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- Division Schedule -

Notice: The **CID KIT (Kids In Trains) Clinic** will be the first clinic at both the February and April Meets. This is the young modeler's 'Make and Take' Clinic. Young modelers will be able to assemble a simple car kit with the aid of N.M.R.A. members. The **CID** will furnish both the cars and tools and the completed car is theirs to take

January 26-27 GATS – Indianapolis (Stop by and say hello)

February 3, 2002 (Sunday) – Noblesville, IN

Hamilton County 4H building, 2003 Pleasant Street,

Dealer Show & Meet - 10AM to 4 PM - - -

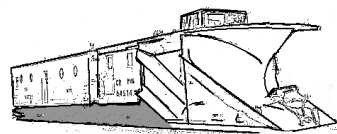
CID Annual Auction - 2PM to 4PM

Clinics, Layouts, Contests: Photo and Model and Favorite MOW

Admission: \$3.00 per person (children 12 & under free with an adult)

For more information or tables call:

Larry Gilbert at 765-779-4039



April 7, 2002 (Sunday) - Danville, IN

4H Building, Hendricks County Fairgrounds

Dealer Show & Meet - 10 AM to 3 PM –

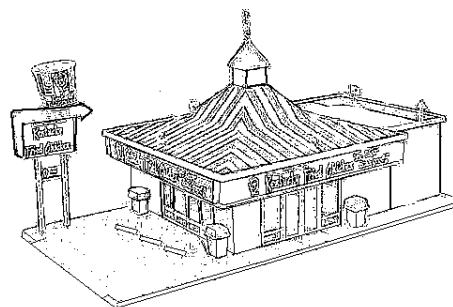
CID Annual Meeting

Layouts, Clinics and Contests: Photo and Model and Favorite Off-line Structure

Admission - \$3.00 per person (children 12 & under free with an adult)

For more information or tables call:

Frank Hermanek at 317-487-6517



Summer Activity – To Be Announced

- Extra Board –

April 26, 27, 28, 2002 – Rockford Route Two Thousand Too. . . . t

Midwest Region Spring Convention

Hosted by the Rock River Valley Division at the famous Clock Tower Resort in Rockford, IL.

For more information, contact:

Don Brindle, Chairman. Ph: 815-874-6095 – e-mail: donbrindle@aol.com

Attention Clubs - Notices of club open houses will be included in the Division calendar upon notification in writing. Deadlines for each Spike are six weeks prior to each Division meet. Send info to Roger Hensley (see page 2). Include club name, address, date and time of function. Also include name, address and phone number of sponsor or contact.

Back Office Report
by **Larry Gilbert**
Asst. Superintendent



Model RR Month Meet

The meet we held in November was to help promote our hobby of Model Railroading. We started a new program called **CID KIT (Kids In Trains)**. This program tries to get kids interested in trains. By coming to this clinic the kids get to build an HO scale (horribly oversized in my humble opinion) car kit and when they are finished with the car they can take it home with them at no charge. We had 13 kits completed at this initial outing for the new program. Thanks to Bob, Cindy and Julia Morrison for manning this clinic most of the day. And thanks to the other instructors who also helped out with the kit assemblies.

Also at this meet we had several layouts set up for the display of trains and the running of trains. Bob Morrison had his American Flyer that he has owned since he was 2 hours old. Charles Malinowski's HO Scale A-Door-Able layout made another popular appearance, Keith Gamble with his N scale modules, Bill Myers with his new Z scale and his kids playable layout, Trevor Jones English N scale layout and Dave Deihl's Central Indiana O scaler.

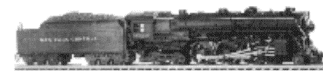
A good time was had by all and if you got there early enough you got to enjoy the Pike Township Lion's Club Sausage and Pancake breakfast. If you missed breakfast you could have had lunch with the Lions because they also fed us then.

