

A Fairly Fast Mounting Technique

by Johannes Swarts, East Randolph, Vermont, Johannes@gdt.com

From the Mineral Mite, Newsletter of The Micromineralogists of the National Capital Area, Washington, D. C March 1998

I currently have a backlog of several hundred specimens sitting loose in their hinged boxes, waiting to be mounted. This is a task I've never looked forward to - lots of finicky work for clumsy fingers? Some hobbyists use little blobs of the mineral tack or putty to render the specimens immobile (it keeps the piece from rattling about and bruising the interesting stuff). Personally, I prefer the specimen mounted on an unobtrusive pedestal and the interior of the box blackened. Mounted this way, the specimen seems to float in space under the 'scope and reduces annoying glare from the shiny interior of plastic boxes. Some micromounts in my collection have black paper liners in a slip-top box with the tiny rock fitting on an all-but invisible pedestal - truly exquisite work! However, the thought of cutting and sizing those little bits of paper...

In mounting a number of specimens for the trade with the California club, I came up with an assembly-line method that allowed me to mount 40 or so specimens in rapid order. I use the 1 x 1 x 7/8 inch hinged box with clear top and black base. Further supplies include:

1. Small corks (probably 1/2 inch or so in length), tapering to one end. Or balsa wood stock 1/4 inch or less square.
2. Duco Cement or its equivalent (some use Elmer's for its solubility in water).
3. India ink.
4. A hobbyist's or model maker's saw - long rectangular blade, finely serrated on one edge. The blade on mine is 4 1/2 x 3/4 inches in size).
5. Exacto blade - the holder and the blades.
6. Flat black modeler's paint, acrylic, which cleans up with water. (The pigment in this paint is extremely fine-grained, giving a very flat appearance and application by brush is less messy than spray paint).
7. Small paint brushes

The small corks and Duco Cement can be found in hardware or drug stores, while the other materials can be found in a good hobby supply store. Let's start with the pedestal material first. If the little corks are available, dump a bunch of them in a small jar and pour in enough India ink to evenly wet (and blacken) all the corks. India ink is preferable for this step, as it is easily available and dries quickly to a very flat black. When all the corks are black decant off the excess India ink and spread them out on newspaper to dry. Balsa stock can be cut quickly to 1/2 inch or so lengths with the modeler's saw and treated similarly. The point here is to make the pedestals black.

While the pedestals are drying, take the plastic micro boxes and, using the Exacto blade, scribe a series of crisscrossing lines in the interior of the center of the base on each box. This roughens the area where the pedestal will later be glued, affording the glue a better 'grip'. Once the pedestals have dried thoroughly (solvent-based glues don't adhere well to moist things), start gluing the pedestals into the boxes. I find that a small dollop of glue applied to both the roughened area in the box and the base of the pedestal, then allowed to dry for twenty seconds or so, makes for a quick tight bond. Press the pedestal firmly into the box for 10 seconds, then set aside. A large number of boxes can be prepared very quickly in this manner. Allow the glue to set and harden thoroughly.

Once the glue has dried, use a small brush to paint the interior of the micro box base with the flat black modeler's paint. This can be done with a few quick strokes of the brush. Little attention need be paid to the vertical sides of the base, as they are scarcely visible with normal viewing angles under the 'scope. Set the boxes aside to dry thoroughly. Small unblackened spots on the pedestal and the glue joint can also be touched up at this point.

