

THE TRADITIONAL LONGBOW COMPANY

An excerpt from “Traditional Bowyers of America” By Dan Bertalan

Contradictions

There is a stark contradiction between the forested hills around Mahopac Falls and the rigid electric skyline of Manhattan just thirty-five miles to the south. It's a vivid contrast for those swept away from New York City in rush hour traffic like scraps of driftwood. As the current of lights and steel rushes northward, it ebbs as branching streams of cars escape into the recesses along the Hudson River Valley. Driving north quiets the spirit. Maybe it's the solitude of the rugged granite terrain or the hardwood forested hillsides. Unlike the city, the landscape here doesn't scream of human conquest. Its glacially scoured hills have served as a natural fortress through the centuries, holding back man's oppressive shaping of the land.

Narrow roads wind aimlessly between the hills like meandering game trails, often following lake contours through scattered villages. Colonial stone fences and shrouding canopies of hardwoods line many of these asphalt trails, some still whispering the ancient creaking of overloaded wagons, the heavy breathing of laboring horses, and the shuffling foot falls of Washington's troops plodding through the night.

Along one of these roads and not far from West Point, Washington's Revolutionary Headquarters, and the Bear Mountain Bridge, lies the small community of Mahopac. Tucked away in the maple-covered hills east of town is a special place of interest to longbow admirers. It's the home of Frank San Marco and the birthplace of his Traditional Longbow.

Like the modern yet ancient weapon he creates, and like the land where he lives, San Marco is full of contradiction. His youthful face exudes a reserved boyish smile framed with a reddish-brown beard and thick hair, but his blue-grey eyes search like an old wise man's deciphering the person behind a face.

When greeting strangers, he shakes hands with a reserved carefulness that may be perceived as shyness. His hesitation, however, is a courtesy. His oversized muscular fingers look as though they belong on a much larger man and they stop far short of their vise-like power.

JUST PART OF IT ALL

San Marco was born and raised in New York state and has a distinctive accent to match his heritage. From boyhood he worked as a heavy duty equipment mechanic for his father's construction company and he attributes the development of his massive hands to those formative years.

Today, he shares his secluded home on the outskirts of Mahopac with his wife and two daughters. He teaches science, environmental education, and wilderness survival at the Ardsley Middle School. In his survival course, San Marco teaches more of an Indian survival rather than a modern military course. As a New York State registered Wilderness Guide he's well qualified to teach the outdoor courses, which to him represent more than just subjects of education. They're an important part of his life and represent a piece of his spirit.

At home in the woods, San Marco is keenly knowledgeable about his native surroundings. While strolling through the forest, his feet slip between delicate wonders hidden within the forest floor which most people would unknowingly crush. Stopping near the musty remains of an old log, he gently picks several varieties of woodland edibles and seems at home sitting cross-legged on a large slab of lichen-spotted granite, nibbling sprouts of sweet clover and fiddle heads. His intimate knowledge of nature's little-known plants, wild foods, spices, and medicinal plants is amazing.

San Marco incorporates his forest wisdom and strong philosophies about man's relationship with nature into his environmental education programs. Some of his philosophies were gleaned from Tom Brown, author of *The Tracker*. "Philosophically, he turned me around in life. I had always hunted and respected wildlife, but he gave me an insight into nature that

was spiritual in essence. He made me look at the earth differently. For the first time, rather than feeling like a dominating creature, I really felt like a part of it. I felt like an animal, and that I was really no better than anything else. It was humbling yet also elevating, recognizing that it's okay to be part of the system and not to be in control of it. It's the system that's really important, not you per se. I've learned to value the system more than the dominance of it.

“When I go into the woods now, I legitimately feel like I'm home. But I used to feel like I stood out and I wasn't a part of it, that I was an observer and a spectator. That isn't true now. I really feel like I belong there. I'm not an intruder any more.”

A NEW LOOK ON LIFE

Besides being sensitive about the environment, San Marco exudes a tempered perception of life that one might expect from a wise grandfather. It partly comes from his philosophy about the environment, but even more so, it's the result of what happened to him one morning in 1975.