Also on display there were award winning photos and Julia Morrison's national award winning diorama. There was also a display by Operation Lifesaver, a 'Beginning Model Railroading' Clinic by Tom Cain and a scenery clinic by Matt Hewitt. The Morgan County Model RR Club brought in a video of their club's layout and had a representative there to answer questions. The NMRA table distributed nearly 300 back issues of model railroad magazines donated by a dealer and handed out several Member Applications. If you missed us at Pike High School this year, watch for next year's meet and come out and join in the fun.

Larry

Note: Meet Photos may be found on the CID website.

<http://cid.railfan.net/>

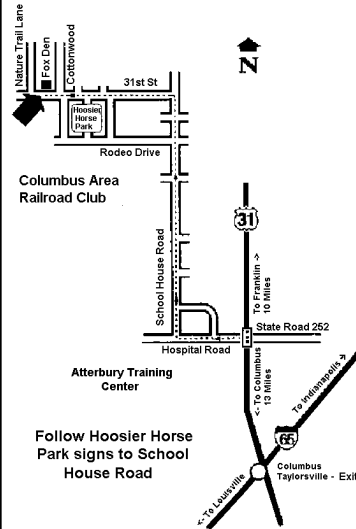


COLUMBUS AREA RAILROAD CLUB, INC.

The Columbus Area Railroad Club is dedicated to serving all those interested in the preservation of railroad history through the use of modeling, photography, artifact preservation, and railfanning.

Regular monthly meetings are the first Thursday at 7 p.m.

Memberships are available.



Public Hours:
Second Saturday of the month
Noon to 4:00 p.m.
Free admission

Location:
Johnson County Park
Fox Den
6978 S. Cottonwood
Edinburgh, IN

Phone:
812-526-4855

The **RUSTY SPIKE** is the official publication of the Central Indiana Division, Midwest Region, National Model Railroad Association, and is published at least five times a year just prior to meets. It is sent FREE to all N.M.R.A. members in the C.I.D. and non-members may subscribe for \$5 per year. Articles for publication are welcome for the benefit of the readers and the hobby but cannot be paid for. Submit articles for publication to the Editor; address changes or mailing problems to the Circulation Manager; and advertising or advertising inquiries to the Assistant Superintendent.

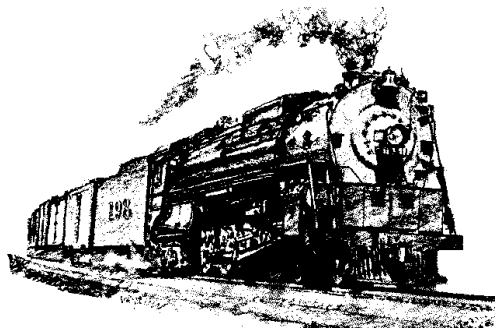
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Central Indiana Division
N.M.R.A.
<http://cid.railfan.net/>

Model Railroad Show and Meet

Sunday - February 3, 2002

!! - Annual Division Auction - !!

Location: 4-H Exhibition Center
Hamilton County 4-H Grounds
2003 Pleasant Street, Noblesville IN

Time: 10 AM to 4 PM Auction - 2 PM to 4 PM

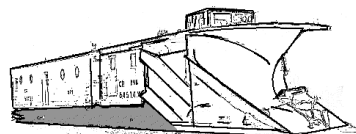
Admission: \$3.00 per person.
Children 12 and under FREE with paying Adult

Dealer Tables - Operating Layouts - 2 Clinics - Contests - Door Prize
Dealer Tables \$7.50 each [6 foot tables]- Set Up 8:00 AM to 10:00 AM
Contact: Larry Gilbert at (765) 779-4039 or Frank Hermanek at (317) 487-6517

