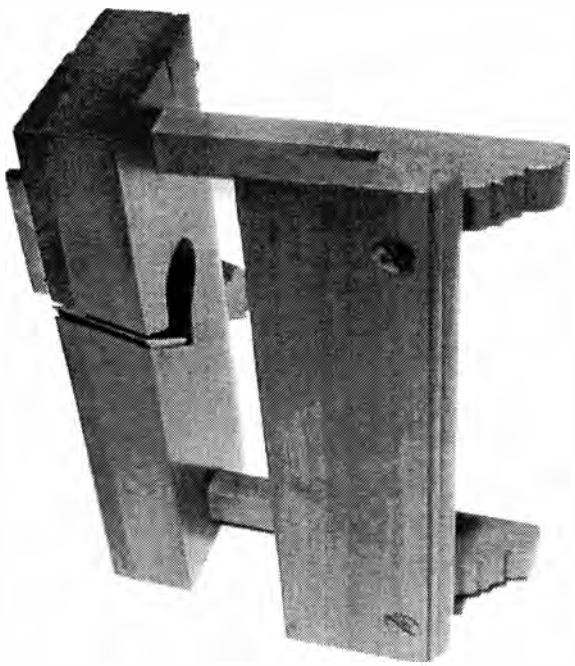


Photo 9. Moving Filletster, with arms with left-side round escapement.

5) There was a combined sash & moving filletster that had its fence on full-length arms. It was boxed on both sides, had nickers and depth stops on both sides, and had the round opening on the left. It also had a skewed blade with the right edge leading. However, as it cut from either side, sometimes the leading edge went into the shoulder, while other times the trailing edge did the same on the opposite side. But the trailing-edge side was used only when the plane was cutting as a sash filletster (with the fence opposite and a nicker in play on that side). As previously stated, that configuration worked fine.

THE ANALYSIS:

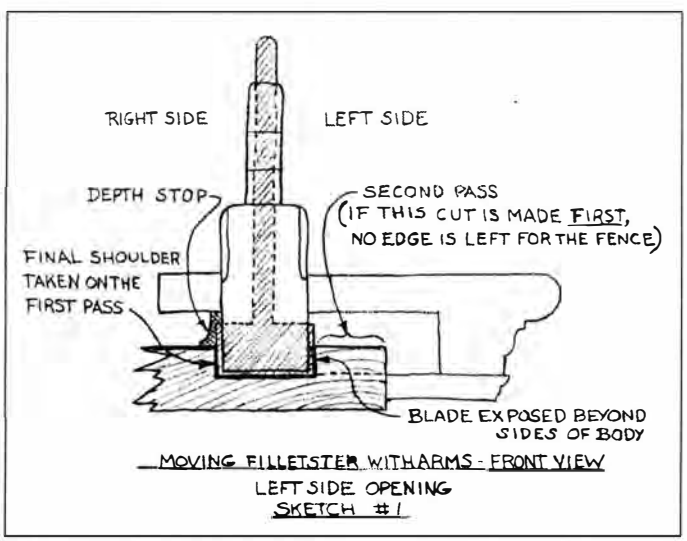
So much for the data. It had me more confused than when I started. ..... Now what?

In desperation, I asked my wife Doris! Don't laugh. When I worked in aero-space, I solved a few problems by putting them to people completely unaware of the facts. I'll never forget how the stress-crack fiasco in the wings of the Concorde was solved many years ago: in a mens room discussion between two engineers that was interrupted by a machinist who knew nothing about aerodynamics. Doris had helped solve similar problems by pointing me in the direction that I wasn't able to "see". In this case it was embarrassingly simple: "Use all the planes, and see what happens differently."

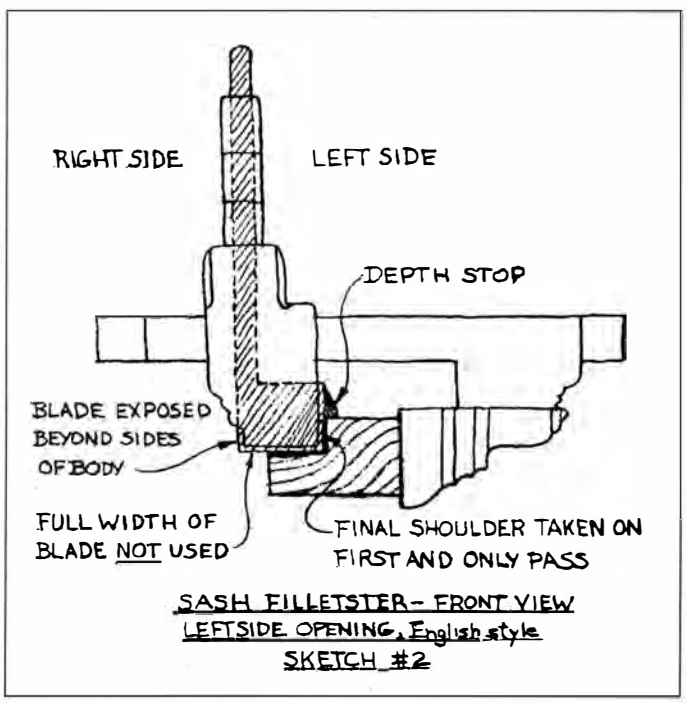
When it came time to use the moving filletster with the full-length arms, I saw that the fence was previously set about an inch away from the body. ... The light bulb went on! ..... If I wanted to cut a rabbet that was wider than the width of the blade, I would have to take two (or more) passes. The first pass would be at full-blade width against the final shoulder of the rabbet. See Sketch #1. I thought about "nibbling" shorter widths from the near edge, but the fence was so thin (under ½ ") that it wouldn't catch the edge on the second pass. Later models did increase the thickness of the fence to allow nibbling, but kept the round opening to give the user the option of full-cut or nibble. The plane could also be used (in either manner) to clean up a wide rabbet that was originally roughed out with a saw. The key was that the blade was exposed beyond the sides of the body just like a dado or rabbet! ..... There it was: those planes that plunged at the full-blade width (with both edges of the blade exposed beyond the body) required a round opening to help curl, direct and clear the shaving.

One fact which helped support the theory above was the opening in the skates of plow planes. Of the 100 or so that were looked at, all had the circular opening in the skate – because the blade always plunged at full width. Whoa! All but one. It was a V-cut plow (some models were called shiphawk planes). Why did this lone exception have a straight opening? ..... Because it never cut the full width of the blade. The depth stop would not allow it to do so! That seemed to clinch the premise.

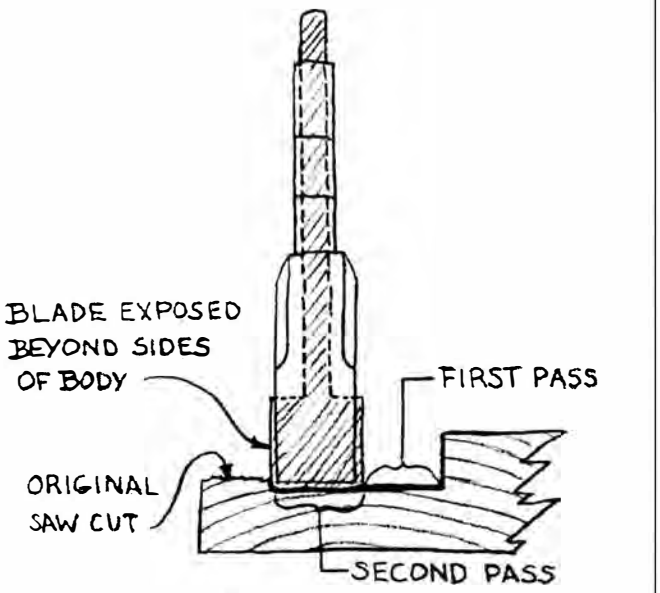
Another interesting fact was that all sash filletsters had flat, skewed blades exposed on both sides, similar to the moving filletster. BUT, they cut up against a shoulder on one side with most of the other side of the blade free of the cut. Therefore they weren't cutting at full-width, and didn't need the eye. See Sketch #2. ..... You might ask, "Didn't rabbet planes cut like that most of the time?" Yes, but not when the full profile of the rabbet was wider than the blade (e.g. when cleaning up a wide rabbet joint.) See Sketch #3. ..... "How about dados? They cut against shoulders." See Sketch #4. Dados, like plows, needed the eye badly, as the full-blade-width shaving was "locked" between the sides of the groove and needed help getting out. Plus, dados cut cross-grain, which we know is a tougher direction to get a good curl.