San Marco was participating in a midsummer motorcycle race in New Jersey. It was an off-road Enduro race with rutted trails twisting through rugged wood terrain. San Marco was no novice to the sport. He knew about the accidents, occasional broke bones, and minor injuries that were a part of pushing man and machine to the limits. It was just an acceptable hazard.

Or so he thought.

During the race, San Marco zoomed past another rider and was power sliding through a blind, water-strewn curve when it happened. His cycle spun out of control, hurling him head first into a boulder, breaking his neck. He crumpled to the ground like a rag doll and lay with his face submerged in a puddle. Although he was dazed, San Marco knew something was terribly wrong – he had no sensation from the neck down and couldn't move.

Straining, he lifted his head and sucked in a breath before slumping back into the puddle. Determined not to drown in three inches of water, he

again struggled to lift his head. This time, he tried to scream for help, but only a raspy whisper trickled from his throat before his face dropped back into the puddle. Soon, another rider came to San Marco's side and held his face out of the murky water.

At the hospital, doctors bluntly told him he would never move his body again. A part of him wanted to be back in the puddle quietly accepting the end. Yet another part of him refused to accept his hopeless future.

Total helplessness filled him with despair. To escape his dismal reality, his mind wandered to the woods and to bowhunting. He even playfully imagined someday building himself a bow and wondered what weight limbs he might be able to pull, taunting himself with the fantasy.

Although his spinal cord was severely damaged, it had not been severed. To San Marco that meant there was hope. With time, he began to get faint tinglings in his extremities, which later developed into slight movements. Filled with determination, he struggled for a year relearning how to move his body.

NEW MUSIC

After his unbelievable recovery, doctors said his recovery chances had been one in ten thousand. For San Marco, love, family, touching, feeling and simply being able to walk in the woods again, took on new meanings. Gradually he regained most of his motor skills. However, he was unable to regain controlled, rapid hand movements.

Back then, San Marco had also hand-crafted and played custom guitars. He was an expert guitarist and music was an important part of his life. But after the accident, even his most determined efforts to once again play the guitar resulted in frustrating, feeble attempts. Shackled with childlike dexterity, playing and building custom guitars faded from his life.

His passion for the six-stringed instrument was eventually replaced by the sweet hum of a lone string. It was the music of the longbow. San Marco's bedside fantasy would come true.

CHALLENGED

San Marco's introduction to bowhunting came when he was six years old. It was a magic mixing of boyish adventure, a wooden longbow, and a bushy-tailed grey squirrel. Although the squirrel simply shrugged off a well-placed shot, an astonished but determined bowhunter was born. In the years that followed, San Marco hunted with his father and cherished their moments together afield. After his father's death, he roamed the forests alone and plunged himself into the inner depths of hunting. He pursued the sport with zest and eventually made what he feels was a natural progression – a deep commitment to bowhunting.

As San Marco the bowhunter grew and changed, so did his equipment. He replaced his boyhood longbow with refined recurves, and he later tried a compound bow. Like many archers, he quickly discovered that the compound bow was an effective “killing” weapon, but the mechanical device prevented him from fully realizing the essence of his bowhunting challenge.

To recapture the thrill, San Marco stepped back in time, making the full circle in his gear, and readopted the simplistic longbow as his hunting weapon. “What’s special about the longbow is its honesty as a weapon. By an honest weapon, I mean that the results of shooting are truly affected by the skills and ability of the archer. If you’re successful with it, it’s because you have the skills. It’s because you have put in your time and been dedicated to mastery. Whatever success you have earned, entitles you to the personal accolades. If you blow a shot, you can’t blame it on anything – it’s simply you.

“There is a sense of personal unity with the weapon. When you’re drawing back you feel your life’s energies being expended in the elasticity of the limbs. When the arrow is propelled forward, you know it’s your life energy that’s part of it. So, when it strikes and takes an animal, you feel that it’s really you. There is nothing in between. Your fingers are in contact with the string and you feel your muscles stretch to their limits.

