Almost all tool collectors who have an eye for plumb bobs recognize the name of Paul Leistner as a maker of plumb bobs; the caps of his plumb bobs are clearly marked either “P. Leistner” or “Paul Leistner” with the place name, “St. Charles, Mo.” In the rare case when the original wood boxes have survived, Leistner’s distinctive paper labels mark the box ends. They distinguish three different shapes he produced named “Millwrights Reversible,” “Common Sense” and “Surveyor.” Each of these styles was made in a variety of sizes. (fig. 1)
Less well known, due to inconsistencies in marking his plumb bobs and boxes, is the name of Joseph Oscar Heimbach. His wooden boxes, when they have survived, are characteristically labeled with an inked stamp on the underside of the box lid, “J. O. Heimbach, St. Louis, Mo.” His bobs are identified as two types, the “Millwrights Reversible” and the “Surveyor.” They can also be found in a variety of sizes. I am not aware of any examples of a Heimbach “common sense” type. (fig. 2)

The choice of these particular shapes is not without interest. In the United States there is a clear trend in plumb bob shapes in the 19th to early 20th Centuries from naturalistic forms like the turnip and carrot to more purely geometric shapes like the cone or the hexagonal pencil point. I have always attributed this shift to the simple fact that geometric forms are easier to produce in quantity, and therefore are produced more efficiently and cheaply. This also corresponds to a trend toward specialization in metal working where demand for tools allowed for the emergence of tool makers and tool making companies. Heimbach and Leistner are clearly in the middle of these transitions.

The “surveyor” type, a true cone with an elongated uniform taper, is a pure geometric form and lends itself to easy replication on a pattern lathe. It also embodies some easily identifiable attributes that would make this style attractive to a surveyor, clear visibility of the tip when suspended from the base of a surveyor’s instrument. Coincidentally, this is also the shape that was to become one of the most common of plumb bob shapes in this country in the 20th Century, used by many trades. (figs. 3 & 4)
The “common sense” style is a very unique shape which is very much identified with the late 19th Century, a style that was marketed as, “Common Sense,” “Lamps,” and “Smiths” in many tool catalogues of that time. No doubt the proven popularity of this shape might have seemed to Paul Leistner a logical form to choose in his plumb bob making enterprise. To my knowledge, Leistner’s version of the “Common Sense” is the only version that bears the maker’s name. (fig. 5)

(fig. 4) Heimbach “Surveyors.” Sizes in pounds (L to R) 2.5, 1.75, 1.25, 1, .75.

(fig. 5) Leistner’s rendering of the “Common Sense” shape. Sizes in pounds (L to R) 3.75, 3.5, 3, 2.5, 2.
Unlike the “common sense” type, Heimbach’s and Leistner’s “millwrights” incorporated a feature called “reversibility.” This allows the user to disassemble the plumb bob, remove the body of the plumb and to reverse it on its central shaft. (fig. 6) This allows the worker to change the center of gravity from a high point on the shaft to a lower point and in doing so change the characteristics of the visibility of the point and the time it takes for the plumb bob to come to rest. With the center of gravity in the high position, the bob is in the “bell up” position; when in the low position, the bob is “bell down.” (fig. 7)
Reversibility is by no means an invention of either Leistner or Heimbach. In fact, since the best “reversibles” are shaped in such a way to allow a substantial shift in the center of gravity when reversed, it might be said that neither men did “reversibility” very well. But what is unique in the rendering of the “millwrights” by both makers is that they employed a quintessentially 19th Century form, the “turnip,” and artistically embellished it in such a way as to create signature products, works of art, not just a simple tools. You can spot a Leistner or Heimbach “Millwright” from across the room. (figs. 8 & 9)
It is not hard to see from these examples the obvious similarities in the plumb bobs of Heimbach and Leistner. Equally obvious are the distinguishing differences, most notably the stylistic features of the caps and decorative motifs, Leistner’s penchant for naming on the caps and the absence of the same (and any other durable naming) by Heimbach on his plumb bobs and boxes. Similarly, there is the place name distinction, Heimbach in St. Louis and Leistner, in the high point of his career, in St. Charles. Although only twenty miles apart as the crow flies and at least one river crossing away from each other, St. Louis and St. Charles are but minutes away today but significantly distant from each other in the late 19th Century.