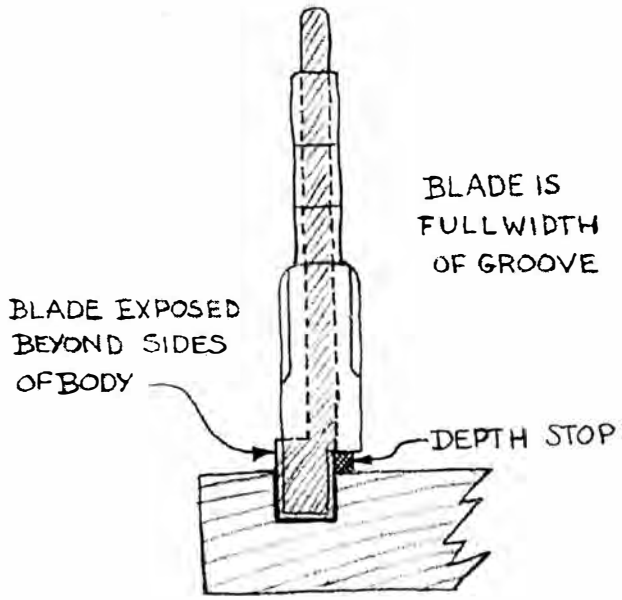
MOVING FILLETSTER WITH ARMS - FRONT VIEW
LEFT SIDE OPENING
SKETCH #1



SASH FILLETSTER - FRONT VIEW
LEFT SIDE OPENING, English style
SKETCH #2



RABBET PLANE - FRONT VIEW
SKETCH #3



DADO PLANE - FRONT VIEW
SKETCH #4

Speaking of cross-grain-- the skewed blade on the sash filletster might seem like a waste, as it only cut along the grain. Another Belt and Suspenders? No! A skewed blade helped to curl a flat-cut shaving. The best example is a spill plane. It had an exaggerated skew that produced a curl that was so tight that it ended up looking like a hollow rod. So, both styles of the sash filletsters had their blades skewed to gain this advantage.

A somewhat obvious question is, "If the round opening was so effective in clearing out the shaving, why didn't they make all planes with a round-eye?" ..... That one is easy. It cost more. Some manufacturers offered the round-eye at an additional price, but the old timers used the slogan that our industrial engineers use today: GOOD ENOUGH IS BEST. If they didn't need it, they were not going to pay for it. Maybe they should have paid for it, as witnessed by the many botch jobs created by users who tried to open the straight throats for better clearance.

THE SUMMARY: (at last)

Planemaking was a lot more complex than many of us realize. In most cases things were done for good reasons. It may be difficult for us to grasp those reasons today, because of the many subtleties and economics differences involved. But if you look hard enough, at enough examples, you will probably find an answer. The geometry of planes has never been a wildly interesting subject, but it shows that most craftsmen of yesteryear got things done by the "what-works" method more than the academic approach.

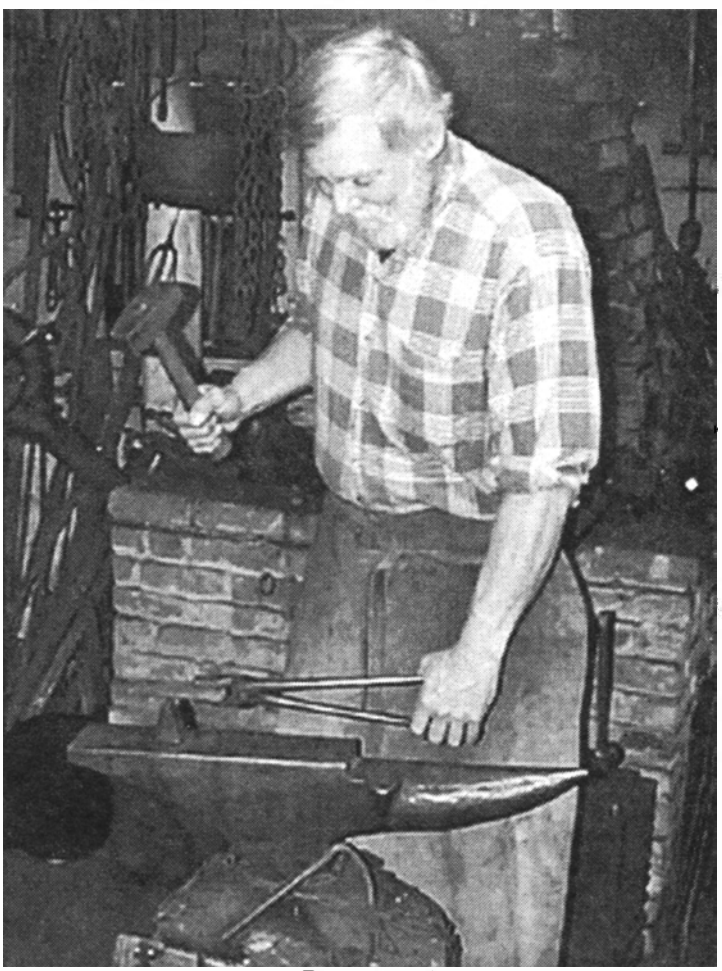
John Veit might have had a workable idea with his "double" escapement plane. (It will still bug me until I know what he had in mind). However, based upon the rarity of this plane, I would have to conclude that the idea just wasn't worth the effort. But the Belt and Suspender Plane stands as a monument to the way things were accomplished by those men of yesteryear. And, it prodded me into digging into the puzzle of the round escapement versus the straight escapement.

Blacksmithing with Ron Grabowski

by Bob Garay

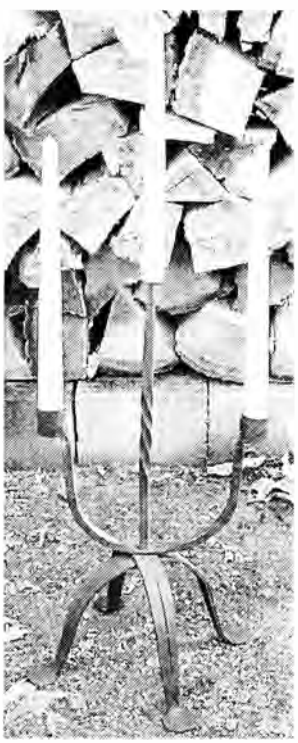
Ron's blacksmith shop

Being an *Ebay* buyer and seller I have noticed a growing interest in blacksmithing tools. This appeal touched me when I went to the CRAFTS picnic this past September and we had a blacksmith set up under a shade tree. The sound of the anvil ring could be heard as he hammered on products he was fabricating. I was drawn over to his demonstration out of curiosity and an escape from the sun. I was intrigued by how simple it all looked as he produced some common household utensils. When he asked for any volunteers to try their hand at it, I was prodded by my friends to go for it. I enjoyed cranking up the heat and pounding the red-hot iron on the anvil. It really wasn't that hard and actually a lot of fun. I was assisted in getting the metal just the right temperature and shaping it into a hanger for pots and pans. A final decorative twist was put into the tool before finishing it off with some wax. I was proud of my creation and gave it to a young boy watching intently nearby. Now I was hooked. I wanted to find out more.