“With a compound, I’m using gadgets, pulleys, and a whole series of devices which remove my energies from the arrow. When that arrow is on

its way, I don't feel the same connection between the arrow's energy and myself as I do with a longbow. The longbow is a simple, direct, and a function of you. For that reason, I think it's honest."

FOREST ADVENTURES

San Marco often takes his honest bowhunting companion into the deep woods of the Catskills and Adirondacks where he enjoys blending in with these wild places. Although he prefers roaming the big woods, he consistently harvests more game hunting close to home in Westchester County. There, the ever adaptable whitetail finds refuge and even flourishes in the protection of estates and private homes.

At home in the forest, his favorite style of whitetail hunting is slipping through the brush and at times melting into the woods, but he admits that stand hunting from a tree is often more productive. Although he seldom passes a shot at a buck, San Marco doesn't consider himself a trophy hunter, "For me, the life of a small doe is as precious as a large-racked buck."

One of San Marco's most memorable whitetail hunts was his first bow-killed deer. It was a classic broadside shot at thirty-three yards from a small ground blind. As he approached the wounded animal, he felt the flush of amazement in realizing that his once boyhood toy could be such an effective weapon. His bowhunting dreams lay before him in reality.

Although deer offer plenty of deep woods excitement, squirrels are his favorite longbow quarry. Wearing a pair of moccasins and cradling his yew longbow, San Marco slips through the woods in search of the little bushy-tails. He likes damp or rainy days when stalking conditions provide a hushed forest floor. With the fast-moving, sharp-eyed squirrel as the quarry and the longbow as his weapon, it's a supreme bowhunting challenge, producing shots to remember. "My best shot was right here on my property. I was stalking quietly through the woods when I spotted a large grey squirrel crossing an open field, heading towards the thick woods. If he made it into the dense cover I would lose my opportunity for a shot, so I quickly changed direction and took a few quiet steps toward him.

“There was a barrier of trees and a low rock wall between us, but he caught my movement and he ran for the trees. All I could see was this little grey body flashing through the row of trees, but there was one small opening. I drew, anchored, and shot in one fluid sweep. I watched the blunt-tipped arrow and his body converge as his air-bound chest just crossed the thicket line. It was a cleanly placed, lethal arrow, the kind of shot the late Howard Hill would make all the time. But it was perhaps a once in a lifetime shot for me.”

TRADITIONAL TOOLS

To help him make those memorable shots, San Marco ventures into the woods carrying a special companion. It's his 67", 62 pound yew-cored Traditional Longbow, a simple weapon that represents an extension of San Marco as an archer and as the bow's creator.

He makes his own custom arrows from modified cedar shafts with the center drilled out in the nock end for approximately eight inches. This makes tail-light arrows, helping them recover faster from the archer's paradox. He gets his respined, preweighed, and prestraightened hollowed shafting from arrowsmith, David Ellenbogen. San Marco stains them a natural wood color and beautifully custom crests each one. He prefers Mercury Speed nocks and fletches his arrows with three 5" long shield-cut barred feathers. He likes feather colors that are bright enough for him to easily see, but not bright enough to alert game. The colorful feathers help him see the exact location of a hit on big game, an important factor when determining his follow-up actions.

On the business end of his deer hunting shafts, he mounts Hunter's Edge broadheads, designed by John Schultz. Styled after the Howard Hill head, San Marco likes their outstanding durability, penetration, design, and flight characteristics. He mounts the heads vertically and file sharpens them, producing a sharp, serrated edge. “This filed edge cuts elastic tissue such as arteries, more effectively than a scalpel-sharpened edge. A scalpel edge cut bleeds more profusely, but it allows more elastic tissue to slip past without being cut. I prefer the two-bladed head because complete

penetration on big game is much more important than a massive bleeding hole with limited penetration.”

San Marco carries his arrows in his handmade leather black quiver. Complementing his traditional gear, he wears one of his handmade leather arm guards. It's a traditional style incorporated with a small liquid-filled compass, blending functional simplicity and thoughtful design.

