Anvil Interview with Bill Pieh

This interview was conducted by Anvil Magazine editor Rob Edwards with Bill Pieh, owner of Centaur Forge, Ltd., in Burlington, Wisconsin, on March 6, 1985.

ANVIL: Bill is probably the largest distributor of farrier and blacksmith supplies in the country, which would undoubtedly mean the world. Bill, tell me something. How many years did you shoe horses before you made the transition to the marketing business?

BILL: Well, that's a hard one to answer. I think I nailed my first set of shoes on when I was about twelve years old, and so that makes it about thirty-eight years ago -- don't ask me how old I am. There were about three years when I was in the service that I didn't shoe horses: I did apprentice under two different blacksmiths and worked with several others on a cooperative basis.

ANVIL: Who were the two smiths that you worked under formally?

BILL: I worked for Ken Baldwin, a horseshoer, in Rockton, Illinois. Then in 1954 I went to California State Polytechnic College in San Luis Obispo, California (Ralph Hoover was the horseshoeing instructor back then). After returning home, I worked for Ken for part of 1954. I then moved to Johnstown, Ohio, and worked for a blacksmith by the name of Tom Mazy until I went in the service in January of 1955.

ANVIL: How long were you in the service?

BILL: Three years.

ANVIL: Which branch?

BILL: The Army Security Agency

ANVIL: Then you didn't have anything to do with horses in the service?

BILL: No, Uncle sam decided that as I was a horseshoer, he could use me as an electronics technician.

ANVIL: Then after you got out of the service, you went right back into horseshoeing?

BILL: Yes. I took my "mustering-out" pay and my accumulated leave time allowance and bought a brand new Chevrolet pickup truck for $1550.00. That was in December of 1957.

ANVIL: And what type of forge were you using at that time?

BILL: It was a coal forge that I designed and built myself.

ANVIL: And what type of anvil did you have?

BILL: I had a l85-pound Trenton.

ANVIL: Boy, I haven't even heard of that one.

BILL: Trenton? Oh yes. The two best-known names in the United States for many years, (American-made anvils) were Hay-Budden and Trenton. The Hay- Budden was made in Brooklyn, New York, and the Trenton was made in Columbus, Ohio.

ANVIL: And was it a regular blacksmith's anvil?

BILL: The type of anvils we saw in those days were mostly a compromise-style anvil. They were wide faced, and fairly heavy bodies and could be used for general blacksmlthing, as well as horseshoeing. They had the larger horn with a clip horn. A few years later I sold the 185-lb. anvil and bought a 165 pounder, and I thought that was pretty neat because I didn't have to carry quite so much weight.

ANVIL: The anvils that you market now, the Centaur anvils, are about 125-130 pounds, aren't they?

BILL: Right.

ANVIL: And is that your design?

BILL: Yes, I'll admit that I got tired of 165 pounds. I started looking around and there were a number of anvils in the area that were quite good. I measured up several of the better ones at the racetracks in Chicago. And one which was exceptionally interesting to me was Over here at the county fair track in Elkhorn, Wisconsin. It belonged to a fellow by the name of Lloyd Arp. Those were primarily standard- bred racetrack-type anvils, so I made some compromises for the fellow shoeing, riding or driving horses, and we came up with an anvil design that worked out pretty well, except that the horn was too narrow. So on the next batch we had made, we broadened the horn from 4 to 4 1/2 inches but unfortunately the pattern maker misunderstood, and we wound up with an excessively flat top on the horn. We had about 50 in that batch and we had to regrind almost every one of them. When we finally reordered we had the pattern corrected, and came up with what is almost the horn shape we have today. Actually, in that anvil, there have been eight pattern changes over the years and seven of the changes involved changes in the horn until we got the shape we have now, which seems to make most of our horseshoer customers happy. Not everyone, of course, but most.

ANVIL: Yes, they seem to be the best bet for teaching students.