Ron at work

When a chance came along to visit some Smithtown, Long Island tool collectors, and especially Ron Grabowski, who has a blacksmith shop, I eagerly accepted. We met Bill Hermanek at his house and we walked around the corner to Ron's house. As we approached his house I could see the blacksmith shop in the back. It is a nice two-story garage/shop that lends itself to blacksmithing and tool collecting perfectly. As Ron took us into the shop, I was immediately impressed on how it looked and felt just like I expected a blacksmith shop to look. There was a well-supplied work area with every imaginable tool at hand. Close by were plenty of hand powered metal working machinery. Some I recognized as primitive metalworking machines that I had used while being a metalworker in the Navy. Seeing a great article here I coaxed Ron into posing for a photo working on the anvil. This would be the only photo Ron would pose for as he let his work and tools do the rest of the talking. He showed me some of his blacksmithing work he had done and I was astonished on how much they looked like the original thing. When he showed me a beautiful cage-head brace I was astonished. I have been looking for just a tool to add to my collection but could not find anything within my budget. The thought struck me why not make one? Ron also showed me other articles

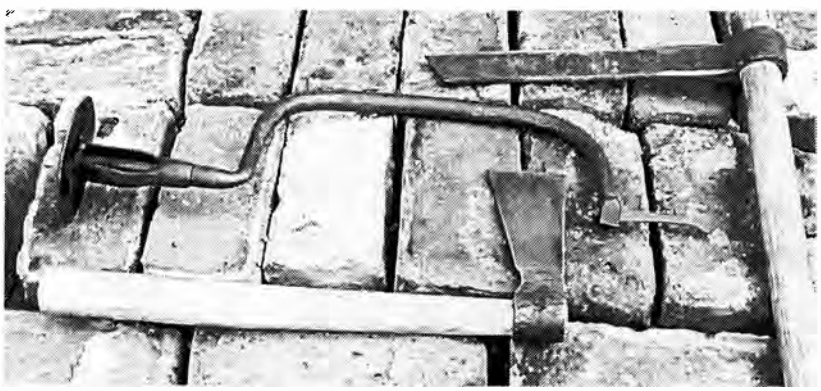


Homemade candleholder

of his creation and I was impressed with a candleholder and a beautiful three-legged pan. To make the deeply curved pan Ron had to first make a jig from six-inch pipe and weld a post onto the bottom to fit into the hardy hole on his anvil. He then shapes the pan from 1/8-inch steel with a rounding hammer, working from the outside to the center. The handle and legs are forged separately and riveted to the bowl. To finish the pan he heats it to a black heat and wipes it with a vegetable oil. Cogs started to roll in my head about where could I get a small blacksmith furnace for myself?

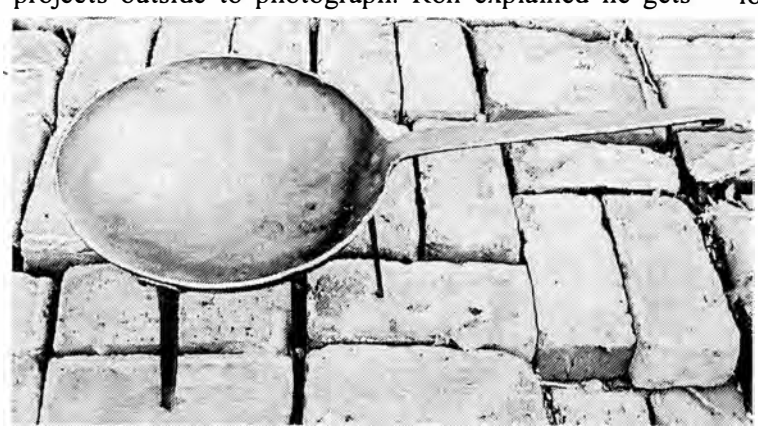
Tool alcove in Ron's attic

After exploring the shop Ron took us upstairs where he has his tool collection on display. As we climbed the stairs there were various tools hanging on the walls giving me inkling to what lay ahead. As we entered the attic of the shop I was taken back by all the tools. Ron's interest lies not only with blacksmithing, but also with all types of tools. He had wall shelves filled with wood planes, levels, plow planes, metal planes, braces, plumb bobs, and all types of primitives. I was attracted to a display case filled with miniature anvils, many with advertising and company names. It reminded me of the Mercer Museum, as he had many tools and ancient artifacts hanging from the rafters. This gives one a unique advantage of seeing the underside of historical technology. Ron's attic museum had neat little alcoves with windows that held many neat collections. The natural wood of the attic was a perfect background for the tools. What a great place to escape to.



Tools fabricated by Ron

As we went back downstairs we took some of his projects outside to photograph. Ron explained he gets many of his ideas from tools he has collected or from pictures in books. Early American Wrought Iron by Albert Sown and Colonial Wrought Iron by Don Plumber are two of his favorite books. Regional blacksmith clubs and newsletters are another good source. The New Jersey Blacksmith Association meets each month at a different location. Northeast Blacksmith Association meets twice a year at Ashokan Field Campus, Olivebridge, N.Y. (east of Kingston) on the first weekend in May and October. There are many local clubs and online information available to the interested, but as Ron said the best way to learn blacksmithing is to just start doing it.



Three-legged pan

Overall, it was a very intriguing visit that left me thirsting for more. I will be looking forward to our June CRAFTS meeting where a blacksmith is our guest presenter. I will also be keeping my eyes open for a little forge with a hand crank blower to try a little "smithing" myself.

◆◆◆

The Rattle in Seattle
Plumb Bobs as a Tool for Art
by Norman MacLeod

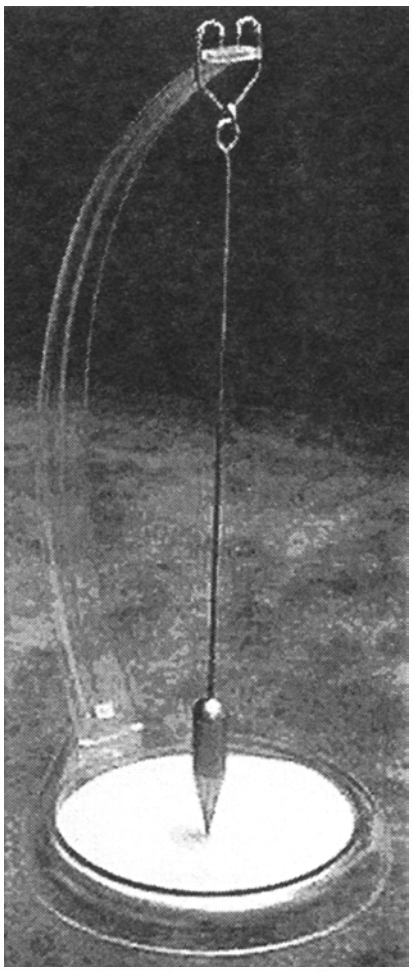
On February 28, 2001, a magnitude 6.8 earthquake, located some thirty miles below the surface of the earth and a few miles away from Olympia Washington, moved the ground for a bit more than half a minute. Damage was surprisingly light, due, in part, to structural retrofitting throughout the region, and also to the epicenter's depth. A sand tracing pendulum, located at a shop in Port Townsend called Mind Over Matter, produced some very interesting patterns.

Here are some of the photos taken shortly after the ground stopped moving:

The smooth curves you see to the outside of the Earthquake Rose are what you normally see when someone sets the pendulum in motion to make a tracing...and without seismic assistance. You can see the patterns left when someone started it before the earthquake. This happy coincidence made what many people are describing as an eye...some even saying that it looks like Poseidon's eye...do you remember that he was the god of earthquakes as well as the sea?

The earthquake's handiwork is the design in the center. While it's tracery makes up the pupil of the eye, it also strongly resembles a rose, which inspired us to call it the Earthquake Rose.

The sand preserves two features of the earthquake waves quite nicely," according to our geophysicist correspondent. The motions caused by the earthquake moving the pendulum's base started small, and the initial tracings were overwritten as the strength of the ground's motion increased.