Any number of micro boxes can be prepared in this fashion and kept on hand. Now we are ready to begin mounting. Since my specimens have already been trimmed to fit a micro box and hopefully cleaned, it's simply a matter of orienting the specimen and gluing it onto the pedestal. Always try to pick the most unobtrusive, yet strongest support when sizing the pedestal to the specimen. If the specimen appears to be 'tall' to fit (this can be checked by eyeballing the specimen next to a box with a pedestal), I gently saw off a portion of the pedestal with the modeler's saw. Sawing at an angle or making a 'V' cut into the top of the pedestal can accommodate specimens with irregular or angled bottoms. Be sure to gently blow off or otherwise remove the resultant sawdust before proceeding. Having a variety of pedestal diameters or cross-sections affords even the smallest rock an unobtrusive mount. Certainly, very small or single crystal mounts may be better displayed on pedestals consisting of toothpicks, porcupine quills, or even cactus needles or

cat's whiskers. Some things to remember. Everything looks much bigger under the microscope, including oversized pedestals and errant droplets or hairs of dried glue. A dirty paintbrush can leave specks of dust embedded in the paint used to blacken the box interior, specks of sawdust can also clutter the view and even dirty the specimen. Have fun and don't forget to label the box!

Cells to Hold Loose Crystals for Micromounting

by G. Robert Massey

From the Mineral Mite, Newsletter of The Micromineralogists of the National Capital Area, Washington, D. C March 1998

Although loose crystals may be glued to a pedestal, in some instances it is impractical, such as when the crystals are hygroscopic or if it is desirable to move the crystals around for better viewing. A sealed cell to contain the specimens will provide one answer to the problem. (Note, fragile crystals will be damaged in such a method of mounting). Base construction: This is a circular (or nearly so) disc of thin plastic. 1/32 to 1/16 inch thick. It must be of a glueable plastic, either polystyrene or acrylic (plexiglass). White is preferable, but black may show up the evaporates better. Avoid polyethylene, glues won't stick permanently to it. Suitable white material may be obtained from the packaging used for toothbrushes, or from the bases of European plastic display boxes. Black can be obtained from any of the "Perky" series of mineral boxes. Saw out discs or octagons slightly larger than the diameter of the plastic tube to be used. File the inside surface with a smooth cut mill file to flatten the surface. Then lightly sand the surface with 280 grit wet or dry abrasive paper, used wet with a "figure 8" motion. This will give a non-reflective surface.

Cylinder: The cylinder is best made from slices of plastic tubing. Plastic (polystyrene) test tubes are cheap and at convenient sizes. Acrylic tubing 3/8 to 1/2 inch in diameter may also be used. Saw off slices of a length suitable for the crystals to be contained. A "razor saw", obtainable at any hobby shop, is ideal. Get the very fine pitch tooth version. A simple wooden miter box will insure square cuts. File both ends flat and square. Trim off the file and saw "fuzz" with an Exacto knife.

Cover: Plastic (polystyrene) microscope slides are most convenient. They only come in square shapes but are easily cut with scissors. An Octagon is easiest to cut, but a circle can be cut with cuticle scissors. They should be slightly larger than the diameter of the cylinder.

Assembly: The base can be glued to the cylinder using epoxy (preferred), or cellulose cement (DuPont), or clear finger nail polish. One needs to experiment to discover what works best for himself. It is important to get a seal all around with a minimum of excess glue. The cell and base should be set aside for at least 24 hours to insure complete bonding. After one gets the hang of it, it is convenient to work-up a stock of cells for future use.

Finishing: With the crystals in place comes the tricky part gluing the cover on without smearing glue where not wanted. It is best to use Duco cement diluted with acetone to give a longer working time. Apply a thin ring of glue around the edge of the cylinder and carefully place the cover piece on. Handle the cover only by the edges and - very important- blow off any dust or lint just as you place the cover onto the cylinder. The plastic is very susceptible to static charges attracting lint. Be careful not to get fingerprints on the cover. The use of lint free gloves is very useful. The gloves may be purchased at photo shops and are not very expensive. The cell may now be glued to a pedestal for insertion into a micromount box. (This article was taken from the International Micromounter ~' Journal, the quarterly newsletter of the International Federation of Micromount Societies. December 1997.

Journal Editor. Dick Thomssen, appended the following note: "Bob Massey wrote this article shortly before his death in August 1997 and it was submitted to the Journal by Bill Meinert. I have used cells similar to those described for many years and find them to be of considerable value in preserving and viewing small loose single crystals.")