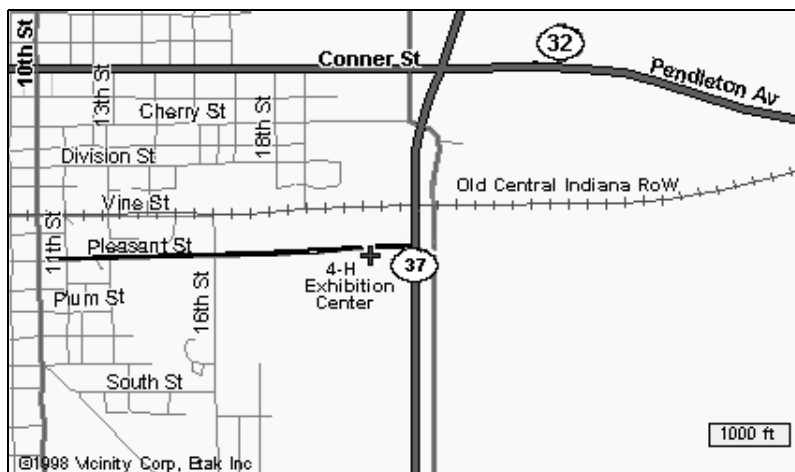
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Contests:

Photo and Slide
Model Contests & Displays
Popular Vote Contest
Favorite M of W

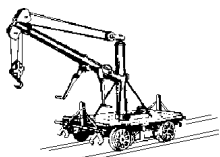


**Door Prize Drawings good
at any dealer present on
this day only**



Next CID Meet is April 7, 2002 at Danville Indiana

- Layouts - Under Construction



The Illinois Division of the Santa Fe Railway By Paul Brown

From the CIDList (used with permission)

Tom Cain and I have been working on my new layout whenever we can, usually once a week together, and an additional once or twice a week alone. I had to build a wall for the peninsula, and have most of the lower level benchwork up, with most of the joists cut, but not installed. The upper level "benchwork" on the peninsula is next, as it would be VERY hard to do if any trackwork or other finishing were to be done to the lower level before the upper was in place. The upper level on the walls won't be a problem since the benchwork is only about a foot wide. I had to do some "engineering" work on the upper level on the peninsula. It is a "cantilevered" style benchwork, and I want it to be solid. I am quite happy with the solution!

Will look great with the backdrop in place. Walls are L-Girder w/o legs. The whole thing will look suspended above the floor. (my ceiling and lighting were done before I started the benchwork. There are no plans or need to stand on the benchwork). Lots of open space to put stuff like the Spike printer and the sandblaster and the paintbooth. Printer and paintbooth are already in place.

I will be using spline roadbed and home-a-bed with code 83 track purchased at a friendly dealer nearby. Did much research on the spline material, and will be sticking with the tried and true wooden spline. I considered masonite, but decided to stay with pine. I really want the flowing curves of the spline, and it is the same thickness as the 3/4" plywood I'll be using on the yard area. Many thanks to Steve Studley for conversations about this.

Progress is being made here in NE Indy. Steady but sure. How about others?

Paul B

Layouts Under Construction is open to anyone wishing to share the progress being made building or re-building their

layouts. Contact the editor Roger Hensley for details or with an article. Contact information is on page 2.

Achievement Program News

Bill Myers, **CID** Achievement Program Chair, has accepted the position of AP Chair for the Midwest Region and is already hard at work processing and forwarding applications for AP Awards. Bill will continue as **CID** AP Chair, but is looking for **N.M.R.A.** members that may wish to qualify as AP Judges to assist with local work. If you have or think that you may have an interest in assisting with the AP Program or learning more about it, you may contact Bill at: (317) 773-7159 or by e-mail at: bmyers31@aol.com.

Division Achievement Program Report as of December 2, 2001

AP Awards

Master Builder, Cars – Matt Hewitt
Master Builder, Scenery – Matt Hewitt
Association Volunteer – Roger Hensley
Association Volunteer – Bob Trueblood
Author – Ron Lane

Pending Awards

4 - Association Volunteer
1 – Author

Golden Spike Awards

Keith Clark
Michael Duncan
James Munns

AP Judging note: all judging forms need to be properly attested with printed name and signature of judge(s) with their **NMRA Number**.



Golden Spike Award is the easiest, and for many people, the first AP award that they earn. It is designed to demonstrate familiarity with different areas of the hobby, rather than expertise in a particular area. So take a look at the requirements - you may find that you have met most, or all of them already.