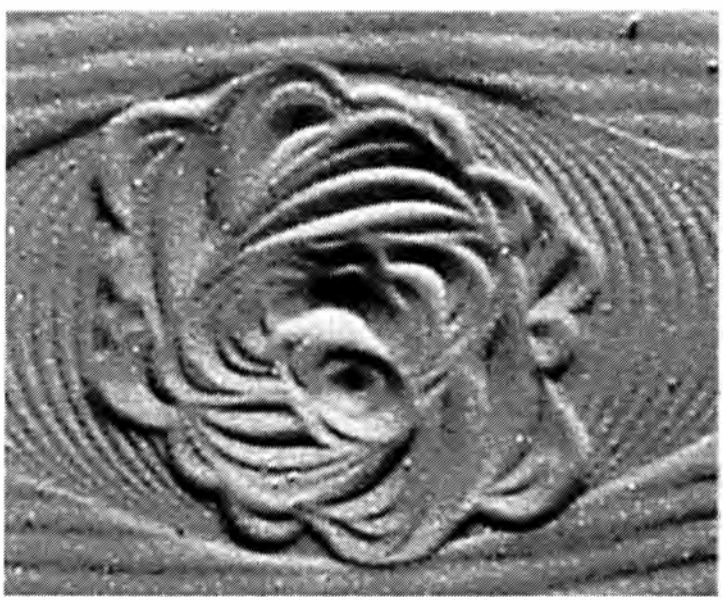


Plumb Bob Pendulum waiting for action

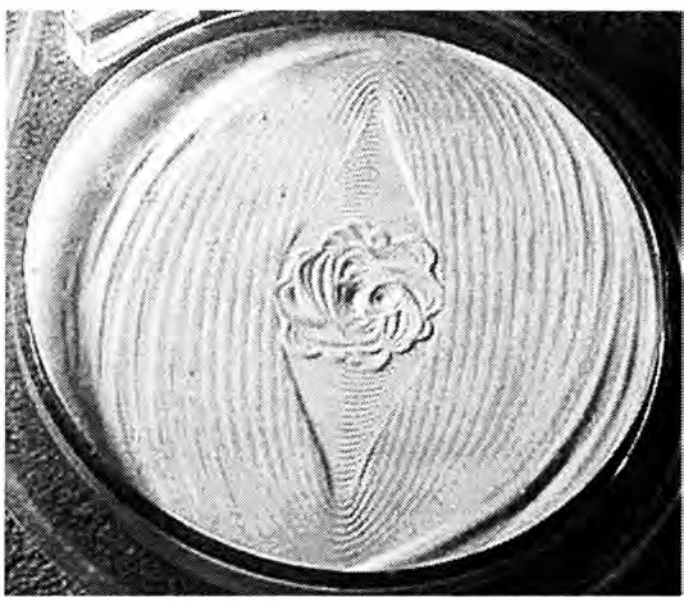
Of course, once everything started to slow down after the shaking stopped, the pendulum slowed to a stop, gradually "writing" the pattern in tighter circles as it moved back to its natural center. If you look at it closely, you'll see that the pendulum was apparently centering in one spot, and then moved a final time to come to rest in a slightly different location.

Those of us who have done disaster relief work after major earthquakes don't often think of them as having an artistic bent, but the tracings the pendulum made during this quake demonstrate that they can be rather creative when they have an appropriate tool at hand!

Editors note: This article was brought to my attention by a fellow tool collector as an alternative use of an everyday carpenters tool. Norman MacLeod took the pictures and wrote the article. More information on this subject can be gained on his Web site at: www.earthquakerose.com



The rose pattern was formed during quake's most intense trembles



The overall sand sculpture resembles an eye

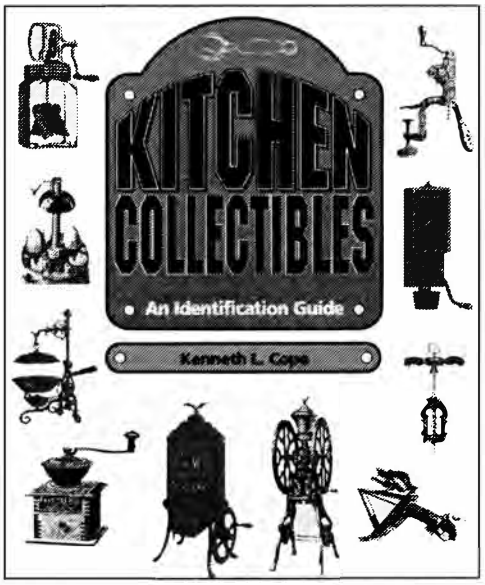
Book Review

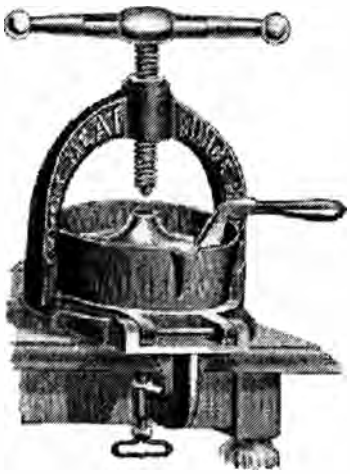
Kitchen Collectibles,

by Kenneth L. Cope

303 pages, soft cover, 8 ½" by 11", many photos, published in 2000

Available from the Astragal Press, 5 Cold Hill Road, Suite 12, P.O. Box 239, Mendham, NJ 07945-0239 ISBN # 1-879335-93-x B & W Price $29.95 plus S&H $4.50





OSBORNE meat press

Kenneth Cope's book, **Kitchen Collectibles**, identifies many kitchen tools by manufacturers name, trade name, and patent date. The illustrations featured are taken from the original catalogues and advertisements dating from 1830 to 1930. Accompanying each illustration is some information giving the history of the manufacturing company and the years and place it was in business.

Some of the many manufacturers listed are Ideal, Arcade, Imperial, Griswold, Gilbert and Osborne, just to name a few. The unique features of this book are the separate lists in alphabetical and numerical order of manufacturers and their associated trade names and patent dates with any associated patent holder's name. There is another list of foreign terms and abbreviations and country of origin for non U.S. items. These lists let the collector or researcher search for an item in several different ways, depending on just how the item in question is or is not marked.

While this book cannot list every collectible in every category it does show an example of many kitchen collectibles, and it is this writers hope there will be many more additions to this first volume of **Kitchen Collectibles**.

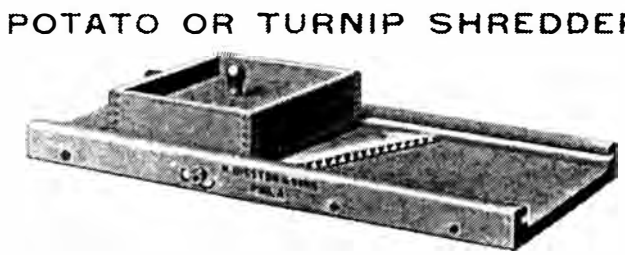
Even though this book is not a price guide, if you are a beginning collector or have had a collection for many years you will still be able to find something in this book that you didn't know, which makes it a worthwhile investment.

MarKay Zluky

Osborne & Co., H.F. Newark, NJ formed in 1876 when Henry Osborne left C.S. Osborne & Co. where he had been a partner with his brother. The firm was merged back into C.S.Osborne & Co. in 1905. Though originally making mostly tools used by saddle and harness makers, they expanded to make meat juice press, cabbage corers, ice picks, and can openers.

NICHOLSEN bread rasp

Ice shave - JOHN MATTHEWS, New York, NY 1868
For the plane lover here is a kitchen plane to shave ice, tumbler included.



DISSTON shredder

April Tool Auctions

The month of April was like one I have never witnessed before. There were three major tool auctions in one month and a couple of smaller ones all readily available to the New Jersey tool collector. I attended the three major auctions and walked away with many great deals but also an empty wallet. My best deals were the acquaintances I made and the chance to have a couple of beers with old friends. I thank the following authors for helping me to recount these great auctions.