A Simple Micromounting Technique

by David Green

From the Mineral Mite, Newsletter of The Micromineralogists of the National Capital Area, Washington, D. C October 1997 (From the British Micromount Society Newsletter, via Micro News and Views, April, 1997)

For some years I have taken the (Braithwaitian) view, that micromounts should be permanently mounted in boxes where possible. Although sound in theory, this has two practical drawbacks (aside from admitting that Peter is correct!). The first is the time and effort required to mount a specimen (as compared with Blu-tacking into a box); and the second is that the specimen cannot subsequently be removed (e.g. for photography, or if the box becomes damaged). A couple of years ago, experimentation led to a technique which minimises time and effort, and which allows most specimens to be removed and replaced in their boxes. I have since mounted several hundred specimens using this technique, which seems fairly robust, and which is possibly worth sharing with other members.

Some micromounters stick specimens on pedestals directly onto the bases of the boxes, but the finished mounts are not particularly strong. An alternative, neater method is to set the pedestals into a base which fits in the box. Foam board, matt black on one side and white on the other, is excellent for making the pedestal bases. It is available from art shops in a variety of thicknesses, the best being 6mm. The hinged incb-cubed boxes used by most of us are 27mm by 26mm internally. Cutting the foam board into rectangles of this size using a sharp scalpel can quickly provide several hundred bases. The dimensions must be accurate, however, in order to provide a snug push-fit into the boxes.

With a little practice, a leather punch can be used to make a central hole to accept circular balsa sticks (which form the pedestals). I find that the quarter-inch diameter balsa wood available from model shops is ideal for many micromounts. These fit snugly into the holes made in the foam board bases by a 6mm leather punch.

Blackened balsa pedestals, trimmed to the contour of the specimen base and cut to size, are pushed into the pre-punched holes in the pedestal bases. The trimmed specimens are then glued to the pedestals and set aside to dry before being fitted into the boxes. No glue is required either to fit the base into the box, or the pedestal into the base, both joints relying solely on being good push fits. This type of mount is permanent in normal use (and during transportation!), but has the advantage that specimens can be removed, attached to their pedestals, using a pair of curved forceps. It still requires some time to make a mount; a minute or two per specimen. Considering the time and effort involved in collecting, selecting, trimming and documenting, this is a sound investment.

Mounting Techniques Continued (2)

by Phil Betancourt, Merrick, New York, (609) 234-8284 E-mail: betancrt@mosquito.com

From the Mineral Mite, Newsletter of The Micromineralogists of the National Capital Area, Washington, D. C February 1997

The fine article by Paul Smith in the December 1996 Mineral Mite described a pair of techniques for the use of a side-mounted crank for viewing a micromount on all sides (what I call a "Sidewinder Mount" with an apology to a few snakes I have known). I can add a variant of this technique that has the advantage of a smoothly turning crank without any wobble with a minimum of visible apparatus inside of the box. I use a round-sectioned toothpick of the type that is tapered at each end. A hole is drilled in the side of a black plastic box using a drill that makes a hole with a larger diameter than the end of the toothpick but a smaller diameter than its widest part. A section of the black, reed toothpick is inserted through the hole from the inside of the box so that its point is on the outside. A section of black cork is used as a knob for turning by sticking the end of the toothpick in it, with cement to make the bond tight and permanent. The trick is to make the device so the toothpick inside the box will rotate freely but not so freely as to wobble. The mineral then has to be glued to the end of the toothpick, inside the box, while the box is held sideways. The result is that only the mineral and the thin axle of the toothpick are inside the box, and the cork knob allows the specimen to be turned easily and smoothly.

