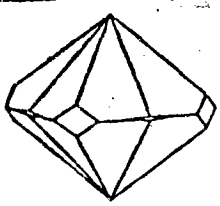
MICROMOUNTERS OF NEW ENGLAND

CASSITERITE (SnO_2)



Greenwood, Me.

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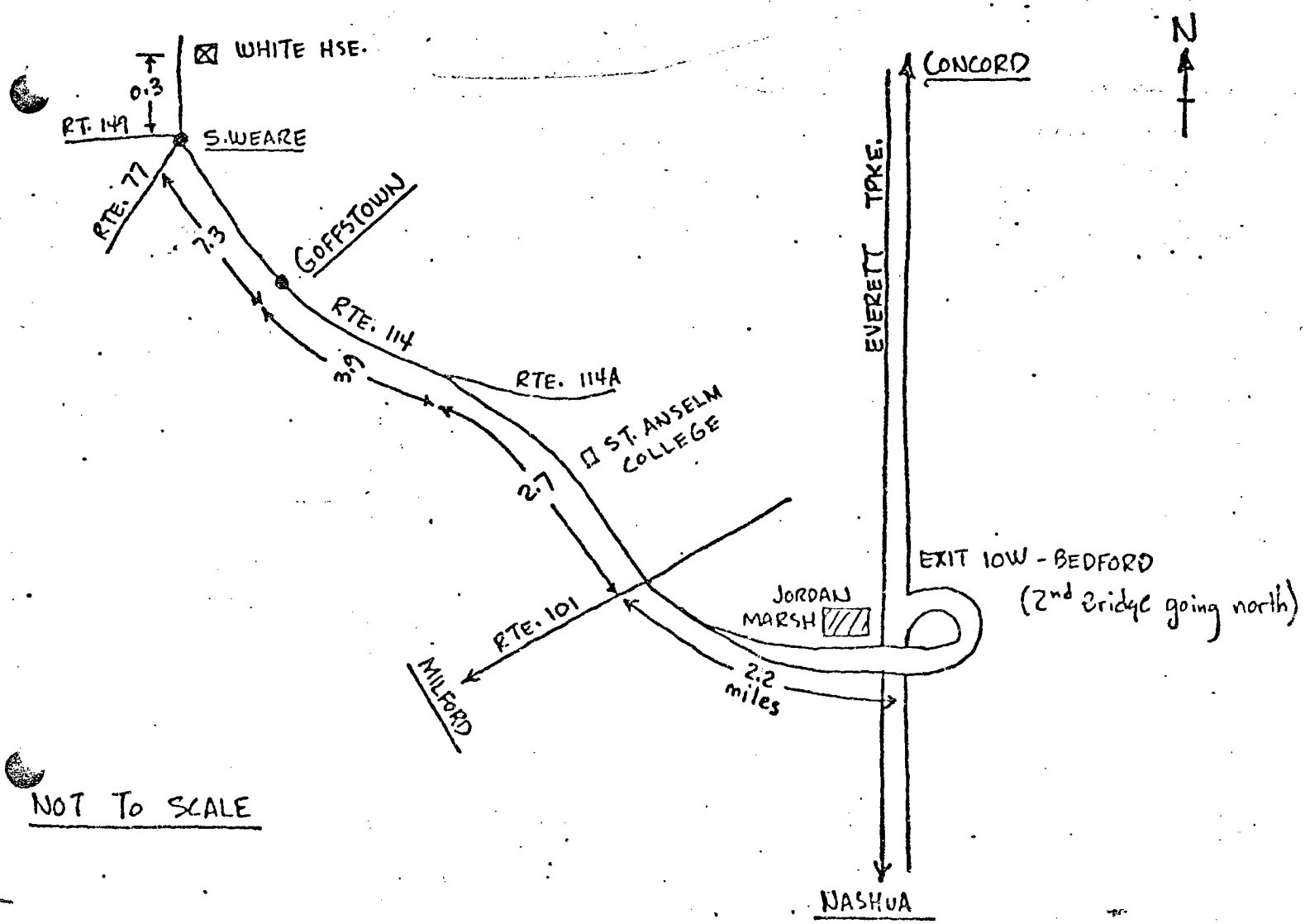
NEWSLETTER #54 — April 7, 1980

Bob Whitmore will be the host of our next regular meeting, to be held on Sunday-April 27, 1980 (10 A.M.-4 P.M.) at his home in South Weare, N.H.



