Co-Starring Al Dippold

as "FAMOUS MISSOURI FOLDER BOY"

Pivot Pin
35% down
40% in

Start with drawing and model

0.050
410 stainless or titanium liner

7½-8½° Lock Bevel

2½" after lock cut

⅛" ball bearing #53 drill bit

let bearing scratch blade for detent position

Solder spot weld of blind screw bolsters from back

R.V. JOHNSON
Pivot Pins
⅛" - 3/16"
regular open weld w/ flux

spray with as it burns it purges oxygen
kerosene or j - no oxy - no scale
flamable not explosive

Closed weld

Accordian

3 thermal cycles up to critical - down to black followed by spheroidizing draw

Filler can be welding rod, scrap, etc.

Start opening on hardy - proceed slowly
watch for tears. If it tears, flux & proceed slowly
Dawn Fog
(Indian name meaning "Very cloudy early in the morning")

7 layers 1084 & 15N20

Drawn, cut, and 4-way welded in forming die

180 layers of 1095 Nickel

Variations in compressions resulting in pattern variations

Suddenly... Disaster Struck!

Cut and fold twice

Textured stock may be cleaned with a wire wheel then buffed.

Knives are a byproduct of the learning process of steel.

Flatten

Presses are welded to random edges.

High Temp Salt Bath

Press

Solenoid

Controller

Propylene

Vents

Data Tank

Radiator

Use die for raised patterns in bolsters etc.
Meanwhile...
Back at the Jelly-Roll Factory
Will Famous Fogg recover from yesterday's "crushing" defeat?
Let's Find Out!

 Blade from "Random Press Pattern" *(see p.1)*
Very close to shave

 HOT CUT
 RE-WELD

 Feather Pattern Push Dagger

 THE ZIPPER
 1" KAOWOOL LINER AND LID
 8" WELL CASTING KAOWOOL

 1" KAOWOOL LINER AND LID
 PASS-THRU DOOR APPROX. 2" x 4"
 OLD OIL BOTTLE MAKES A GOOD CASING

 FIRE BRICK

 12" MIN. BURNER

 ANGLE OF BURNER PORT MUST BE SUFFICIENT TO DEVELOP SWIRL

 SEE DETAIL

 VENTURI BURNER

 LADDER PATTERN IS CLEANED AND DEEPENED WITH GRINDER
 BOTH BILLETs DRAWN AND LIGHTLY LADDER PATTERNED

 LADDER MUST MATCH AS CLOSE AS POSSIBLE

 GET ME HOT AND SPANK ME!

 STEP 5 MAKE AN AWESOME KNIFE
 STEP 6 SHOW-OFF!

 HAMMER-IN PHOTOS BY "WIRED IN MONTANA"
 A.K.A. WIG MAN THE PSYCHOTIC TWEET BOY
**Don Fogg Finish Method**

280 GRIT
Ferric Chloride
to bring out
temper line
600 GRIT

**'97 Hammer-In Collaboration**

An Absolutely
Unbelievable
Piece of
Forging!

Dawn Thomas
Damascus

Don Fogg
Forging

Rick Dunkerley
Grind & Treat

Ed Schemp
Guard

Barry
Gallagher
Handle

Rule #1
Know how much it costs
to keep your shop open
Know how much it costs
to make a knife
Price your work accordingly
If production costs are more
than market value, then
become more efficient or
do better work.

**ACCORDION**

Layout
Measurements
must be equal
in all dimensions

**Alternative Layout**

More Waste
Eliminates Tearing

---

Many Thanks
To all my
Friends,
Old and New
Happy Heating
and Bating!

Alson
THE NOT VERY TOWERING INFERNO

Starring Steve Schwartz as "Gator McManus"

Cupola is charged with layers of ore and charcoal after a good bed of coals is established. Lots of charcoal, a little bit of ore.

Continue charging the cupola until:

A. You run out of charcoal
B. You run out of ore
C. The fire dept arrives.

As the ore melts, it gains carbon as it filters down through the burning charcoal and settles in the bottom.

Hopefully, you end up with a "web" or "sponge" of steel in the bottom of the cupola.

Note: Too much heat will burn the steel into slag (not that anyone around here would do such a thing!)
Phil Wilson
FREEZE
TREATMENT
CPM 420-V
2% chromium
9% Vanadium
1% Molybdenum
19% Carbide

FLEXING INTO ALLOY RANGE
2150° Austenizing Temp.
40 min. to 1 hr
Nitrogen soak as soon as blade reaches room temperature

Ed 52100 Fowler
Oil quench during forging
Normalize
1325° for 2 hours
3 cycles
Multiple normalizing cycles for stress relief
Grind slightly oversize
Triple Quench
2 cycles
375° 2 hours
Cryo treat
1 cycle
375° 2 hours

GALLAGHER
Set-up for Figure Mosaic

A thin blade cuts better than a thick blade. It also slices better.
A good cutting edge needs "tooth".

FACTOID
BG-42
1500° PRE-HEAT
2200° HARDENING
DIA ICE
900° TEMPER

TESTING PROCEDURE
EQUAL CROSS SECTION LENGTH SHARPENING TECHNIQUE
TAKE AVERAGE OF SEVERAL TESTS

Uniformity is critical to testing.
Rope cutting is primarily useful for comparing similar blades.
A "micro-tooth" edge is superior for slicing cuts.
A buffed "smooth" edge will push cut but not slice.
A broad axe makes a lousy pickle slicer.