BILL: Well, if you're going to make shoes, that horn has just about every compound curve you're going to find on a horseshoe. If you "learn your horn" on that anvil, you've got a template for almost every front and hind shoe up to about a number 6. That's a draft horse 6, not the aluminum 6. You can spread toes on the horn and you can shape your quarters on the horn without having to go across the heel. Lately we've had quite a number of requests for special modifications. For example, the most common one is in response to an article that Bruce Daniels wrote in the American Farriers Journal a few years ago. He wrote rather an extensive piece on anvil modifications which primarily revolved around the "boat tail" heel, similar to what many of the European blacksmith anvils have. Well, a lot of shoers read the article and they really liked Bruce's idea, but they were a little bit apprehensive about taking a cutting torch to their anvils, So we were asked to make the modifications the way Bruce had written them up in the article. We have modified quite a few anvils to that general configuration and finally even made it a catalogue item. Some want the heel hooking modification to their hardie hole, grooved faces, left-handed clip horns, and so forth. There are really quite a variety of customized anvils that people request.

ANVIL: They used to sweat-weld the faces onto anvils. Would you tell us what the process entails?

BILL: Before I answer that, I should really clarify how anvils are made. Basically, there are four main types of anvils in use to- day: 1. Wrought iron anvils with steel faces. 2. Cast iron anvils with or without steel faces. 3. Forged anvils. 4. Solid cast steel anvils The first type of anvil which includes the Armitage, Peter Wright, Hay-Budden and Trenton anvils was the most popular until recently. The Armitage "mouse-hole" was named for the 19th-century English factory it was made in. This anvil was assembled, or "piled," from many small pieces of

wrought iron by forge welding, then the steel face was forge-welded to the top. Peter Wright worked for Armitage and started his own anvil works using improved techniques with fewer welds necessary, but again, it was a wrought iron anvil with a steel face. Soon after, in the U.S., two firms started making anvils, further streamlining the process used by Peter Wright. These firms were Hay-Budden of Brooklyn, New York, and Forge & Iron of Columbus, Ohio, who made the Trenton. The Trenton was a two- piece anvil, a top and a bottom and had only one weld at the waist. Generally this type of anvil was forged to shape; the top and the base were prepared, heated, and forge-welded together under a large steam hammer. Usually the clip horn was faced also on the horseshoers' style anvils. The reason, of course, for making anvils this way was twofold: first, today's technology wasn't available yet and secondly, you must realize that for many years iron was cheap, steel was expensive and labor was cheap, so consequently they could use higher labor-intensive methods in making anvils. They made maximum use of iron and minimum use of steel. Until about 35 years ago, if you damaged your anvil face, you could send it back to the factory and they would take off the old plate and forge-weld a new one on for you. Also, a wrought iron anvil is easy to reshape. If you don't like the shape of your horn, you can just heat it up and change its shape, or if some damage has been done, you could repair it. Today, if you break a face on an old anvil you're in trouble, because there's no easy way to put it back properly. We re-build and weld-repair quite a few anvils here at Centaur, but I always warn a customer if he brings in a plated anvil, there is always a chance of the face coming loose. The first thing anyone should do is check over the entire face with a ball peen hammer and check for dead spots. If there is anyplace anywhere on the face that doesn't sound like there's a good, tight weld, no arc welding should be considered. Fortunately, so far we've never lost a face, but I've always worried about this because the coefficient of expansion of wrought iron and of tool steel are not quite the same. We always preheat any anvil prior to welding on it. There's always a chance of stress buildup and that face breaking loose, and then you're done. You've got a funny-looking antique, but it's not much of an anvil anymore. The second style, including the Eagle and the Vulcan anvils (Racine, Wisconsin), was cast iron, but there the plate was heated and placed in the mold before the iron was poured onto it. Anchors were frequently welded to the face to facilitate its adherence to the anvil body. Then there are the "el-cheapo" cast iron and semi-steel anvils made in the US, Mexico, Japan, Taiwan, and India, mainly. And anyone who buys these soon discovers that they only make good conversation pieces. The third type of anvil - the forged (blacksmith's) anvil is still made by only one company in Germany and is very expensive. The fourth type of anvil, the solid steel anvils are what they're making today. Today steel is relatively cheap and labor is expensive and so the method of choice today is to cast them out of one piece of homogenous steel and then flame-harden the face. The anvil becomes progressively softer down through the body. With the alloy steel anvils made today, you have to be a little bit more careful when they're brand new until the steel "work-hardens' from the heat and impact from the steel being forged. The grain structure of the metal will progressively refine and harden over time. The horns are not heat treated, but the faces and the clip horns are.