CRAFTS Tool Auction – 2001

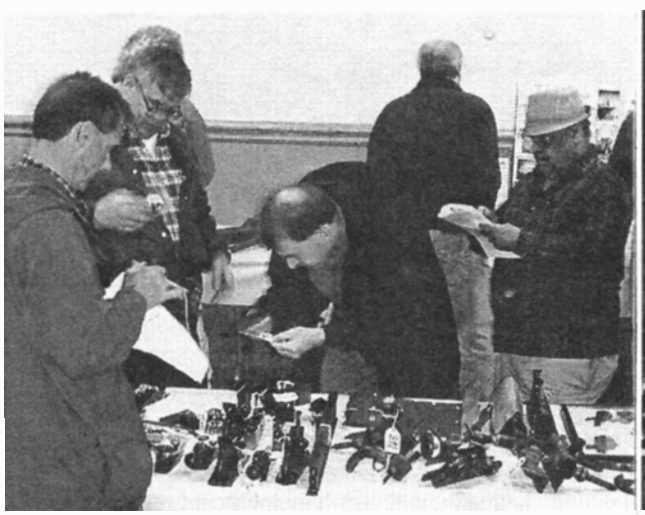
by Alexander Farnham

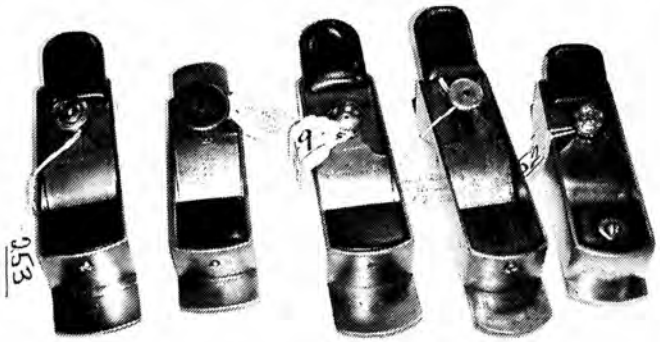
Crafts of New Jersey annually holds one of this nation's most important auctions of antique tools. They have been doing so every April since 1979. For this 2001 auction collectors from across the country traveled to the Elks Club in Flemington, N. J. where on April 21 they bid on 603 lots consisting of tools used in almost every craft as well as items of related interest. Wielding the gavel this year, as he did last year, was Frank Dennis who regularly presides over some of the most successful sales in New Jersey. Among tools receiving the highest bids were several from the collection of the late Dominic Micalizzi, a long-time member of CRAFTS, a master craftsman, and a discerning collector. Following his death on March 23, 1999 his brothers, with whom he worked in a cabinetmaking business, donated a portion of his outstanding collection of tools to CRAFTS, which will use any proceeds from their sale to assist young craftsmen.

The top price paid at the auction was $9,000 for an ivory plow plane made by Dominic Micalizzi. Also sold one-third way through the auction was a beautifully constructed wooden, felt lined case, which Dominic made to hold a rare collection of piano makers' tools. The case went for $425 and its contents which were each sold separately brought $1,500 for a miter plane signed N. ERLANDSEN / N. Y.; $900 for a rabbet plane by the same maker; $650 for another one stamped W. C. BACON /1888; $70 for a piano tuners' wrench with a rosewood handle also by Erlandsen; $3,750 for an Erlandsen piano maker's brace; and $600 for an ivory-spindled bow drill with four pads and bits. Also from the Micalizzi collection were a number of other New York miter planes, some of which were described and pictured in Roger K. Smith's book PATENTED TRANSTIONAL & METALLIC PLANES IN AMERICA - VOL. II. One signed N. ERLANDSEN sold for $1,700; a J.

Popping brought $1,600, and a L. Brandt and a G. Thorested went for $1,400 each. Two other planes selling for high prices were a Stanley No.41 Miller's patent plow plane which went for $1,350 and a Greenfield Tool Co. macassar ebony plow plane which brought $1,100.

Though early tools manufactured in New Jersey are fairly rare I counted thirty-two of them sold during the CRAFTS auction. Some of the more important ones were manufactured in Newark and included a wooden brace by George Wheatcroft, $375; two patented wrench-braces by Peter Lowentraut, one for $150, the other for $70; a double pistol router by Mockridge & Francis, $425; and a fluting machine, patented Nov. 20, 1886 by H. Sauerbier & Sons, $85. A number of planes were made in various cities in New Jersey. From Newark there was a Mockridge & Francis boxwood plow plane, $300; and by the same maker a squirrel tail carriage plane,$175; a washboard plane by Andruss, $190; and a sash plane by J. Searing, $60. Made in other cities were a complex molding plane by E. Danberry in New Brunswick, $70; a jack plane by Gage Tool Co. in Vineland, $55; and a hollow and round by B. Norman in Trenton$225. Probably the rarest of the Jersey planes was made by Alex Low in Monmouth City, $110. This is the only plane by this maker that I have ever seen.



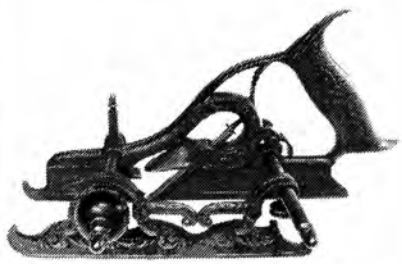


In all it was a very successful auction. Many buyers left with their hands full and others found that one special treasure to put on the mantle. It was a beautiful day outside for the tailgating, and the food inside was good. We even were entertained by the acrobatics of the nimble Steve Zluky.

BROWN Auction 2001

Every now and then even the experts wonder "what happened"? Just such an event was the highlight of the 2001 Brown auction. The front cover gunmetal Miller's patent (Type 1B) was the expected "top gun". It was listed as FINE $20,000- $30,000. Talk was that it was going to break the old world record of $27,000 set by the Tidey in 1996. The rear cover showed the iron Miller's Patent 1872, listed as GOOD PLUS $16,000 to $22,000. Most thought that was a high estimate, as the previous highest sale (private) was $12,000. Well, the second cousin 1872 model came in first at $18,500 (plus buyer's premium --amounting to $20,350), and the "top gun" was a distant second at $16,000 (plus B/P amounting to $17,600). Go figure. Everyone had their own analysis, but the bottom line is that auctions are unpredictable.

Lot 582, a Disston 43 combination saw, level, et al, provided another surprise. Although many similar models have gone in the $1000-2000 category, this one went for $3430 (B/P included). Although almost every state allows an auctioneer's employee to bid (even the auctioneer in some states), it sorta shocked the crowd, and his "runner" buddies, when a runner bid it up to its final number. Maybe in a different auction a few eyebrows would have been raised, but with the squeaky-clean reputation of the Brown Auction and Clarence Blanchard, not a soul questioned it. And rightly so.



Four pipe augers, which have slipped out of vogue and are sometimes described as "ugly primitives", sold for $297 (B/P incl.) And an ice chopper went for $143. Could primitives be returning?

Ye olde Corner Rounding Planes, Stanley No.144, went for $467, $522, and $522. The first two were early types, and the third one was in the box. The prices these planes get always puzzle me. But then, I'm not a Stanley man.

The Francis Nicholson molding planes seem to have returned to their "decade ago" status. A 3/4" ogee listed in GOOD PLUS condition only made $900 plus B/P. I remember slightly wider models in somewhat better condition selling in the high four figures.

Number 1s, regardless of maker, are on the move. -An Ohio No.01 listed FINE $2000-3000, sold for $4180. Almost all the rare patent iron planes did well.

There were a few surprising high absentee opening bids that never went any higher. There is nothing that the auctioneer can do about that, even though it tends to shock the audience into stillness. He opens at one interval over the second highest absentee bid. If *you* think about it, *you* will quickly see that it is done to "clear out" all absentee bids except the highest. It still leaves the high absentee bidder room to bid against a floor bidder, and that did happen many times. This technique has been a rule of the Brown Auction from its inception, and is the accepted practice of most Auctioneering Associations.

The "dreaded" Buyer's Premium hardly caused a stir. If there were some signs of "slowing up" (lighter attendance, less dealer sale activity etc.) it seemed more a sign of the times.

Two-Day New Hampshire Auction Sets New Record for New England

A total of 238 enthusiastic bidders from 18 states, Canada, the United Kingdom and Australia were on hand at the Holiday Inn in Nashua, New Hampshire on Friday, April 27th and Saturday, April 28th for what was billed as *The Biggest Antique Tool Event in New England this Year*. Two major collections from Florida and Pennsylvania made up the bulk of the auctions, also an important consignment of the complete contents of the cabinet shop of Manchester, N.H. area cabinetmaker A. Webster, a close relative of New Hampshire icon Daniel Webster.