Mounting Techniques Continued

by Paul A. Smith, Fairfax, Virginia, (703) 273-1468 E-mail: jpmicros@aol.com

From the Mineral Mite, Newsletter of The Micromineralogists of the National Capital Area, Washington, D. C December 1996

There seems to be a never ending supply of unusual and innovative ways by which micromounts may be mounted. While everyone would like to think up new techniques, I find there are few really new ideas. All those mentioned in this series and published in the Mineral Mite, seem to be variations of those used by prior generations of micromounters. Whiskers, porcupine quills, fiber optic rods, toothpicks, blackened corks, pins, wires stretched across the top of the box end numerous variations have been described. One that we seem to have missed is the use of a crank or wheel inserted in the side of the M/M box in order for the specimen to be viewed from all sides. I have used a paper clip bent in the form of a crank that works fairly well except there is no real bearing support to keep the specimen from wandering off center as it is rotates. In a recent review of the collection of Ruth Wertz (left to the Club), I discovered one of her mounts that seems to improve on the crank. She used a straight wire or pin inserted through a hole in the side of the plastic box and, instead of making a bend, she places a medium sized cork on the out side to serve as the turning device. This left no sharp edges or points to cause injury to the user.

To solve the wobble problem, Ruth glued another section of cork on the inside of the box through which the pin is passed. This serves as a bearing surface for the pin. Of course the hole in the inside cork is somewhat larger than the pin to allow the pin to rotate freely. I have not figured out how she got the specimen on the pin and the pin in the box and through the cork and box to attach the outside cork handle except by careful use of tweezers and excellent finger dexterity.

Mention has been made of the use of very fine wires strung diagonally across the top of the box and attaching tiny specimens at the point where the wires intersect. I have found sources of wire fine enough for this purpose to be a bit elusive but the other day I mentioned my problem to a friend who promptly dug deep in his tool box and came up with a length of tungsten wire which is black and fine enough to serve my purpose. I have not used this wire as yet but will do so in the near future and will report on the outcome.

Happy mounting and good luck!

A Method for Mounting a Small Single Crystal

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From the Mineral Mite, Newsletter of The Micromineralogists of the National Capital Area, Washington, D. C April, 1996

This is an attempt to document a method for mounting small single crystals that was taught to me by Len Morgan. Size the pedestal to the correct height for placement into the micro box. Don't forget to take into consideration the width of the crystal specimen. The pedestal should be a cork base with either a hair brush bristle, toothpick or animal whisker as the crystal support. The easy method for constructing the pedestal is to use remnants of corks previously in excess from previous pedestals as the base. Sand or trim cut surface to make fiat (bottom of pedestal). Stick a pin up through bottom of cork and push support through hole.

Place the small crystal specimen in a small container of sugar. The crystal should be oriented with the desired crystal face for observation under the scope facing down in the container. Attach three or four pins to the pedestal in a manner that they support the pedestal weight with the pedestal just touching the crystal.

Using a small amount of glue (that is NOT water soluble) on the pedestal's tip, attach the pedestal to the crystal. Be careful in the choice of placement of the pedestal. Then allow the mount to dry. When the glue has dried, remove any sugar remaining on the specimen by dipping the mount in lukewarm water and the sugar will dissolve off the crystal.

Another Mounting Pedestal - Porcupine Quill

By Jack Nelson, Poolesville, Maryland, (301) 972-8504. E-mail: nelsonja@erols.com
From the Mineral Mite, Newsletter of The Micromineralogists of the National Capital Area, Washington, D. C March, 1996

Although there are many common procedures used in micromounting, we all have our own favorite special techniques and paraphernalia for doing what we all like to do best. Though our goal is to achieve having a specimen mounted in a way that is esthetic and pleasing to look at, there are as many ways to arrive at that end as there are micromounters.