ANVIL: Now, in the blacksmith anvil, you have the face, and then you have a table, and then you have the horn. Is that table always found on blacksmiths' anvils?

BILL: No, not always. Of probably a dozen different styles of blacksmith anvils we sell, only a couple of styles have that little table at the base of the horn which is variously called a chipping or an upsetting table. In our catalogue, we call this the American (or English) pattern, the A-1 style. There is also an A-4 style which has a larger horn, but without the table. There is a variation of the A-1 made by Brooks in England, which is often referred to as the London pattern. This style is a bit blockier in design and the heel is quite a bit thicker than most of us are used to. This style is rarely bought by blacksmiths in this country. Most other styles of anvils are what we call "double- horn" anvils, where the face narrows at the heel almost to a point. This is the way most of the Scandinavian, German, Spanish, French & Italian anvils are made. Some countries favor a style of anvil with a point or tang in the base that is driven into the ground or into a stump. Many trades have special-purpose anvils like the sheet-metal worker's anvils that are used for working on stovepipe, or the hornless anvils used by sawmakers, for example. Two variations of the double-horn anvils include an extra heel projecting from the side of the face which gives the anvil a sort of a "T" shape, or an upsetting block that projects out between the feet

on the side of the anvil.

ANVIL: You've been talking about European anvils, but I've never seen any Japanese or other Oriental anvils. Is there some reason for that?

BILL: Well, I guess the Japanese anvil has never found much favor in the western world. Most Orientals work differently than we do. The people commonly work kneeling or sitting on the ground, or sometimes they even work standing in a hole in the ground and their anvil is sitting on the ground in front of them. If you were in Santa Cruz for the Artist-Blacksmiths convention several years ago, you saw the Japanese sword makers working. There they had a forge which was also on the ground.

ANVIL: As I recall, there was an assistant who operated the bellows.

BILL: Right; the smith was the man who ran the show and he determined when steel was to be put in, taken out, and when and how it was to be hit. He manipulated the small tools and the steel, but his helper was the striker, and he had another helper who maintained the fire. They even demonstrated making steel from iron using rice straw for a carbon source.

ANVIL: How does that add carbon to the steel?

BILL: They burned the straw to carbonize it and they repeatedly heated the metal and rolled it in this carbon ash. Then they would work the metal on the anvil. The idea was to get the metal up to a temperature where it would absorb the carbon. Then they would work it in with hammers to refine the "steel" and make it more homogeneous. * * *

ANVIL: Speaking of hammers, I notice that Little Giant went out of business, and I see that you are selling the new Reiter air hammer. Could you tell us a little about power hammers and what's happening nowadays?

BILL: I recently came back from Europe where we attended a trade show in Munich and visited the plant in Augsburg where they make the Reiter hammers. I did quite a bit of investigating in England, as well as on the mainland of Europe, and found that the production of mechanical spring hammers is almost non-existent. The air hammer seems to have pretty well driven the mechanical hammers off the market. They are much more efficient and they are much more precise in operation. Because of the better engineering in the air hammers, they require much less maintenance despite their greater power, safety and capabilities for getting work done. Lubrication of the new air hammers is less frequent and is much simpler. Their superior control, however, is probably the biggest selling point. In the smaller sizes (based only on ram weight), the mechanicals tend to be a little less expensive, but as you get into the medium and larger sizes, the air hammers don't increase in cost nearly as fast as the mechanicals do. But whether or not you are trying to do things that you cannot do with a mechanical hammer, there are many reasons why the mechanical hammer new) has declined to the point of almost nonexistence. There are quite a few used hammers around yet. Many of them are going to wind up being cannibalized for parts because the parts situation is going to become worse as time goes on. I can't predict what's going to happen, but parts right now are atrociously expensive.