These are the apparent facts that can be determined on the basis of the physical evidence, plumb bobs and in some cases, their boxes. From the viewpoint of the collector, however, it is hard to accept the proposition that the similarities in these plumb bobs arose out of coincidence and that Heimbach and Leistner were unknown to each other.

Over the years, two very interesting plumb bobs and boxes have appeared that are rare anomalies in the physical evidence associated with Leistner and Heimbach plumb bobs. The first is a three pound “Millwrights Reversible” which by morphological means of identification of the bob itself, and the cap in particular, would be the product of J. O. Heimbach. The box it is contained in, however, has an inked label on the underside of the box lid reading, “Real Bronze Plumb Bob, made by, Leistner and Heimbach, St. Charles, Mo”.

Not only do the names appear together as if in some joint enterprise, it was for me the only evidence of Heimbach business activity in St. Charles. The appearance of this artifact from a collection in Olympia, Washington was like the “holy grail” in Heimbach and Leistner research! (fig. 10)
The second plumb bob uncovered more recently and in close proximity to its birthplace, is a two pound “Surveyor,” which like the first “anomaly,” has a distinctly Heimbach cap. Oddly, the box lid with ink stamped label that accompanies this bob, reads “Leistner, St. Louis, Mo.” This label as you can see, was applied in a most haphazard fashion, uncharacteristic of the artifacts of either men. This is curious as much for what it does say as for what it doesn’t say. First, this was the only sighting in my experience of Leistner making plumb bobs in St. Louis. Second, the cap is very much in the shape and style of Heimbach. Third, what is extremely provocative, is the spacing of the typeface of the inked stamp, that is to say, the gap in space after the Leistner name. Could this mean that a name was removed from the stamp? Was that name, perhaps, that of Heimbach? More than likely we will never know what was happening on the day this particular plumb bob and box was assembled. (fig. 11)

Thanks to Mike Urness and our rather serendipitous meeting (two “tool guys” previously unknown to each other, simultaneously on the same paper trail) records have been uncovered in St. Charles and St. Louis, that fill in some major gaps in the understanding of Heimbach and Leistner.

Neither of these men were “tool makers” per se; Leistner, throughout the course of his life refers to himself modestly as a “machinist” in a “machine shop.” Heimbach, in St. Louis City Directories, lists himself as, “model maker,” “pattern maker,” “instrument maker” and “machinist.” Variably, he also refers to himself as Oscar Heimbach, J. Oscar Heimbach, and J.O. Heimbach.
What we now know is that Paul G. Leistner was born in Falkenstein in Sachsen, Germany in 1858; his father was a “needle maker.” (fig. 12) Although the details of his training in Germany are not recorded, I believe it is fair to say that he was trained by his father and within his community to an advanced level in the German art of metal work. He had other more visceral aspirations while still in Germany; Paul met and courted, in a neighboring village called Neustadt, also in Sachsen, one Martha Berger, a woman a few years older than himself.

At the age 21, in 1879, he immigrated to the United States, and after a period of time found his way to St. Louis, Missouri, a destination well known in his homeland for its thriving German community. Martha joined him in 1881 and they were soon married. Over the course of 9 years, 1882 to 1890 they had five sons, 4 who outlived their parents; one, Walter, died at the age of ten in 1895. The sole reference uncovered to date of Leistner’s employment in the first decade of his residence in St. Louis, is found in a business directory, “Pen and Sunlight Sketches” published c. 1892. Here, Paul G. Leistner is listed as having operated a business, “Leistner Wire Works”, at 112 Washington Avenue, St. Louis. In this source it goes on to say, “He began business eight years ago (1884, author’s parenthesis) and attracted attention by the thoroughness of his work, as well as by the novelty and beauty of his designs. Such useful manufactures as office railings, wire elevators, etc., combine elegance with strength in a high degree, while in such ornamental productions as flower stands, wire vases, etc., Mr. Leistner exhibits some of the most delicate and exquisite articles to be found in the city. All the work is done by hand, only the most skillful weavers and designers being employed.” It is noted that he belonged to several “German Societies” in the area and had interest in the development of his adopted place of residence. In this period Paul Leistner is still in his twenties and early thirties.