My first introduction to the fascinating "whole other world" we see under our microscopes came while visiting friends in Rockville, Maryland in 1988 who were avid rockhounds and who had several microscopes. After viewing some of their specimens under their scopes, I realized this is what I wanted to do and learn more about. I promptly bought my first microscope for \$295.00 from Edmunds Scientific - inexpensive to be sure, but enough to get me started. After a few years of saving specimens (for later study & possible mounting), I joined MNCA and attended most meetings for about two years before attempting my first mountings in 1994. For those first efforts I used plastic hair brush bristles on the usual cork pedestals. Does that sound familiar?

At that stage in early 1994 I had accumulated a lot of interesting material from my gold panning here in Montgomery County. So my first mounts tended to be lovely crystals of garnet, magnetite, rutile, zircon and diopside among others which I mounted on these black brush bristles and even a few cactus needles club members gave me.

About a year and a half ago, I found a patch of porcupine fur from my long-ago fly tying days. While examining a few of the quills under my scope, I noticed they had an extremely fine point -at both ends, surprisingly - white at the attachment end and dark brown at the barbed end. When cut, I noticed they were filled with a spongy substance resembling styrofoam which gave them a good stiffness and body. Since most of the micros I wished to mount were about 1 millimeter or less (down to even less than ¼ millimeter) these quills offered an ideal mounting medium. Either the white (attachment) end or the brown (barbed) end can be cut to give just the right diameter fiat surface for attaching your specimen. These quills do not take a good black coating from a black magic marker, so I'm still experimenting with ways to dye them black.

To provide a safe and sturdy working platform to position and hold your specimen under your microscope, you can use a common plastic 35 millimeter film cannister. Most have a small concave casting depression at the center of the exterior of the bottom. With the lid firmly in place, place the cannister upside down on a marble-sized chunk of mineral tack centered on the microscope base and in the center of the field of view and press into place. Focus your scope onto the casting depression and you can now place your specimen in the little depression. You may use fine-pointed forceps or a pin or needle to place the specimen so that the area selected for attachment is facing up. Next, having prepared the cork and quill pedestal in advance, place a small droplet of Elmer's glue (or whatever your favorite mounting adhesive is) on a fiat piece of glass or plastic surface. Take the fiat end of the push button of a ball pen (or similar tool) and flatten the drop of glue to make it a very thin layer. Flattening the glue droplet prevents an excessive amount of the glue from being picked up by the pedestal and being drawn along the pedestal sides by capillary action which thereby diminishes the amount of glue left available on the end of the pedestal for contact with the specimen. Dip the quill tip in the flattened glue droplet and then, while looking through your scope at the specimen, touch the fresh glue to the right spot on the specimen and hold in place a moment while blowing very lightly across the working area to hasten setting of the glue. As soon as the glue has partially set, the specimen can be picked up by the quill then quickly remove the cannister from the base with your free hand and set aside. Now, under the scope, the specimen can gently be nudged to the desired position by manipulation of the pedestal and specimen against a fingertip. After a few more seconds of blowing gently the pedestal can be glued into a prepared and lined micromount box. Sometimes it may be desirable to reinforce the glue contact between the specimen and the quill before placing in the box. This can easily be done under the scope with a fine tipped needle or pin dipped in a fresh droplet of glue.

This particular method has worked nicely for me and I recommend it for smaller specimens of a few millimeters or less and especially for the very small ones of ½ millimeter or less. I welcome comments from anyone who reads this and can only hope that everyone who tries this method has half the fun of learning and doing that I have had. By the way, I believe that porcupine quills might be obtained from any fly tying shop or a supplier of fly tying supplies.

Whiskers as a Pedestal for a Micromount

by Paul A. Smith, Fairfax, Virginia, (703) 273-1468 E-mail: jpmicros@aol.com

From the Mineral Mite, Newsletter of The Micromineralogists of the National Capital Area, Washington, D. C January, 1996

The general practice of micromounters is to place a specimen on a pedestal in a plastic box. The box may be lined with a black construction paper insert or it may be painted with a flat black paint. Some use a black plastic box but still insert a black paper liner because pedestals do not adhere well to the plastic. The pedestal is required in most cases in order to elevate the specimen close to the top of the box for better viewing without having to make major adjustment to the microscope settings to keep it in focus for viewing. The black lining of the box is to reduce the likelihood of anything detracting ones attention from the specimen and as mentioned above, to allow the pedestal to be secured in the box for safe storage and transportation.