ANVIL: The 5 1/2 hp 75-lb. KB-1 Reiter was running just under $ 9000,wasn't it?

BILL: Yes, that's about right. For comparison, when they quit making them about a year ago, a 2 hp 50-pound Little Giant new was selling for around $7,500 and the 3 hp 100-pound Little Giant, with belt and ram guards, was $13,650. With the K-O 4 hp 57-lb. Reiter (the smallest one that Reiter makes), we ran a comparison at the University of New York at the ABANA conference several years back. The smiths tried the air hammer out and they liked it for its versatility and control, but the question was: How would it com- pare to the Little Giant for

work output? The air hammer was only bolted to a box of railroad ties: that's all it had for a foundation. In the shop was a 50-pound Little Giant. It was a late model, in good condition, properly adjusted and bolted down to a concrete foundation like they're supposed to be. It was decided that the best way to run a comparison would be to make a "measurable stock reduction", which meant taking two pieces of steel the same size, and heating them up to the same temperature. The same smith ran each comparison, and he drew the steel out to the same length and cross-section, with the only variable, then, being time. Making maximum use of the capabilities of each hammer, the Little Giant finished in a little over ten minutes, the air hammer did it in less than three. The air hammer has a number of things going for it besides the principle of operation which allows you to do things you can't do with a mechanical hammer. It has more horsepower available, plus the fact that there is almost none of the excess friction and slippage losses that you have in the mechanical hammer. Little Giant was a great thing 80 years ago, and it still beats the heck out of swinging a six-pound sledge. But when you stack it up against the air hammer, it just can't compete. There are very few advantages of the mechanical hammer over the air hammer, probably the chief one is the fact that you can buy them used, relatively inexpensively. There aren't any used Reiter air hammers for sale yet. They all have been made within the last 20 years.

ANVIL: I think there is a safety factor involved here, too. I was talking to a smith the other day who got hit in the head twice with a spring out of a Little Giant hammer.

BILL: I had a man in here today and we were talking about that same subject. I told him flat out that if he puts his hammer in production without a guard in front of that spring, if he doesn't have holes in his head now, he's going to have them! I don't know many smiths who have done very much work on mechanical spring-type hammers who haven't had them shed parts, and they always seem to come in the direction of the guy operating the hammer. That spring is very dangerous.

ANVIL: So from a safety point of view, as well as economics, you definitely advocate the new air hammers?

BILL: Yes; to my knowledge, the only way you can get hurt on one of these new air hammers is to do something dumb like putting your hand under the ram. Of course, on any type of hammer, if the dies are allowed to strike each other at full force -- hardened steel against hardened steel only means one thing: If they can't give, they break! Of course, using ill-fitting tongs and working cold irons is also asking for trouble -- with ANY hammer!

ANVIL: Does the automobile industry use any forgings right now?

BILL: Oh, yes. They are using fewer than they used to, but they still use large numbers of forgings. In forging, you get a grain structure to the metal and this makes a stronger and tougher part.

ANVIL: Speaking of iron, do you foresee the possibility of resurrection of the making of wrought iron?

BILL: There is one mill in England where they intend to revive, on a very limited basis, the manufacture of wrought iron. Today most wrought iron available is material that is recycled from old bridges or old buildings.

ANVIL: Do you think that the demise of architectural ironwork was because of the demise of wrought iron? In any exterior work now, you have to paint or put some sort of preservative on it, whereas you didn't use to have to do that with wrought iron.

BILL: Well, wrought iron was frequently painted. Wrought iron, however, has inherent characteristics that make it resistant to destructive oxidation, where steel will just rust away to nothing if unpainted. Wrought iron becomes rusty very soon, but that's as far as it goes, because the rust goes in until it hits the silica inclusions in the metal and then it doesn't rust any deeper; it just stops right there. When you see rusty old wrought iron parts,

you can frequently recognize them because of their grainy appearance. If you break wrought iron, you'll get a "green-stick" fracture -- it will be stringy-looking when it breaks, as compared to the break that you get with steel. Once you see wrought iron broken, you'll know right away that it's wrought iron.