The event was organized and promoted by Live Free or Die Antique Tool Auctions, a Division of Martin J. Donnelly Antique Tools, based in Bath, New York. Following up on a sale held last September, this is the second antique tool auction conducted by Donnelly at the Nashua facility and the first of "International Sale" quality. In addition to the auctions, the dynamic two-day event included the usual parking lot trading, with nearly 150 vendors offering their wares, and a first-ever Classic Indoor Gala Preview Sale on Friday Evening from 7:00 p.m. to 10:00 p.m. during the auction preview for the Saturday sale. Participating dealers reported brisk sales.

The Friday sale consisted of 867 lots of widely varying quality, comprising nearly 5000 individual tools targeted toward woodworkers, dealers and beginning collectors. The Friday event marked the return to antique tool auctioneering of Paul Wilmott, long a favorite with the New Hampshire antique tool-collecting crowd. Wilmott did not disappoint as he professionally and proficiently hammered down the sale at the rate of 149 lots per hour. Several Southern dealers who came prepared to buy were not disappointed and went home with their vans and trailers full.

The Saturday sale was made up of 630 select quality tools for woodworkers, craftspersons and collectors and was catalogued in a 48 page, glossy, full color catalogue produced using digital photography. Proceeds from the two-day sale, including the 10% buyers premium totaled $157, 412.37—an amount that is believed to be a new record for a New England Antique Tool Auction. Saturday's sale, before a full house in the Holiday Inn Grand Ballroom, began with a special tribute to long-time tool collector, dealer and auction promoter J. Lee Murray Jr. of Warner, New Hampshire, now in his 89th year, who was present at the sale. Introduced by promoter Martin J. Donnelly as the man "...who had, through twenty years of hard work, created the dynamic antique tool market in Nashua that so many collectors today take for granted." Murray was further lauded as one whom all who know can call a friend. New collectors were invited to meet and thank Murray for his many contributions and old friends needed no prompting to join in the groundswell of applause as all in the room rose in a standing ovation.

Following up on the rousing tribute to Murray, auctioneer Wilmott wasted no time directing the attention of the crowd to the tools assembled for sale as Lot No. 1, a Stanley No. 1 smoothing plane in its original box, complete with original bill of sale, sold for $2970.00, including buyer's premium (all listed prices include the 10% buyer's premium). Continuing at a pace of 120 lots per hour the 630 lots had been dispersed in less than 5 hours time. Sale highlights included a set of complex molding planes by A.W. Mack, dated 1830, at $577.50. An early Hazard Knowles type smoothing plane at $1650.00 and a rare Foster's Patent Turntable Plane at $4180.00. Lot No. 200, a chairmaker's brace, complete with original bits by C. Young, Newport, Kentucky, complete with original spoon bits was hammered down at $1100.00, a rare calculator by Ziegler & McCurdy, Philadelphia, patented March 18, 1870 brought $1430.00, a rare Prime & McKean wine barrel gauging rod produced by the Stanley Rule & Level Company brought $2310.00, and the user's manual for the same tool, sold as the next lot, brought $1017.50. A Miller's Patent No. 42 plow & filletster plane in gunmetal with an elaborate display stand, which set a record when it was first sold at a Connecticut auction than twenty years ago, was offered as Lot No. 300 and brought a respectable $4730.00. A most unusual combination carpenter's level and inclinometer, bearing the early mark of Springfield, Massachusetts maker L.L. Davis, drew considerable interest, selling at $1925.00, nearly double its presale estimate.

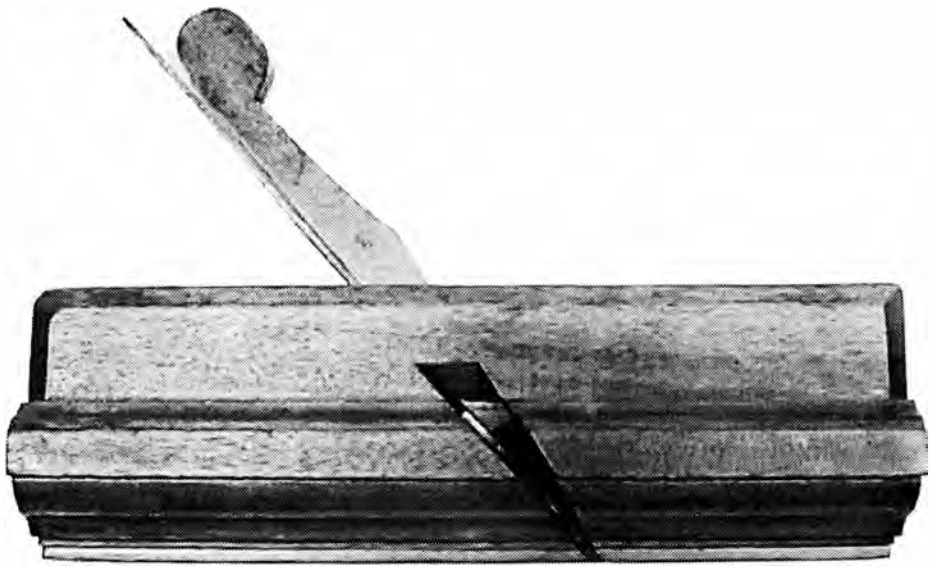
Additional sale highlights included a rare American adjustable filletster plane in solid Brazilian rosewood by the Greenfield Tool Company, sold for $1265.00; an extremely rare and very well preserved handled, screw arm plow plane of Macassar Ebony, complete with a full set of cutting irons, hammered down at $1485.00; and a spectacularly well preserved pre-War jointer plane, 20 ½ inches in length by Norris of London, which reached $3520.00.

In many ways, the most anticipated lot of the day was the Stanley No. 44 Miller's Patent plow plane in gunmetal, complete with its original set of cutting irons. There was general agreement among the collectors in attendance that this plane, which retained virtually all of its shiny lacquer finish and had faded not at all from its original bright golden color, was the best preserved example of the Millers Patent series yet to come to light. Absentee bidders opened the lot, listed as No. 500, at $3600.00 and bidding was quickly finished as two prominent dealers drove the price to $5280.00, the highest priced lot of the auction.

CESAR CHELOR
Black Toolmaker of Wrentham
by David V. Englund

While it was unusual in mid-eighteenth century New England for a black man to be freed and to own property, Deacon Francis Nicholson left us some wonderful insights in his 1752 will about the character of his slave, Cesar Chelor:

> "Item. As to my Negroman Caesar Chelor considering his faithful service, his tender care & kind & Christian carriage I do set him free to act for himself in the world & I do will and bequeath unto him his bed and beding, his chest & clothing, his bench & common bench tools, a set of chisels, one gouge, one vice, one sithe & tackling & ten acres of land to be set of to him at the end of my woodland..."



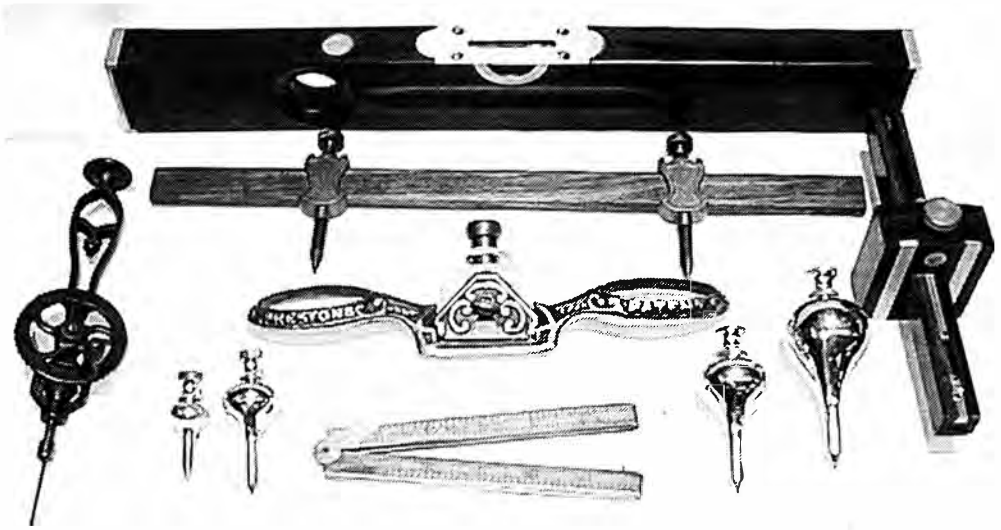
Cesar Chelor moulding plane 11" long
with large flat chamfers and typical long sweep wedge

The January 18, 1754 appraisal of Nicholson's estate lists the value of "His Nigro Man and what he gave him" at 160 pounds. This is a considerable sum when you consider Nicholson's lOO acres of land was valued at just 100 pounds. Obviously, Cesar Chelor (c.1720-1784) was no ordinary black man. Purchased as a slave while he was a teenager, (probably about 16 years old) Chelor worked with his master to learn the trade of planemaking, and is now recognized as the first black toolmaker in America.