PERFECTING THE HILL STYLE

To make sure his custom-crafted yew and cedar function as one with the archer afield, San Marco practices his shooting year-round. He hones his running shot skills by shooting at small moving targets in his backyard. In one of his favorite practice sessions he kicks a soccer ball up or across the hill behind his house and then zeros in on the “running” target using arrows tipped with rubber blunts. When he can enlist a thrower, San Marco also enjoys arrowing disks tossed into the air. For slower paced practice, he loves roaming the woods and stump shooting at imaginary game.

Even though he practices often on moving targets, San Marco is discriminating about taking running shots on animals. He knows his effective distance on moving game and limits himself to high-confidence shots. He has taken five shots at running deer: one was a clean miss, and the others were clean kills.

San Marco patterns his instinctive shooting style after the legendary master of the longbow. “The Howard Hill style is a format of shooting that slows the hunter to react and shoot instinctively and intuitively. It's not a regimented style, but a very loose style. The body incorporates several bends. Every time you put a bend in the body there is opportunity for movement in that particular joint. That builds flexibility into your shooting style and makes it adaptable to hunting situations on the ground.

“In the field, only one out of every five or six shots might be picture book where the target is set so you can stand in a very orthodox target shooting position. So if you're hunting from the ground you have to be flexible and be able to accommodate the circumstances. With the elbow

bent, a slight bend at the waist, and with a slight break in the knees, you can twist and move to make those necessary adjustments. Versatility in the essence of the Hill style. Plus, bending the joints puts certain muscle groups in opposition to each other, increasing muscular stability when shooting.”

Besides bending his joints, San Marco cants his bow and leans over his arrow. “When you draw the arrow back, in effect it’s to the side of your eye. But when you cant the bow, you bring the eye in longitudinal alignment with the shaft, so the estimation factor in aiming is diminished. Canting the bow simply reduces the displacement between your eye and the shaft.”

With his instinctive eyes locked on target, San Marco begins aiming during his draw sequence to save time, often a valuable commodity during critical hunting situations. “Most of the actual aiming in traditional shooting should be done before reaching full draw. It’s not necessary or even advantageous to methodically draw, anchor, and then start aiming.” Practicing what he preaches, he draws and shoots in one uninterrupted motion, making it look simple and fun. The grace of his traditional form is captured for only a second before the arrow leaps almost unexpectedly from his longbow and buries into the mark.

GUITARS TO BOWS

The sleek longbow San Marco carries is a product of evolution. It represents his bowhunting transition back to a simple, honest weapon, blended with his lingering guitar crafting skills. After recovering from his motorcycle accident, San Marco wanted a longbow as a hunting companion, but he couldn’t find one with the custom quality he had grown accustomed to in his guitars. So, he decided to build his own.

His engineering, guitar crafting, and woodworking skills proved to be an ideal combination for bowmaking. Even his first bow, patterned after a Hill style longbow, reflected as much quality and performance as any commercially available longbow.

One bow lead to another, and by 1979 San Marco began professionally building his longbows. He decided early on, not to limit his bowmaking methods and techniques to the established norms. Even though he was building traditional bows, he didn't want his bows or imagination confined within the traditional realm of bowmaking. Armed with a creative and inquisitive attitude, he began building bows and conducting research on materials and methods. His research, combined with his logical approach to problem solving, led to the development of several unorthodox bowmaking techniques that he now uses in creating his longbows.

“One of the things I decided when I started building the longbow, was that I wasn't going to reinvent the recurve. I know that the power of the recurve is just inherently better in its design than a longbow. Anybody who tells you different isn't telling you the whole scoop, or they know a whole lot more than I do.

“Recurves store more energy, there is no question about that. It doesn't mean you can't have a fine shooting longbow. But all things being equal, a recurve will store more energy. I was never going to rediscover that. When I started building longbows, I wanted to take the basic time-held concept of the longbow and refine it to the highest limits without violating the basic essence of the bow, and that's what I've been doing.”