While blackened balsa wood, match sticks, cactus needles and small corks are common pedestal material, some specimens are so tiny that other vehicles for mounting are necessary. This is because it is not considered proper for any of the pedestal to show when viewing the specimen and these small "specs" would certainly occupy only a very small portion of most pedestals. Even hair brush bristles are too large for some micro crystals although the same technique can be used in adapting them and whiskers to use as a pedestal as will be described in the following. Before going into those details it is important to know the source of "whiskers". Not just any whisker will do. We want only black whiskers for the same reason we have blackened corks and black lined boxes, namely to avoid any distraction from the specimen. Where does one find black whiskers? From black cats? but only a few cats or cat owners are willing to donate whiskers for any reason. Animals with black whiskers are likewise reluctant to part with these body parts which appear essential to their safety and well being. I discovered this when I approached my son for a whisker from his daughters cat. The cat was quite docile and allowed me to snip one whisker but my granddaughter was very reluctant to allow any further reduction in the supply of whiskers from HER cat I got the message and refrained from further attempts to acquire cat whisker pedestals. Further research assured me that there were other sources of whiskers. Accordingly I kept a watchful eye out for any animal that had black whiskers and was not in a position to resist donating these appendages to my cause. In my subdivision in Fairfax Virginia, there is an abundance of squirrels and frequently they become the victims of motor vehicles and become ROAD KILL! When I discovered this source of pedestal material I immediately kept a watchful eye out for likely candidates and presently I have an adequate supply of black whiskers. IN ADDITION TO SQUIRRELS I have found that rabbits, woodchucks and some yet unidentified animals have black whiskers suitable for use as micromount pedestals. However, my favorite and most available source of whisker is the gray squirrel.

Obviously, one of the problems in the use of a whisker is that there is not a sufficient surface to allow it to stand in the box while the adhesive (glue) dries. Some means of holding it in place is required and while this may be accomplished by drilling or burning a hole in the bottom of the box or by placing a carefully engineered block of thin balsa wood in the bottom of the box and piercing it with a small needle in which to place the whisker for gluing, one of the most available methods is to use a short section of one of the blackened corks. I take one section of a cork that I have cut from a full cork in order to make the cork the correct height for another specimen, blacken the surface that has been cut and, using a needle, puncture the cork with the whole length of the needle. This produces a hole into which I introduce the whisker after dipping it in a small amount of Elmers Glue. After allowing a few minutes for the glue to harden, I use a pair of scissors to cut the whisker to the approximate length necessary to fit the height of the box. and then measure and adjust the height so that the specimen is no higher than the very top of the box. Sometimes it is possible to pull the whisker through the cork until it is the right height and then trim it from the base of the cork until it is the correct height,

Placing the specimen on the whisker pedestal is a problem sometimes. I find that it is necessary to examine the mineral-crystal to determine the best point or angle of view and then apply the whisker pedestal to the specimen with a small amount of water soluble glue. It is desirable to use glue that can be removed easily in case it is applied to the wrong surface of the specimen and needs to be adjusted. While quick drying glue is desirable, some leeway in the time for the specimen to set and become permanently secure on the pedestal is an advantage.

In addition to the use of whiskers acquired from road kill, I have found that the hair from the tail of a horse is adequate providing it is black. It is almost as stiff as a whisker although I have found that it tends to curl or lean to one side more than a whisker. Horse hair can be obtained from stables where horses are kept. Most horse owners are most willing to contribute masses of horse hair if they are approached in a polite manner. There are definite techniques for mounting micro specimens of such small pedestals and a dedicated micromounter must take the time to become adept at this method of mounting small specimens. Try it, you will like it!