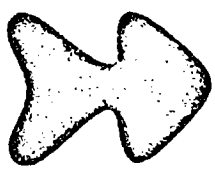
NOT TO SCALE

Micromounters Directory Due In September

The *International Directory of Micromounters* is published biennially (in "even" years) by the Baltimore Mineral Society at the time of its annual Micromount Symposium in September. The 10th edition will be published in September of 1980, and in order for it to be as correct and up-to-date as possible the following information is needed:

1. The full name, address and zip code of each micromounter who wishes to be listed without charge in the 10th edition and who was not (or who does not remember if he or she was) listed in the 9th edition—the Society will do the checking if you are not sure. If a listing is to be for both husband and wife, please also furnish the wife's first name.
2. The new (and old) address and/or name of each person listed in the 9th edition who has moved and/or changed his or her name since it was published.
3. Identification of each person listed in the 9th edition whose mail is undeliverable at the address shown therein. Furnishing the face of one or more envelopes returned by the post office would be as easy a method as any of doing this.
4. The zip code of each Canadian micromounter (and the equivalent for each English one) listed without zip code in the 9th edition (there are lots of them).
5. If you are a member of a micromount group or society please send, or ask your secretary to send, an up-to-date list of your members showing the name and address of your organization and also indicating which one of your members is the best contact person. With this 10th edition the Society wishes to include in the Directory for the first time, a listing of all mineral clubs known to them which specialize in micromounting or which have at least five members who are active micromounters. But they cannot do this if you do not give them this information.
6. The full name and address of each dealer in micromounts, micromount material and/or tools who would like to be listed, without charge, in the Directory of Dealers which is a part of the Directory of Micromounters. If each such dealer who purchases the Directory and uses it for business purposes would comply with Item 3 above, by contacting the editor named below, it would be most helpful.

The cost of each copy of the 10th edition will be a bit higher—but only by half-a-dollar—than the price of the 9th edition; this applies to the United States and Canada—for all other countries the mail costs are higher, so the price will vary accordingly. All information and checks for copies to be mailed should be sent to the editor, Randolph S. Rothschild, 2909 Woodvalley Drive, Baltimore, Maryland 21208, U.S.A. ⊕



BOSTON MINERAL CLUB

APRIL 20, 1980 FIELD TRIP

SHAFT #10 HARDWICK, MASS.

Quabbin Reservoir is an old locality where micromounts are common but diligent diggers still find good hand specimens. The collecting site is a large dump of rock fragments obtained from construction of the water tunnel which connects the great reservoir with the Boston area.

Minerals: Galena, Pyrite, Sphalerite, Magnetite, Ilmenite, Rutile, Goethite, Fluorite, Calcite, Anglesite, Gypsum, Hyalite, Stilbite, Heulandite, Apophyllite, Thomsonite, Prehnite, Tremolite (fibrous), Chlorite, Babingtonite, Epidote.

Trip leader: John Anderson (668-2008)

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PHOTOGRAPHING MINERAL MICROMOUNTS

BY FLOYD R. GETSINGER

Those who have seen the color slides of mineral micromounts projected on the screen often ask, "Did you use a portrait attachment?" or "Did you use a telephoto lens?" These are good questions, but actually the standard 50 mm. lens found on most 35 mm. cameras is the lens that is used, and you do not even need a shutter. We feel that from a practical standpoint the single lens reflex cameras are the best for this purpose. Other cameras, such as the Leica, are excellent provided they are equipped with a reflex housing. Any camera that is fitted with a sliding back for 35mm film so that focusing can be done on a ground glass may be used. A good example of the latter is the back that was made for the Recomar cameras a few years ago. This is the type that we did our first slides with.

Since our own equipment is strictly from hunger it is mostly home made with our own brand of accessories. The heart of the outfit is an Exa camera, and the only drawback to this camera is that it cuts down as much as 25% of the picture area on the 10X or 12X enlargements. All of the exposures in this type of work are made on "time," so the speed and quality of the shutter is not important, nor is a "fast" lens necessary. All of the exposures should be made using one diaphragm stop only. We use f 22. The 2" Zeiss Tessar lens that came with the Exa is used for most of our work, although we sometimes use a 4" Schneider Xenar and a 7" Goerz Dagor for the larger specimens. The latter lens is used for 2¼x3¼ or larger negatives. When making direct enlargements on slides the thing to remember is that you need lots of bellows extension, (or lens extension tubes). The rule is to take the number of diameters you wish to enlarge, add 1 and multiply by the focal length of the lens you are using. Thus a 5X enlargement would take a bellows (or distance from film to lens) of 5 plus 1, or 6 times the focal length. Since the standard lens for 35 mm. is 2 inches it would require a 12 inch distance from lens to film. Our outfit has a 26 inch capacity, so by applying the above rule we can make a 12X direct enlargement, which is about the practical limit for color pictures of this type, according to our experience. Since we have never seen a bellows attachment of anywhere near this length offered on the market, we took an old view camera, cut it down, built a bellows, and the result is shown in the illustration. For the average person who would want to attempt this type of photography, there are lens extension tube sets on the market that will permit up to two or three diameters enlargement. This is ample for most workers.