STAINLESS
DAMASCUS
ATS-34/AEBL
2250° max welding
2100 forging
1625° 2-3 hr. soak
1325° 4-5 hrs.

DRY WELDING
SEAL BOX
NEEDS WD-40 INSIDE TO BURN OUT O2

SOAK TIME IS CRITICAL TO GOOD WELDS
ANODIZING
6 AL 4 V TITANIUM
SAFETY FIRST!
WEAR RUBBER GLOVES

1. Tri-sodium Phosphate in distilled water
2. D.C. Power source (with Variac)
3. Don't let titanium touch stainless steel in bath

Color is a function of:
- Time
- Voltage
- Solution

STABILIZED WOOD
- Wood is totally saturated with acrylic resin
- 1. Pull vacuum - 28 column inches
- 2. Pressurize to 4000 psi

K & G, Wild Woods - Mc Fad
approximately $17.00 per pound

Don't Touch Bare Metal! (it hurts)

Variable Power Source
Cathode (titanium)
Anode
Glass or plastic container
Workpiece
TSP dissolved until saturated in distilled water

White working material can be filled with Super Glue

Wood is stabilized with acrylic resin.
Good Books
Damascus Steel
Manfred Sachs
The New Clay
On Damascus

Flame Reducer
1-1/2" x 2"

Castable refractory

4 parts anhydrous borax
1 part boric acid

FLUX FORMULA

CLOSED WELDING - WELDING MOSAICS IN A CLOSED OXYGEN FREE ENVIRONMENT

Welding Temperature
Decreases as Carbon Content Increases

THE GRAY SCALE
High Carbon = Darkest
Mild Steel = Medium Gray
Nickel = Lightest

BURNING CONTAMINANTS ELIMINATE OXYGEN
Nickel content and carbon content in steel will define the final (etched) appearance
Carbon migration between mosaic elements will help even out carbon content.
Nickel is a barrier to carbon migration

Hi-Nickel - Mild steel mosaics
don't hold an edge well.
A pattern of all tool steel should be welded on to edge.
Mosaic Damascus

Defining pattern by appearance of the end of the bar & bringing that pattern to the surface.

Multiple mosaic bars welded into a loaf. Sliced into knife blades and bolsters.

Laser-cut shapes on alignment rod-cased, filled and welded. Good for precise shapes.

Note: The correct spelling of Hank's name is KNICKMEYER. (Hey, if I could spell, I wouldn't have to draw my notes!)

Tack welded on end. Tool steel Damascus.

Mosaic blade. Shape edge to blade. Flux and weld.

Call me Olaf. Knickmeyer, operating under the assumption that he was being paid by the pound, continues to crank out bullets.

Corner pattern appearing in succession on twisted bar. Interior of bar. This will accordion like this.


Holes drilled to match plugs. Plugs matched to holes. Plugs are slightly longer than blade thickness (1/4 in 1/4).

Flux and weld. Hit it once hard to upset plug in the hole.
THE KNIFE AS TOOL

NATURAL FORMS TAPER FROM THICK TO THIN

1. FORGE THE TIP AT FULL STOCK THICKNESS

2. DRAW DISTAL TAPER

3. DRAW OUT BEVEL

ESTABLISH DESIRED BLADE WIDTH

TAKE STOCK FROM WHERE YOU DON'T WANT IT; PUT IT WHERE YOU NEED IT.

USING THE CROSS PEIN TO MOVE METAL

ESTABLISH AND DRAW OUT TANG

FORGED VERY CLOSE TO SHAPE

SHAPE OF TANG WILL DESCRIBE FINISHED LINE OF KNIFE

BALDY HAMMER IN MOUNTAIN 99

ROB HUDSON

Hey, what do you guys use that grinding machine for?

THICKET POINT TANG CONSTRUCTION

TOP VIEW

END VIEW

TAPERED GUARD HOLE

BROWNELL'S HI-FORCE SOLDER

USING A CUPPED STUMP AND MAUL FOR SHAPING THIN STOCK

WET SAND TANG WITH EPOXY BEFORE GLUEING HANDLE FOR BETTER ADHESION

APPLY WET BARK ON HOT BAR STOCK

ANNEAL BY PLACING HOT BLADE IN VERMICULITE
Ed
INTEGRAL
SHEMP

1 1/2"
COMPRESSED
6"
52100

Gradually drawn out
Both ways from guard

Be sure that blade stays on same center line.

Forge blade and tang

The guard can be forged and/or ground to shape

DEVIN THOMAS

Turkish Twist

Multiple twisted Bars ground to same thickness

Stacked with flat sides together

Each twist will produce 2 stars

Less pattern distortion
More stress on corners

Some distortion
Less stress on welds

Maximum distortion
Minimum stress

Effect of billet shape on twisting results

Norton Charger
66252807210
Cup wheel
For angle grinder
A straight line allows the edge to feed through the material it is designed to cut.

Joe Cordova

Stabbing handle should comfortably fit the hand.

Allow for grip for little finger.

* The Marilyn Monroe Principle

Drill jig for pivot hole

3/8" stock

Antler tip

Photocopy folder parts & cut them out to figure out mechanics.

Guard material

Anvil

Punch shaped to tang hole

Punch tang hole over pritchel hole

Warm up guard and drive fit over tang

Wade's World

Punched and Hot Fit Guards