Suddenly being freed must have presented a tremendous challenge to Chelor. Being left no cash from the will, he had to make haste in building a house on his ten acre portion of Nicholson's woodlot. Then he had to build a shop, move in his tools and equipment, set up his planemaking business and immediately start selling planes to get his hands on some much needed cash. And all this building construction had to be done in about six months, before the harsh cold weather of winter set in. Imagine what might have happened if Nicholson would have forgotten to leave Chelor any seasoned lumber that was immediately ready to be used for planemaking. Actually, Nicholson did almost forget. The statement, " & one third part of my timber" was apparently added as an afterthought to his will, at the very bottom of the section pertaining to Chelor, and underlined, as if to add emphasis to the importance of Chelor having air-dried and ready-to-use lumber.

Chelor was admitted to membership in the Wrentham Congregational Church in 1741. He owned books (as shown in his estate inventory), obviously was able to read, and considering Nicholson's statement about his "Christian carriage", probably spent considerable time reading the Bible. While it may have been prestigious for a black man to have a trade in the 17501s, we suspect it was still tough just to survive. The 1784 inventory of Chelor's estate totaled only 77 pounds, mostly the value of his tools at 21 pounds, and his buildings and land at 39 pounds. He must have manufactured a large number of wooden planes, as approximately 200 are still in existence today, imprinted with his name and name of his town on the front of the plane body. Careful examination of these artifacts show Chelor's skill as a craftsman, and they are a delightful piece of Colonial American history to study and appreciate. If Chelor were alive, and could see what his planes will sell for today (depending upon condition, from several hundred to several thousand dollars each), he would be absolutely stunned!

Reverse ogee with astrigal moulding cut with no spring.
Note the perfect stamp.



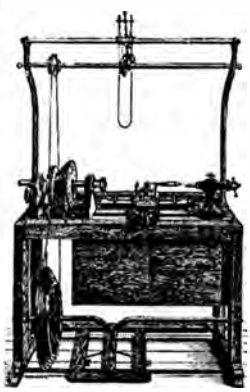
CRAFTS Sponsoring Woodworking Competition

CRAFTS is sponsoring $500.00 of prizes for high school students entering woodworking projects into the North Jersey Student Craftsman Fair. There are eight vintage tools as prizes with a little pizzazz to them. Shown above is a Stanley Sweetheart mahogany and brass level, a Preston patented spoke shave, a small Miller geared drill with pin stripping, two sets of brass English plumb bobs, a rosewood mortise marking gauge, a set of Stanley trammel points on a walnut beam, and a Stanley brass bound four fold boxwood ruler. These prizes will be given out the beginning of June at an awards banquet for the winners. In addition CRAFTS set up a display booth at the fair to present information about collecting antique tools and our club. I have heard rumors of some CRAFTS members trying to enter the competition dressed as students just to get their hands on some of these beauties.

Presenters Needed for the November Mercer Museum Tool Day

Do you have a neat tool or technique you could present at the upcoming Tool Day. The Mercer Museum is looking for some CRAFTS members to offer hands on presentations to the public. This is not something that takes a lot of expertise or special training. I have seen people helping the uninitiated drill holes in beams using a simple beam-boring machine. It is easy and fun to do, and most kids as well as adults have never seen this tool in operation, nevertheless try one out. How about a treadle scroll saw or lathe. My little treadle lathe was a hit last Tool Day with the kids, and even a couple of adults gave it a spin. How about letting a kid peel an apple using an old fashion apple peeler. The kids in my shop class's love this and they get a treat when they are done. I bet you could think of plenty more examples we could do at Tool Day. Drop me a line at takeadip@optonline.net or call (973) 398-5875, and we can discuss possibilities. Even if you cannot present or don't have a certain tool your ideas are helpful. Tool Day has always been a special CRAFTS commitment, don't let it die, get involved!

Union Hill Antique Tools



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Tool Events

Lancaster PA

May 30 - June 2: E.A.I.A. Annual Meeting, ↗

June 3, Sept. 9, Dec. 2 Fine Tool Journal Auctions This absentee auction is a service of the Fine Tool Journal. The auction catalog is offered with each issue of the journal and is mailed out one month in advance of the sale. The average auction is 500 lots and includes a wide variety of items for everyone. For information contact Clarence Blanchard at (800) 248-8114 or see the journal web page at *www.FinetoolJ.com*

June 14,15,16, MWTCA Association Meetings, Battle Creek MI. Lars Larson 313-382-0594 or Mike Slasinski 517-781-1152

Aug. 31- Sept. 1 *The Biggest Tool Show West of the Mid-West* Sheraton Uptown Hotel, 2600 Louisiana Blvd., Albuquerque, NE (505) 881-000 Presented By: The Rocky Mountain, Southwest and P.A.S.T. Tool Collectors, For additional information call Bill McDougall (505) 344-9272

April 21, 2001 CRAFTS Tool Auction Prices Realized

If you did not attend the auction and want a copy of the Auction List, send $2 (no SASE) to Steve Zluky, Box 243, Whitehouse, NJ 08888.