In refining his longbows, San Marco takes his time. He's in no hurry to crank out a product. His main goal is excellence, and that can't be rushed. “One of the things that make my bows special is that I build each bow as though I was building it for myself. I put a tremendous amount of pride into every bow I build. I know for a fact, when man starts mass producing things, he loses that vital connection between the crafting and the final product – that immersion of soul. When I sell a bow, I'm giving that person a part of my life, the most valuable possession that I have. And I want that bow to reflect the value of my life that I am giving.”

The respected quality of San Marco's unhurried creations is reflected by the five to six year waiting list for one of his bows. It's a list made up of archers from around the world who believe that an exceptional longbow is worth even the exceptional wait. Although there may be ways to speed up

his bowmaking and shorten the waiting list, San Marco paces himself to maintain his romance with the craft. “I decided that because longbows were so important to me, so dear to my heart, that when the joy of building a longbow ceases, I may cease building longbows.”

THE BOW

San Marco’s TRADITIONAL LONGBOW reflects his immersion of soul. It’s an exceptional work of art and beauty, reaching back in time with its design and ancient yew core, yet its gem-line quality makes it appear almost futuristic. The rich blending of warm woods and fiberglass looks as though the bow was poured into an exquisite, flawless mold.

Its chocolate-striped shedua riser gives way to coppery laminated yew corewoods covered in dark brown fiberglass. The natural beauty of these woods is displayed by the softly flowing contours of the riser and limbs under a mirror-smooth finish. Looking beyond the sheer beauty of the bow reveals the precision craftsmanship of the limbs and their immaculate, flowing contours. It is a Weatherby among longbows.

Its distinctive visual beauty is almost overshadowed by the beauty of its performance. When grasping the bow, there’s an instant sensation of graceful balance and lightness in the hand caused by its feather-weight limbs. Compared to many longbows, the yew-cored limbs feel unusually light. Because of its balance, the bow glides through the woods at the archer’s side and effortlessly swings at full draw on moving targets.

For longbowmen who have never savored resiliency of a yew-cored bow, there is a special surprise in the smoothness of the draw and the surge of internal life at the instant of release. This almost magical life hums a faint whisper to the hand after the shot. It’s a captivating sensation.

The Traditional Longbow is offered in 67”, 68”, and 69” lengths. These different lengths are matched to an archer’s draw length to optimize bow performance. The mass weight of a 68” Traditional Longbow is a pleasant 1 pound, 4 ounces. Its recommended brace height is 6 ½” from the throat of the grip to the string.

The shedua riser is 15 ¼” long between fadeouts, 1 1/8” wide, and approximately 2” thick. The slightly dished grip is 4 1/8” long and is peaked along the throat to provide a positive hand seat. The grip is wrapped with a durable, thin leather lacing. The slightly rounded sight window is cut 5/16” from center shot and the shelf-window junction is equipped with a feather-edged leather shelf and strike pad. The draw weight and creator signature are gold inked on the riser, and the owner’s and the bow’s name are inked on the belly of the limbs.

On the 68” length, the upper limb has a working length of 28 1/4” from the fadeout to the nock and the lower limb has a 27” working length. The limbs are 1 3/16” wide at the fadeouts and narrow to 3/8” at the nocks. They exhibit a modified trapezoid, or “D” shaped cross section tapering to the belly. Unstrung, they display a slight 7/8” reflex at the time of construction. They are constructed from two solid yew tapering back laminations and one belly lamination. The three laminations are sandwiched between warm-toned, .050” thick, draw brown fiberglass.

The narrow limb tips are ornately distinctive. They have uniquely sculptured and fluted shedua tip overlays. The string nock to tip measurement is 1 1/8” on the upper tip, and ¾” on the lower tip. The bow tip is protected by a glass-smoothing, multilayered, hand-rubbed finish.

The following draw/force measurements were recorded on one of San Marco’s 68” yew-corded, Traditional Longbows:

DRAW LENGTH	25”	26”	27”	28”	29”
DRAW WEIGHT	61#	64 ½#	68 ½#	72 3/10#	76 3/10#

Although conditions prevented actual chronograph testing of the above bow, previous chronographing of a 64 pound at 28” draw, 68” Traditional Longbow resulted in an average arrow speed of 179 fps. The bow was hand shot using cedar arrows weighing 510 grains.