ANVIL: Bill, you and I talked several months ago about the different prices involved in horseshoeing and blacksmithing materials versus the amount of money that the craftsman is now getting for his work. Do you think that the prices of the raw materials the farrier and the blacksmith use now has gone up in a much higher proportion than his wage?

BILL: That falls in one of these ephemeral areas where "Figures don't lie, but liars can figure," I guess. It's the interpretation that you give to the numbers. If you want to look at raw numbers to draw your own conclusions, I can think back to when I first started shoeing horses. I can't speak for other areas, but in this area (southeastern Wisconsin) in the early '50s the highest-priced blacksmith right in my immediate area got $12.00 for four new shoes and $10 for resets. Most of the shoers were getting around $7 to $8. Now the first 100-pound keg of shoes I bought (that's how they were sold in those days), was a keg of mixed shoes. Including the assortment extra charge, I paid $11.85 for that 100-pound keg of shoes. Today you're talking $35 to $55 for four new shoes. And do you happen to recall what the last shoes you bought in Colorado cost you?

ANVIL: Mmmm, $70 plus for 50 pounds.

BILL: Now you're talking a considerable difference percentage-wise. You're paying more for a 50-pound box today than we paid for a 100-pound keg then. As an example, looking at my current Centaur catalog, I'm looking at a 50-pound case of Nordic No. 1 plain shoes for $55, with discounts if you buy 200 or 500 pounds. Okay, if you double that number, you've got a $110 a keg. That's a long way away from the percentages we were talking about back when I started shoeing. The shoes have changed, and nails have gone up a lot more than shoes have, no matter what brand you buy-- foreign or domestic.

ANVIL: Would you say, in the last twenty years, that the standard of living of the farrier has increased?

BILL: Oh, definitely. In spite of these numbers that we're discussing, if you look at what we used to drive, even as recently as that 1957 Chevy truck I mentioned earlier, and look at the Ford truck that I have now, this is a heck of a lot better truck than that was, It has more on it -- more features, more accessories -- it's a lot safer truck. The tires are more reliable, the maintenance is a lot less than it used to he, it will go down the road a little more comfortably, but look at the price! And look in your house. In December 1957 (I'm just using 1957 because that's when I got out of the army and shoeing prices hadn't gone up much, if at all, by then). We didn't have a television set. A lot of the other things you just couldn't buy. This little $6.95 calculator on my desk here you couldn't buy for a million dollars then -- it didn't exist!

ANVIL: Let me move on to something else, Bill. You have been a real active member in the Upper Midwest Horseshoers Association and the Upper Midwest Blacksmiths Association.

BILL: Yes. I've been treasurer of both, probably since the beginning.

ANVIL: Is there much affiliation between the members of each one?

BILL: Affiliation, no. However, we do have a number of people who belong to both. We're finding quite a few horseshoers who have rediscovered blacksmithing and, as that's the case, some of us belong to both associations. There are AFA members who belong to ABANA and you've got the National Blacksmith & Welders Association who have members who belong to ABANA and NOMMA. You've got a lot of crossovers. Any individual may have a variety of interests and affiliations and we're finding more of this in recent years. The

ABANA movement probably has done more to get people interested in traditional blacksmithing and ornamental ironwork than any single force I can think of in recent years.

ANVIL: Well, it wasn't that long ago that the blacksmith was also the farrier. Do you think the Industrial Revolution pretty much put an end to that?

BILL: We had better stop and clarify some terms here for both the uninitiated and the semanticists. Technically, a blacksmith is a metalworker -- in particular, a worker in iron and steel. A horseshoer is just what the name infers, and a farrier can be a horseshoer or a veterinary technician. For myself, I like the term "practical horseshoer," which infers that, if it's needed, I can do it without trying to "snow" somebody with a heavily padded bill under the guise of "corrective/pathological" shoeing. But I guess that's personal ethics. The "village blacksmith" or "shoeing-smith refers to the primary rural phenomenon of both the "Old Country" and America where, in most small towns, the blacksmith was expected to know both trades to satisfy the needs of his community, which could not afford to support two shops.