We know almost nothing about the details of Heimbach’s life or family. He was born within a year or two of 1858 in Missouri, presumably in the general vicinity of St. Louis. As his name would imply, he was of second generation German descent. In the St. Louis City Directories from 1882 to 1903 (with the exception of two years) he is regularly listed at three different addresses. The 1900 Federal Census lists him as having been born in Missouri and being married to Elizabeth, who was born in France. Thus, Heimbach
and Leistner were very close to being the same age and in the same place, St. Louis, between 1880 and 1896.

In the 1886-1887 St. Louis Directory Heimbach was listed in a partnership called Heimbach & Co. with Thomas Stevenson. They were model makers. This partnership was to last only one year.

The federal census of 1900 and the St. Louis death index are the only two sources outside the St. Louis City Directories in which Heimbach appears. Unfortunately, the 1890 Federal Census was destroyed by fire. To complicate matters, there was a second Joseph Heimbach listed in St. Louis as a machinist who was born within one year of Joseph Oscar Heimbach; that Joseph Heimbach lived until 1923.

For the brief period of four years, 1892 to 1896, Paul Leistner, still in St. Louis, worked out of a factory at 806 North 12th Street in two short-lived partnerships. The first and most important to this story was a partnership called “Heimbach and Leistner, model makers.” The following year, Heimbach was gone, and the new business was “Leistner & Helfert. This partnership was to last three years. To put this into perspective, Paul’s oldest son Oscar, (named after Martha’s father, incidentally, and not after J. Oscar Heimbach) was still only 12 years old in 1892, still too young to earn his keep in his father’s business.

Not until 1896 does the Leistner family and business move to St. Charles. It is also noteworthy that with the exception of one of the two “plumb bob anomalies” mentioned above, all Leistner plumb bobs are labeled, St Charles. Fair to say, I would think, that his prolific contribution to the manufacture of plumb bobs falls in that year and the years after. (fig. 13)

The description of Paul Leistner’s first work place in St. Charles, “a small shop at his residence at 127 South Fifth Street,” seems to be a somewhat diminished operation from the two story brick “factory” at his last St. Louis address on North 12th Street. It would seem that his last four years of partnering in St. Louis were unsettled and perhaps not entirely successful.

A very intriguing note about this new shop is that Leistner powered his machines, presumably a lathe or lathes, using dog power! As novel as this may seem to many readers, the idea, more than likely, came from his boyhood experience in his father’s own needle making shop. Fredrick Leistner, one of Paul G. Leistner’s grandsons, remembered this “power plant” in this way: “He made a large wheel, sixteen
feet in diameter and two feet wide. This wheel was enclosed by wire. The large wheel was turned by dogs running in the wheel.” It was not until 1911 that the dogs were replaced by a gasoline engine. (fig. 13)

With growing success in his St. Charles enterprise, c. 1898, Leistner bought a large brick house at the end of West Clay Street and built an enlarged foundry nearby. This was a location he was to maintain until his death in 1916. Until 1912, the business was called, “Paul Leistner, Art Metalworks.” In 1914 two years after the “dog wheel” was replaced by a gasoline engine, the foundry burned to the ground and was immediately rebuilt on the same site. On the death of her husband, Martha Leistner sold the foundry property to Lindenwood College already occupying property across the street. Martha was to outlive her husband by six years. (fig. 14)

As Paul Leistner’s sons, Oscar, Paul J., and Theodore came of age they worked collectively close to 50 years for their father before the company name was changed to “Paul Leistner & Sons” in 1912. This was only four years before Paul G. Leistner’s death in 1916 at the age of 58. Erich, the fourth son, was not employed by his father; rather he held a “remunerative” position as draftsman in one of the car shops (railroad cars) of St. Charles. “Paul Leistner & Sons” and then Paul Leistner’s Sons Manufacturing Company, continued as a family business in St. Charles, at 600 Clay Street (7th and Clay), in a new brick building constructed in 1918. The business continued until well into the 1950’s, maintained by two of Paul Leistner’s grandsons.