THE MAGIC CORE

One of the key components of San Marco's longbow is yew, the rust colored wood used by Robin Hood, Saxton Pope, and Art Young. The extremely slow growing yew is harvested from the Cascade Mountains in Oregon and shipped to San Marco as rough-sawn boards. He stores them in his well ventilated drying racks, where the yew waits patiently for years, again and maturing into seasoned bow-quality wood. Every three months or so, San Marco climbs a ladder and inspects his stash of precious yew, "stirring" or rotating each piece to expose a new surface for uniform drying. Years of slow air seasoning enhance the natural qualities that make yew such an exceptional bow wood.

Most of San Marco's yew has been carefully aged seven to ten years. That may seem like a long time for some woods to just sit around and collect dust, but one of the sweetest shooting bows he ever made was built with yew air seasoned for over forty years. San Marco believes that two years of well circulated air drying is the minimum for properly aged yew.

Bringing down a board marked "1975," San Marco walks into the stippled sunlight near an old stone wall and examines the piece. It's one of the few that has a uniform layer of sapwood and exceptionally straight grain. Even Pope or Young would be envious of this piece. While slowly rotating the blocky piece in his stout hands, San Marco explains, "Yew's physical lightness makes an exquisitely well-balanced bow. This lightness gives it a very pleasant heft in the hand. It is extremely soft drawing. The draw/force curve for a yew bow is very smooth. From the beginning of the draw all the way back, it's got a very gentle feel. Yew tends to feel several pounds lighter for the same weight just because of its draw/force characteristics. It just glides back."

TESTING WITH ACTIONWOOD

Although San Marco uses yew corewood in his Traditional Longbow, he employs Actionwood as a corewood material when making his prototype bows. This multilaminated maple corewood is widely used by today's bow manufacturers. "Maple is a good bow wood. Its inherent tensile and

compressive strengths allow it to be stressed more than the softer woods such as yew.

“Statistically, through multilaminations, Actionwood compromises the qualities of fine woods and not so fine woods. So you always get a wood that is going to be a consistent tensile strength. If you’re a manufacturer, that’s a real asset because you can cut a lamination to certain specifications and you will always get the same spining. The draw weight is going to be predictable.

“Plus, in Actionwood any structural flaw that may be present in any single piece of laminate is reduced to a small fraction of your total limb. If you are using a single piece of corewood and it had a structural flaw, that piece of wood wouldn’t be prone to break down very easily because of the flaw. But if that piece of wood becomes only ten percent of the corewood and you have other pieces along side of it, statistically, you diminish the probability of having a limb that’s going to fall.

“In terms of increased performance with Actionwood, I don’t think you’ll get any. I found that when I hand-spined and hand-selected the superior solid maple corewood, I would get a better bow than when using Actionwood. Actionwood will always make a good, mediocre performing bow, which is good in mass production. But if I’m looking to optimize the qualities of a shooting limb, I will hand-spined each piece to make sure that I get the liveliest of the solid maple.”

When he needs custom-ground yew laminations, San Marco sends some of his select stock to the Old Master Crafters in Waukegan, Illinois. They saw custom taper yew laminations according to San Marco’s specifications. The involved process of obtaining yew, properly aging it for years, and having it shipped out and custom-ground is many times more costly than simply buying maple laminations. But San Marco and his satisfied customers feel that the extra effort and expense in using yew are well worth it.

ATTENTION TO GRAIN

From his supply of tapered yew laminations, San Marco carefully selects three matched pairs for use in one of his bows. He takes his time patiently reading the grain qualities of each piece. With experienced eyes and hands, he searches for any structural imperfections, and then uses a micrometer to double check each lamination for proper thickness and taper.

Each pair of his laminations is consecutively cut from the same board and will be used in the same relative position on opposing limbs. This ensures uniform limb balance by providing similar internal corewood dynamics in both limbs.