For lights we use two focusing auto spotlights, 32 cp bulbs, operated from a 6 volt transformer are used in the spots. (An ordinary doorbell transformer will not do. A heavy duty transformer is required.) The spots are focused to cover an area about ⅛ to ½ inch in diameter. For larger specimens a 100 watt and 200 watt "baby spot" lights are used since the auto spots concentrate the light on too small an area.

Focusing is done by moving the camera or the object to and fro rather than by using the usual focusing back or lens ring. The focusing back, or extension tubes are used to obtain the size enlargement desired and for approximate focus. All the literature on this subject that we have ever seen has said to move the camera outfit for this final focus. With our first outfit that weighed 15 lbs. this was a very awkward thing to do, but that is what the book said, so we did it. After some years of this, the thought hit us that it would be much easier to move the ½ ounce specimen. The result was the stage shown in the illustration. The center support of this stage is an old lantern slide projector focusing mount with about a one-inch travel and a fine feed. Now the final focusing is accomplished by moving this platform up or down. Centering the minerals in the frame is quite a problem when pinhead size specimens are being photographed. For example a movement of 1/10 of an inch of the specimen causes a shift of ⅛ inch on the film. To take care of this we made our stage so that it would work like the mechanical stages used by microscopists. The two feed screws shown in the illustration cause the top of the stage to move very smoothly and with micrometer action, either to right or left, or to or from the operator. A microscope mechanical stage could be adapted for this purpose. Our stage may also be rotated. Of course provision must be made to move the camera outfit up or down to control enlargement size and rough focusing.

An exposure meter, although indispensable for ordinary color work is of very little value in photographing micromounts. (For cabinet size or larger specimens the meter is a good guide but don't forget to correct for lens extension.) Our exposures are all based on trial and error plus special factors (mentioned later) and past experience. Exposures have to be increased according to the distance between the lens and film. The rule for this is to square the distance between the lens and the film and divide by the square of the focal length of the lens. For example a 4X enlargement would require a 10 inch bellows draw (film to lens distance) for a 2 inch lens. 10 squared is 100. 2 squared is 4. 100 divided by 4 is 25. Therefore the exposure factor for this illustration is 25 times the normal or base exposure. All other factors, such as the introduction of color correction filters, must be added to the extension factor to arrive at the final exposure. To save time we made up the scales shown in the illustrations. By placing the zero end even with the film and reading opposite the center of the lens

continued

The Canadian Micro Mineral Association will hold its annual conference May 3 and 4 at the Etobicoke Education Centre, Toronto, Canada. Swaps, Sales, Auction, Displays, etc. all of Micro Material. Social Friday Evening at Official Hostelry, Valhalla Inn. Registration $1.00 per day; Nominal charge for lunches. Banquet $12 - Speaker Dr. David Gold: "The Monteregian Hills". Sunday AM Floyd Caesar: "Micromounts with Slides". For further details see Janet Cares.

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the factor for extension is obtained. Readings are taken to the nearest ½ inch and interpolated if between full inch markings. Before making the exposure other things such as the color of the specimen and its reflecting power must be taken into consideration. The calculated exposure is then adjusted according to judgment of the operator and is based more on "feeling" obtained through practice. A white crystal for example would take one half the calculated time while a black one would take from two to three times the calculated time. Since different equipment and lights will vary so much each person will have to determine his own base exposure. A series of "bracket" tests will have to be run, and perhaps a second or third series to determine this base. For what it is worth, our base is ½ second at f 22, ASA film speed of 8, using the auto spot lights described above.

We expect to have to expose each specimen an average of twice to get a good slide. A few will come out good on the first try, many will have to be shot a second time, usually with a color correction filter to get better color fidelity, while a few will have to be taken three or more times to get best results. (The color correction filters are placed between the light and the specimen; thus changing the color of the light. They are NOT used over the lens.) Our "pet" was taken about 50 times before we got one with correct color.

Because so much depends on trial and error, an accurate record must be kept on every exposure made, and the results noted. For this we keep record sheets headed as follows: Specimen No., Lens (focal length), Inches Extension, Diameter Enlargement, Filters, Base (exposure), Factors, Calculated Time, Actual Exposure, Color (of specimen), Remarks. Mostly, the remarks are filled in after the film is developed and consist of instructions for the next attempt. An actual example from our records follows: "Use CC 24 & CC 45, increase time a little." (CC 24 & 45 refer to color correction filter numbers.) In addition we have a line at the top of the sheet for Date, Film, ASA Speed, Lights, and other general information.