Leistner may have referred to himself as a “machinist,” but the enterprise that he first established in St. Louis and then continued in St. Charles was much more than that moniker would imply. One local source described the output of the Leistner foundry in St. Charles as, “Beautiful costly bank fixtures, heavy brass chandeliers, massive cornices, nameplates of the richest appearance and ornaments of brass and bronze of variegated design: some plain, some fantastic, some useful, some purely to please the eye.” From the same source, “The concern consists of a brass foundry and machine shop, and is equipped with the most modern of devices including complicated and expensive machinery of all descriptions, both heavy and light but all designed for working in metal, and for perfecting the many delicate processes required. Suffice it to say that old copper wire, old brass filings and other waste products are taken to the foundry and by the time they pass through the machine shop and are ready for shipment, they have assumed the most beautiful shapes and finishes imaginable. It is like the worm turning into the butterfly.”
Apart from Paul Leistner’s day by day business enterprises, by 1886, just three years into his marriage at age 28, he had successfully filed a patent for a “Garden Table” (U.S. Patent No. 338,986, St. Louis, Mo.). This is no less than a cast iron patio table with a crank-operated, canvas umbrella. It looked similar to the one you may have in your own back yard.

In 1891 at age 33, and a year before he partnered with Heimbach, Leistner was successful in patenting a “Tidy Holder” (U.S. Patent No. 448,967, St. Louis, Mo.) a spring-type paperclip that looks as contemporary as something you would buy at one of today’s office supply stores.

One of the ongoing sidelines of Leistner’s business was “spring bottoms for car seats.” Presumably these seats were for railroad passenger coaches since in 1904 he got his third patent (U.S. Patent No. 751,312) for a “Reversible Car Seat.” St. Charles was home to The St. Charles Car Co., one of the biggest railroad car manufacturing plants in the state. Most of us over the age of 50 remember train passenger coaches that had seats with backs that flipped from one side to the other depending on which end of the car was being dragged by the locomotive. That was another Leistner idea.

He also patented, and surely manufactured two other items, a “Sash Fastener” under U.S. Patent No. 549,924 granted in 1895 and a “Hot Water Bottle” or “Foot Warmer” made in copper on U.S. Patent No. 1,011,452 granted in 1911. (fig. 15)

I think we can assume that plumb bobs were another of Leistner’s side lines. But don’t think that Paul Leistner would make them casually; to some extent he mass marketed his wares by mail by publishing a “Paul Leistner Catalogue,” a relatively new way of marketing for the times. Unfortunately, to my knowledge, only one company catalogue, missing 6 of its original 12 pages, remains. (fig. 16)
His products were also sold through the T.B. Rayl Hardware Company of Detroit, Michigan. Their catalogue c.1905, listed 6 sizes of Leistner’s “Millwrights Reversible” bobs. They are illustrated with the distinguishing features of the Leistner bobs, yet does not mention Leistner as manufacturer. They range in weight from ¾ lb. up to 5 lbs. and sold for $2.40 for the smallest to $8.40 for the largest. The W. Bingham Co., Cleveland catalogue from 1902 shows the same range of Millwrights sizes and prices but also includes four sizes of “Surveyors,” 3/4, 1, 2 and 3 lbs. We have yet to uncover a definitive size range of the “common sense” type. Sightings of Leistner and Heimbach plumb bobs are by no means uncommon even a hundred years later. They do turn up in places that I might have thought unusual, such as a bob and box I received marked with an owner’s name with a Johannesburg, South Africa address. Although produced in significant numbers, these bobs were not mass produced as we might think of mass production today. In my experience, the parts of any given size are not interchangeable. I would guess that each joint in each bob was hand fitted and trimmed from a relatively small production run of castings. If you study the group illustrations carefully you will see quite a wide variation in the proportions of the turnip bodies, variations in length of the “necks” below the caps, differences in threading of the caps and shafts and different tools being used to apply the knurled and beaded bands of decorative trim. These were labor intensive tools made by highly skilled machinists. This is the German art of metal work. Sadly, the last known entry in city directories for Heimbach’s life: 1904, age 48 years, Joseph Oscar Heimbach dies of tuberculosis. One source shows him buried in Sts. Peter & Paul Cemetery in South St. Louis County, Missouri. Heimbach’s mother was listed as Henrietta Voerster in that death notice.

If you are on the track of Leistner plumb bobs yourself, look for the cap. It will have “Paul Leistner or P. Leistner, St. Charles, Mo.,” stamped on it. (fig 17)
The original boxes were oak or ash with fine finger jointed corners and a sliding lid. The interiors were nicely fitted out with an indent lined with felt to cup and align the cap in the box and a two part sliding partition that further helped to keep the bob in place. Paper labeling on the box end is marked with the company name, bob size and type, and of course, St. Charles, Mo. (figs. 18, 19 & 20)

(fig. 18) Leistner, 1 lb. Millwrights Reversible, paper label on box end.