When laying up a bow, San Marco arranges the three parts of yew laminations to accentuate the optimum qualities of the complementing pieces. For example, when he uses quarter-grain laminations, he arranges them so that the stacked pieces have opposing grain angles. This provides increased stability to the overall limb composite. He also carefully positions each pair to match the adjoining butt-end grain.

For optimum bow performance, San Marco prefers edge-grain or quarter-grain laminations. He has, however, built bows with all flat-grain laminations and discovered that they performed very well. Unlike many bowyers who use uniform tapered corewood, San Marco uses differently tapered laminations. This helps him achieve a built-in limb tiller and maximizes the performance of his limb design.

When selecting the shedula for the riser section, he prefers a piece with quarter grain. This grain alignment brings out the striking multihued internal patterns within the wood. When scribing out the riser outline, he positions the template to optimize both the wood's attractive grain patterns and internal strengths.

As San Marco band saws out the riser section, he points out that the final smoothness and sweeping curve of the fadeout portion is extremely flowing arc of the fadeout belly adds some preload to the belly laminations, giving his bows a little extra power.

While delicately hand sanding the riser, he emphasizes the importance of smooth and even contact surfaces between the riser and the limb laminations. This ensures thin, uniform glue lines when the bow composites are glued and pressed. And San Marco believes that the thinnest glue line is the strongest. The final finishing and shaping of the belly fadeout is patiently done with his critical eye and tactile hands showing the way. If the belly and back sides of his fadeout are not perfectly flat and in plane, it will show up as an irregular or angular edge at the end of the fadeout. He delicately fashions his fadeouts into a wispy thin, see-through layer.

UNCONVENTIONAL PRESS

Before Most bowyers use the air hose method of applying pressure to the bow composites. A few others use “C” clamps to squeeze them together. But San Marco’s procedure for pressing his bow composites goes beyond established convention.

He wanted a press that would give him super-thin and uniform glue lines, yet would be capable of accepting different bow forms. So he designed a heavy-duty steel-framed press. It resembles alligator jaws that bite down on the enclosed wooden bow form. After the top hinged portion of the press is locked in place, pressure is applied to the enclosed form by the tightening a enables him to laminate bow composites with significant pressure and allows him to distribute that pressure. Because the press is designed to accept different forms, he can easily experiment with making prototype bows.

PUTTING IT TOGETHER

Before gluing up his bow composites, he covers his form surfaces with plastic wrap for stray glue protection. He then cleans the riser, laminations, and fiberglass with solvent.

He applies epoxy glue to all composite contact surfaces. Before laying up each lamination. San Marco double checks his glue layers for

coverage, air bubbles, or flecks of foreign material. Once the bow is glued up in the form, he closes the jawed press and begins tightening the pressure bolts along the top. It takes him approximately forty minutes working back and forth along the press to hand-tighten and evenly torque down the bolts.

The press containing the form and glued composites is then put into his preheated glue curing box. Even after the glue has cured, the bow remains in the press until it cools to room temperature. This ensures proper epoxy set on the pressure-stressed composites.

After the glued bow is removed from the press, it's rough sanded on the edges to remove the glass-like hardened glue. San Marco masking tapes the back of the bow and marks the centerline. He then positions his bow outline template made from two layers of clear fiberglass. This template has a series of small holes along its centerline. By turning the template over and reversing ends, he double checks the trueness of his centerline and then traces the bow outline. As a final check on the exactness of the centerline, San Marco sights down a taut piece of line strung from tip to tip.

He then band saws and belt sands the bow close to form. Next, he hand files and sands the limbs to final form. During this limb shaping, San Marco repeatedly checks his progress by drawing the vise-held bow, making sure there are no flat spots or stress points in the limbs. During the final limb shaping, he brings the bow to the desired 3/16" positive tiller. He epoxies the sculpted tip overlays in place and heat cures the glue.