ANVIL: There doesn't seem to be any schools for industrial blacksmiths, are there?

BILL: Not as such, no. There are a number of individual school systems that do have courses in blacksmithing, but as far as industrial blacksmithing goes, we're depending very largely on people who served their apprenticeships either here or in the old country. The industrial trade unions have had some apprenticeship programs for blacksmiths, however. In some cases, when a man comes out as a journeyman blacksmith, he is a hammer operator. He can operate his 2500-pound steam hammer just fine, but ask him to do something out- side the realm of what he learned in the plant, and he has to stop and figure out how to go about it. Now don't get me wrong, there are many excellent blacksmiths who did learn their trades under plant conditions. I've met quite a number of them and most are very good. If you want to learn how to make tongs, find an industrial blacksmith and he'll show you how quite quickly. They had to make tongs by the dozens for other departments in their plants.

ANVIL: Most of the older blacksmiths I've talked to were sharpening plow shares and pickaxes and working in the mines in America's blacksmithing heyday.

BILL: Yes, in your area this would be true. In my part of the country there are no mines, but the farmers took their plow shares, harrows, sickle bars, cultivators, and other tools to the blacksmith shop and got them repaired or resharpened. You didn't keep buying new shares every time, although that's the way now. The plow companies had a real thing going when they came out with the "throw-away" shares and they priced them very, very low compared to the regular plows, which were designed to be resharpened. Once the blacksmiths had pretty well disappeared, they could raise the prices up to whatever they wanted. We do have a few blacksmiths in my area still, and there are some smart farmers who will take a brand-new set of "throw-away" shares down to the blacksmith to get them reworked, because, let's face it, there is more than just "sharp" to a plow share. A sandy soil, a loamy soil or a sticky clay soil ideally requires a different suction on the plows, and while you can adjust your plow to some extent, it doesn't entirely duplicate having a plow with the right suction to begin with. In a nutshell, the Industrial Revolution could never have happened without the blacksmith. He designed and made the machines that would eventually replace him as an economic entity. The first machinists and welders were blacksmiths. John Deere is one such company, now in the farm machinery business; many of the others were also started by blacksmiths. The vise-grip pliers we all have in our toolboxes were invented by an Iowa blacksmith by the name of Peterson. Most people don't realize the social and economic impact of the blacksmith on so many items that we see and do and have. Many large corporations still employ blacksmiths for making prototypes of parts and tooling and experimental work because, in many cases, forging is better than trying to fabricate something by welding. Some forgings are so much simpler than fabrications -- and better.

ANVIL: By the way, do you think there is a resurgence of working with draft horses in this country?

BILL: Yes, very much so.

ANVIL: I notice that a lot of people are logging, farming, and doing all kinds of things. How big a movement do you think that is?

BILL: It's getting quite noticeable. I think the biggest shot in the arm to the draft horse industry in the United States had to have been the Schlitz-sponsored Milwaukee Circus Parade, which went on for about 10 years. I worked for Schlitz for seven years as the official horseshoer on the grounds. The Milwaukee Circus Parade, for anybody who has never seen movies or videotapes of it, was quite a stupendous undertaking. Imagine a parade with some 600-plus draft horses pulling 150 restored antique circus wagons, complete with bands, clowns and wild animals, plus a large array of carriage and saddle horses. They had cavalry units and other costumed groups, of course. The most spectacular thing that Schlitz did in the Circus Parade was when they hired Dick Sparrow to put together the 40-horse hitch, and that, of course, got a lot of publicity around the world. It looks quite probable that they're going to have a Milwaukee Circus Parade again this summer after a lapse of about 12 years. Believe it or not, it appears that the parade sponsor is going to be Anheuser Busch (Budweiser). So, for the first time, the Budweiser Clydesdales will be in the parade this year. Editors note: The colossal Milwaukee Circus Parade was indeed held Sunday, July 14, 1985, just prior to this issue going to press - many of you may have seen it on national TV.