Our first attempts were made with a daylight type film which processed by the manufacturer. The reason for this was that we felt that there would be less variance in the color temperature of the light if we worked at about the same time of day every time and also that this would be the best source of light strong enough to take care of the large exposure factors involved. (Incidentally, a color temperature meter is an asset during the trial period.) Since we were not looking for pretty pictures but accurate color, the results of this test were most disappointing. Browns came out purple, greens were blue and a grey-brown came out dirty green. Only the yellow-orange of wulfenite was close enough to use. Our second test was made with artificial light using the special 3200 K photoflood bulbs, but the results were just as bad, the colors showing about the same variance as with the daylight film. This almost ended our mineral taking experience, but one day almost a year later we were beefing to a friend whose work requires many color photographs of artifacts, and he said he had had the same experience until he tried Ansco Color film, PROCESSING THE FILM HIMSELF! We tried this and got good results on everything except certain blue-green minerals like dioptase. The only trouble was that we made the mistake of using dioptase for our early tests, and that was the specimen mentioned above that required 50 shots to get a good one. However, in one of our early tests we used every color we could find in the micromount box, and the results were very good on all the other colors. On the dioptase we used every filter combination we could think of, built a special camera to try another type and brand of film, and even assembled a spectroscope to study the light reflected from the mineral. We wrote letters to the manufacturers of color film, talked to those working and experimenting with color film, and although we were getting closer, it was not until the Ansco Company brought out their new Anscochrome film that we got satisfactory results, and with that film we have had no trouble to speak of.

We want to point out that our friend recommended processing the film ourselves. That, we think, is important to those who wish to get best results in this type of work. Processing is not difficult although it is time consuming. We use Nikor reels and for developing tanks use 6 1-quart size polyethelyne fruit juice containers like you use in your refrigerator. Anyone familiar with ordinary film developing will have no trouble. The beginner can do it with a little practice, but there are a few things we would like to emphasize . . . Follow the directions in the developing kits and color manuals exactly. Control temperatures to plus or minus ½ degree or less. (We use a small bucket of ice and water connected to a water jacket which surrounds the various solutions. The ice water is admitted to the jacket through a home made thermostatically controlled valve which keeps the temperature within the limits. The thermostat is a 39¢ incubator control unit.) Mix developer fresh and do not use it if it is more than three or four days old regardless of what the directions may say about the keeping qualities, and do not overwork your developer. Better throw the developer away at 75% of rated capacity if you want the best results. There are so many variables in this work that they must be cut to a minimum. Always use the same lights at the same distance, the same diaphragm stop, same lens, developing technique, and vary only the specimen and the size of enlargement. While our best results have been obtained with Ansco film, other workers may get their best results with other brands. Always stick to the film that gets the results you want, and don't switch from one to the other.

We use an automatic timer, connected to the lights to make all exposures. Since the slightest vibration will spoil the picture, the timer is placed on an adjacent table. The timer is set for the desired exposure then the camera shutter opened on time, with the lights off. After a few seconds to allow the camera to settle from any movement that may have been caused by opening the shutter the timer is set off. As soon as the taking lights have gone off, the shutter is closed, film advanced, etc. Room lights will have no effect on the exposure if this procedure is followed. Very few exposures will be as short as 1 second, and since our timer works from 1 to 55 seconds, we have all the range we need, except for a few maximum diameter enlargements. For those we set the timer to half the exposure and hit it twice. Exposures of more than two minutes get you into more technical difficulties, so it is better to cut down on the size of the enlargement than to try to increase exposures. On the long exposures you will probably find that the calculated exposure is too short, due to the failure of the reciprocity law, and longer times will have to be given.

It is estimated that there are over 3 million "rock hounds" in the U.S.A. and many thousands of them have 35 mm. or other camera equipment that could be used for taking color slides. We hope that this outline of our experiences will be of some help to them and will get them started taking color pictures of their own interesting specimens. Except for the long extensions and high exposure factors, the same instructions will apply to cabinet or miniature collections, so dust off the old camera and have fun.

Arizona Highways Magazine - November 1957

The New Haven Mineral Club is sponsoring a trip to St. Hilaire, Francon, and Jeffrey Quarry May 24-26, and permit a limited number of guests. For reservations, call Norm Biggart (days) at (617) 275-1670 before May 9.

IT'S OUT!

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We will check with the Mineralogical Record about getting some copies at wholesale cost, for the Club members. Hold off on sending for one until after the April meeting.

MICROMOUNTERS IN RHODE ISLAND

It started out as snow in R.I., on March 22, and an ominous rainy drizzle in Mass. but that did not deter nine of us from going to Roger Williams Park to gather in the basement of the museum building. Shortly after lunch Gil and Carl arrived to complete the gathering. A brief meeting was held and the next meeting in May was announced.