While hand shaping the rounded trapezoid belly of the limbs, he repeatedly checks to ensure the proper tiller is maintained. When completed, he makes one final check by shooting the bow to ensure that both limbs are responding in harmony and properly spitting and arrow.

NEATLY FINISHED

The last bit of wood shaping is the contouring of the grip to fit the customer's preference. San Marco shapes the handle with a pronounced

peaked grip because he feels that it seats more positively into the shooter's hand. As a final step, he delicately fashions the ornate tips and then fine sands the entire bow.

The completed bow is wiped down with solvent, and sprayed with a two-part catalytic varnish. San Marco says that the finish was developed thirty or forty years ago specifically for fly fishing rods and it's one of the most durable bow finishes he's seen. The final mirror-like luster is achieved by spraying on five or six coats of the tough varnish and hand sanding between each coat. This delicate sanding removes and flecks or irregularities between coats and contributes to the ultimate gem-quality smoothness of the finish.

Between the third and fourth varnish coats, the gold lettering is meticulously inked on the riser and limbs by Mrs. San Marco. Although San Marco would like to make the entire bow with his own hands, his motorcycle injuries prevent him from producing the delicate lettering he feels belongs on his longbows.

When the final coat of varnish is dried, he hand rubs the bow to a brilliant high luster with a mildly abrasive substance he personally developed. The final immaculate glassy finish represents over four hours of tedious hand work.

San Marco then installs a piece of heavy leather next to the shelf which extends the arrow shelf 1/8" out from the grip. The sides of this shelf underplate are contoured with a razor blade and the arrow strike pad is installed. The strike pad edges are nicely beveled to help obtain crisp arrow flight.

Finally, San Marco contact cements and hand wraps thin leather lacing around the grip. Although it's a time consuming method, he feels that the resulting grip is extremely durable and actually improves with usage, unlike suede grips which feel good at first and later become sweat varnished.

In caring for a custom bow, San Marco suggests occasionally using a high quality, non-abrasive automotive polish to maintain the luster of the finish. He also says that a bow should never be stored in a hot place, as

the strength of the epoxy drops tremendously with increased temperatures. This means never put a bow in a hot car trunk on a sunny day. If by accident a bow does become hot, don't string it until it cools to room temperature. Don't overdraw a custom bow or let some seven-foot-tall archer shoot a bow that was specifically built for you. "Basically, treat a bow with the respect it was made with."

ONLY PERFECTION

Even Michaelangelo probably had an occasional disappointment. Sometimes, San Marco discovers a minor flaw when making a bow. When that happens, the bow is put in the corner where it collects dust until he gets the courage to destroy it along with any others that may have joined its ranks. This may seem like a harsh sentence for a slightly flawed bow, but at the Traditional Longbow Company there are no seconds. Although he admits that it hurts to cut up a shootable bow, he refuses to sell any longbow with his name on it if it isn't the finest he can produce.

In bow crafting, San Marco strives for a balance of qualities. That can be a tough design problem when blazing speed and a smooth draw are bow qualities working against each other. "I try to achieve a harmony of characteristics that are most pleasing to me. The quality I cherish most in a bow is, first and foremost, stability. The bow has to shoot and arrow when you point it. If it doesn't, it's not an implement worth hunting with.

"Second, I really enjoy a bow that draws smoothly. Hunting from the ground you have to perform without any interruption in the draw, anchor, and aim sequence. So if a bow is a stacking, that just robs me of all of my focus and concentration, and disarms me as an effective hunter. So I cherish the quality of a smooth drawing bow. And there is nothing like yew to achieve that. I also like the way yew balances in the hand. A bow should have high stability, be smooth drawing, and provide good balance in the hand. And of course it's got to be hard hitting."

The Traditional Longbow built by Frank San Marco isn't for everyone. The waiting list alone culls ninety-five percent of the prospective customers. But San Marco's goal is not to build longbows just to sell. He does it

because he loves and respects the weapon and is personally challenged to develop it to its utmost in performance and beauty. He'll settle for nothing less. Fate has given him a second chance to use his hands for creating something he loves, and he's determined to make the most of it.