1. 35.00	75. 25.00	149. 20.00	223. 250.00	297. 35.00	371. 25.00	445. 40.00	519. 25.00
2. 25.00	76. 35.00	150. 300.00	224. 850.00	298. 300.00	372. 30.00	446. 20.00	520. 40.00
3. 30.00	77. 35.00	151. 550.00	225. 35.00	299. 150.00	373. 20.00	447. 20.00	521. 160.00
4. 95.00	78. 95.00	152. 325.00	226. 95.00	300. 9000.00	374. 325.00	448. 40.00	522. 30.00
5. 45.00	79. 35.00	153. 625.00	227. 30.00	301. 1100.00	375. 150.00	449. 110.00	523. 40.00
6. 35.00	80. 85.00	154. 25.00	228. 300.00	302. 250.00	376. 150.00	450. 1700.00	524. 25.00
7. 35.00	81. 30.00	155. 35.00	229. 85.00	303. 140.00	377. 125.00	451. 50.00	525. 40.00
8. 20.00	82. 20.00	156. 250.00	230. 150.00	304. 30.00	378. 150.00	452. 25.00	526. 55.00
9. 20.00	83. 225.00	157. 65.00	231. 800.00	305. 25.00	379. 150.00	453. 30.00	527. 10.00
10. 25.00	84. 40.00	158. 200.00	232. 1350.00	306. 200.00	380. 55.00	454. 40.00	528. 25.00
11. 175.00	85. 10.00	159. 325.00	233. 950.00	307. 100.00	381. 100.00	455. 100.00	529. 10.00
12. 100.00	86. 225.00	160. 75.00	234. 200.00	308. 25.00	382. 20.00	456. 125.00	530. 40.00
13. 65.00	87. 110.00	161. 60.00	235. 200.00	309. 25.00	383. 10.00	457. 30.00	531. 50.00
14. 75.00	88. 100.00	162. 55.00	236. 125.00	310. 65.00	384. 75.00	458. 5.00	532. 30.00
15. 70.00	89. 125.00	163. 175.00	237. 450.00	311. 100.00	385. 55.00	459. 30.00	533. 35.00
16. 65.00	90. 225.00	164. 350.00	238. 100.00	312. 110.00	386. 30.00	460. 100.00	534. 30.00
17. 15.00	91. 140.00	165. 150.00	239. 575.00	313. 25.00	387. 95.00	461. 40.00	535. 35.00
18. 65.00	92. 25.00	166. 200.00	240. 325.00	314. 80.00	388. 85.00	462. 325.00	536. 50.00
19. 90.00	93. 55.00	167. 25.00	241. 200.00	315. 80.00	389. 45.00	463. 10.00	537. 20.00
20. 100.00	94. 135.00	168. 25.00	242. 175.00	316. 70.00	390. 25.00	464. 20.00	538. 40.00
21. 75.00	95. 25.00	169. 40.00	243. 75.00	317. 50.00	391. 30.00	465. 20.00	539. 10.00
22. 95.00	96. 125.00	170. 55.00	244. 100.00	318. 65.00	392. 15.00	466. 40.00	540. 7.50
23. 15.00	97. 65.00	171. 30.00	245. 425.00	319. 65.00	393. 90.00	467. 70.00	541. 25.00
24. 30.00	98. 65.00	172. 65.00	246. 160.00	320. 45.00	394. 425.00	468. 20.00	542. 25.00
25. 75.00	99. 250.00	173. 75.00	247. 87.50	321. 40.00	395. 80.00	469. 15.00	543. 40.00
26. 25.00	100. 110.00	174. 35.00	248. 1200.00	322. 30.00	396. 85.00	470. 5.00	544. 5.00
27. 50.00	101. 85.00	175. 65.00	249. 1500.00	323. 30.00	397. 25.00	471. 45.00	545. 25.00
28. 65.00	102. 65.00	176. 150.00	250. 1400.00	324. 20.00	398. 70.00	472. 20.00	546. 60.00
29. 150.00	103. 150.00	177. 65.00	251. 400.00	325. 25.00	399. 225.00	473. 200.00	547. 5.00
30. 100.00	104. 325.00	178. 200.00	252. 1600.00	326. 30.00	400. 45.00	474. 25.00	548. 20.00
31. 20.00	105. 45.00	179. 65.00	253. 1700.00	327. 55.00	401. 65.00	475. 50.00	549. 15.00
32. 55.00	106. 40.00	180. 130.00	254. 700.00	328. 35.00	402. 25.00	476. 20.00	550. 20.00
33. 95.00	107. 30.00	181. 45.00	255. 200.00	329. 25.00	403. 20.00	477. 45.00	551. 5.00
34. 130.00	108. 65.00	182. 25.00	256. 125.00	330. 150.00	404. 90.00	478. 55.00	552. 12.50
35. 85.00	109. 75.00	183. 65.00	257. 90.00	331. 60.00	405. 25.00	479. 5.00	553. 12.50
36. 25.00	110. 70.00	184. 75.00	258. 375.00	332. 35.00	406. 15.00	480. 20.00	554. 30.00
37. 175.00	111. 110.00	185. 70.00	259. 15.00	333. 55.00	407. 20.00	481. 25.00	555. 10.00
38. 35.00	112. 190.00	186. 320.00	260. 15.00	334. 45.00	408. 50.00	482. 35.00	556. 15.00
39. 95.00	113. 110.00	187. 20.00	261. 95.00	335. 110.00	409. 15.00	483. 40.00	557. 10.00
40. 55.00	114. 35.00	188. 125.00	262. 75.00	336. 45.00	410. 40.00	484. 40.00	558. 32.50
41. 45.00	115. 45.00	189. 100.00	263. 145.00	337. 25.00	411. 80.00	485. 30.00	559. 70.00
42. 110.00	116. 45.00	190. 30.00	264. 75.00	338. 55.00	412. 100.00	486. 15.00	560. 40.00
43. 95.00	117. 300.00	191. 90.00	265. 55.00	339. 20.00	413. 250.00	487. 5.00	561. 35.00
44. 25.00	118. 125.00	192. 60.00	266. 125.00	340. 400.00	414. 30.00	488. 40.00	562. 40.00
45. 35.00	119. 50.00	193. 320.00	267. 150.00	341. 45.00	415. 100.00	489. 70.00	563. 15.00
46. 45.00	120. 225.00	194. 130.00	268. 65.00	342. 50.00	416. 55.00	490. 17.50	564. 40.00
47. 70.00	121. 150.00	195. 150.00	269. 70.00	343. 170.00	417. 275.00	491. 30.00	565. 7.50
48. 225.00	122. 80.00	196. 130.00	270. 50.00	344. 75.00	418. 200.00	492. 30.00	566. 25.00
49. 35.00	123. 25.00	197. 65.00	271. 50.00	345. 30.00	419. 30.00	493. 7.50	567. 15.00
50. 200.00	124. 40.00	198. 250.00	272. 65.00	346. 20.00	420. 25.00	494. 10.00	568. 15.00
51. 55.00	125. 25.00	199. 125.00	273. 60.00	347. 95.00	421. 10.00	495. 35.00	569. 25.00
52. 175.00	126. 225.00	200. 1500.00	274. 100.00	348. 95.00	422. 120.00	496. 20.00	570. 25.00
53. 90.00	127. 35.00	201. 900.00	275. 200.00	349. 30.00	423. 150.00	497. 180.00	571. 15.00
54. 35.00	128. 45.00	202. 650.00	276. 400.00	350. 150.00	424. 425.00	498. 80.00	572. 27.50
55. 40.00	129. 50.00	203. 70.00	277. 110.00	351. 75.00	425. 300.00	499. 60.00	573. 65.00
56. 35.00	130. 65.00	204. 3750.00	278. 110.00	352. 20.00	426. 400.00	500. 35.00	574. 22.50
57. 40.00	131. 35.00	205. 600.00	279. 60.00	353. 65.00	427. 625.00	501. 5.00	575. 12.50
58. 35.00	132. 180.00	206. 425.00	280. 180.00	354. 525.00	428. 450.00	502. 20.00	576. 35.00
59. 20.00	133. 45.00	207. 225.00	281. 200.00	355. 250.00	429. 175.00	503. 70.00	577. 10.00
60. 30.00	134. 45.00	208. 100.00	282. 70.00	356. 110.00	430. 20.00	504. 10.00	578. 50.00
61. 25.00	135. 70.00	209. 190.00	283. 50.00	357. 75.00	431. 100.00	505. 100.00	579. 35.00
62. 55.00	136. 55.00	210. 120.00	284. 300.00	358. 35.00	432. 20.00	506. 140.00	580. 25.00
63. 55.00	137. 10.00	211. 140.00	285. 4000.00	359. 80.00	433. 60.00	507. 65.00	581. 15.00
64. 55.00	138. 65.00	212. 110.00	286. 15.00	360. 95.00	434. 30.00	508. 100.00	582. 10.00
65. 100.00	139. 45.00	213. 300.00	287. 95.00	361. 95.00	435. 80.00	509. 40.00	583. 5.00
66. 65.00	140. 15.00	214. 4250.00	288. 75.00	362. 150.00	436. 55.00	510. 35.00	584. 300.00
67. 45.00	141. 175.00	215. 175.00	289. 220.00	363. 120.00	437. 225.00	511. 25.00	585. 150.00
68. 55.00	142. 275.00	216. 30.00	290. 275.00	364. 125.00	438. 40.00	512. 40.00	586. 35.00
69. 95.00	143. 325.00	217. 25.00	291. 55.00	365. 160.00	439. 100.00	513. 55.00	587. 20.00
70. 150.00	144. 60.00	218. 425.00	292. 60.00	366. 5.00	440. 70.00	514. 90.00	588. 200.00
71. 30.00	145. 50.00	219. 85.00	293. 55.00	367. 25.00	441. 40.00	515. 160.00	589. 35.00
72. 35.00	146. 25.00	220. 85.00	294. 30.00	368. 30.00	442. 500.00	516. 65.00	590. 5.00
73. 150.00	147. 150.00	221. 475.00	295. 300.00	369. 55.00	443. 25.00	517. 20.00	591. 250.00
74. 65.00	148. 20.00	222. 350.00	296. 20.00	370. 15.00	444. 40.00	518. 20.00	592. 375.00