(fig. 19) Leistner, typical box. I do not believe that the plumb line on this example has ever been unwound from its keeper.

(fig. 20) Leistner. 3-1/4 lb. Common Sense, bob, box, and paper label.
As hidden as the evidence is of his life, Heimbach when on his own, took similar steps toward anonymity in the marking of his bobs. For sure he used an inked stamp marking system on the box lids, using boxes similar to Leistner. (fig. 21) And, we have the “Leistner and Heimbach” inked label in that period of time. However, heavy pointed bobs, break light wooden boxes (rock, paper scissors); few boxes survive. To add to the mystery of identification, on some but not all bobs, the letters “J. O. Heimbach” are inscribed in miniscule type, on the side of their steel shafts. This signature is only discernable with a magnifying glass with the bob disassembled. (fig. 22)

Now in the course of discovery of Heimbach bobs, this feature of identification can lend itself to one of those “tool experiences” we so yearn for. Imagine spotting a Heimbach cap on Ebay, “Nice Old Plumb Bob,” is what the seller knows, and then waiting for it to arrive by mail. Or perhaps the bob is spied on a tailgater’s table, frozen by corrosion to the shaft, don’t tip your hand. Anticipate rushing home, then the tantalizing wait for hours, perhaps days, while the WD-40 seeps down through these tightly fitting parts. Perhaps one of you, after reading this essay, will find that you have a bob like this in your collection!

So, when on the trail of a Heimbach, the distinct features of the body and more particularly the cap may be the sole identifying feature. (fig.23). Then get out the oil and magnifying glass, no wrenches or hammers please, to find the Holy Grail, the “J. O. Heimbach,” on the shaft.

Even with this accumulation of evidence it is extremely difficult to get a sense of the personal relationship between Heimbach and Leistner. After doing the research and after fondling a fair number of these plumb bobs, some possibilities come to mind.
I believe these men met in the 1880’s when both were in St. Louis. They had the bond of similar interests in their professions and in their German heritage. Their meeting could have been through membership in one or more “German Societies.” Since Leistner seems to be precocious in his thinking about forming business enterprises, at age 26, “Paul Leistner Wireworks,” for instance, perhaps Joseph O. Heimbach started as one of the skilled craftsmen in his employ. Even though the Leistner / Heimbach formal partnership was short lived, it seems implausible that a man as bright, talented and calculating as Paul Leistner seems to be, would select a partner that he did not hold in extremely high esteem. I tend to think that since the plumb bobs we know as Leistner’s clearly date to a time after 1896 when he restarted his business in St. Charles, that the idea to develop a side line out of making plumb bobs might very well have been Heimbach’s. I also tend to think that the short life of their formal business association may have something to do with the tuberculosis that ultimately killed Heimbach some twelve years later. As mentioned before, Heimbach is curiously missing from the St. Louis City Directory for only two years between 1882 and his death in 1904. Those two years 1892 and 1893 happen to fall in the two years immediately after the Heimbach and Leistner partnership disappears from the St. Louis City Directory. Tuberculosis is highly contagious disease and was greatly feared at the time; diagnosis was just the beginning of a wait for the disease to ultimately take your life. Initial treatment at that time was removal of the patient from the general population. Could it be that Heimbach spent 1893 and 1894 in a sanitarium? And, what of one plumb bob in its box, clearly marked Leistner and Heimbach, St. Charles, a business location for Paul Leistner that was not reached until a full 4 years after the end of his formal partnership with Heimbach? Could it be that Paul Leistner continued to help his friend, Joseph Heimbach through his remaining life? (figs. 24 & 25)
Some readers may have Heimbach and Leistner artifacts. We would be greatly interested in details about those items.

Nelson Denny is an Architect from Hadlyme, Connecticut. Needless to say, he collects plumb bobs.

Mike Urness is a tool dealer & patent researcher from Chesterfield, Missouri. His research uncovered some of the essential material from St. Louis and St Charles.

A very special thanks to Wolfgang Ruecker of Germany, fellow plumb bob collector (new member of MWTCA) for his research into the Leistner family in Germany (much more information that was included here) and his skillful work in uncovering the Leistner patents and dog wheels used by German “needle makers.”

This article is evidence of MWTCA cooperation in action. See also in The Gristmill, June 2008 advertising for more information on plumb bobs: “PLUMB BOBS, The Most Ancient and Universal of Tools”.

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