1. Rolling Stock (Motive Power & Cars)

Display six (6) units of rolling stock (Scratchbuilt, craftsman, or detailed commercial kits).

*These do not have to be of AP Merit Award quality, but they need to show a little more effort than a "shake the box" kit. For example, by itself a freight car kit straight out of the box, is not enough to qualify. However, by painting and decaling it, adding a little detailing, perhaps some weathering, etc., you'll have a qualifying model in no time! **More to come!***

Pay a visit to the AP pages of the NMRA web site.

FINDING THE LOST WAX PROCESS

By Frank Hermanek

We can make detailed parts by filing, grinding, machining, etc. Each requires a lot of back breaking effort. However, if you already have a part and want to accurately duplicate it have you ever considered casting it? If not, perhaps you should read on.

Metal casting has been around for a couple of thousand years. It's a relatively simple process - get a mold of the "thing" you want to make and fill it with hot, molten metal. Wait a while, let the metal cool and solidify, then break open the mold. Presto! You've got a cast metal part.

Well, maybe that's a little too simple. Because before you can begin to cast a part you must have a **pattern**, that is a replica of the part you want to produce. Patterns can be made from almost anything - wood, metal, plastic, etc. There are different casting processes with each requiring something different.

In **sand casting** the pattern is generally made from wood. The pattern is partly immersed in wet sand or earth; when the sand/earth has hardened the pattern is then totally covered with more of the mixture. When the second batch meets the first there is a **parting line**. The two (2) pieces comprise the **mold**. Next, the mold is opened and the pattern removed. Reassembling the mold forms a cavity, resembling a negative 3D image of the pattern, into which molten metal can be poured and allowed to freeze (solidify). This is a very economical process but it is primarily used for big parts and high production rates. Also, it does not give fine detail in the final part.

Plaster mold casting is very similar to sand casting. But, rather than using sand a mixture of plaster, talc and water are poured over the pattern. As in sand casting the pattern is removed when the plaster has set; the mold is baked to drive off any remaining water moisture. The process is a little more expensive than sand casting but it gives better detail.

A recent innovation is **shell mold casting** or **Croning** (the inventor). In this process the mold is a mixture of sand and a thermosetting resin (usually phenol-formaldehyde). The mixture is poured over a heated pattern to form a thin shell. The resin polymerizes to hold or bind the sand particles together. The thin shell becomes the mold. Since the shell is thin and fragile it is buried in sand which gives it compressive strength. Castings are dimensionally accurate with good finishes. However, the process is very expensive to perform so it is generally restricted to large-scale production applications.

Real big casting lots are produced by **die or injection casting**. This technique can be used for metals or plastics. In die casting, unlike the previously casting processes, the mold is permanent and is made out of a machined, heat resistant metal. The molten material is injected, under pressure, into the die. The final product has good detail and smooth surfaces. Many of our models are made using an injection casting/molding process.

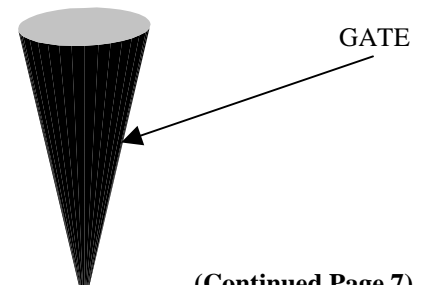
Permanent mold casting is similar to die casting except that gravity rather than pressure is used to force the metal into the die cavity. Dies are very expensive so the technique is aimed more at high rate production.

A blend of some of the previous casting processes is the **lost wax process**. The American Society for Metals identifies the **lost wax casting process** as **investment casting**. By definition investment casting is "casting a metal into a mold produced by surrounding (investing) an expendable (wax) pattern with a refractory slurry that sets at room temperature, after which the pattern is removed through the use of heat". The main concept here is **expendable pattern**.

The original part from which the expendable pattern is to be made can be anything. Jewelers use ring settings or bracelets, dentist - teeth. Before we go any further let's consider why we're using the lost wax process. Essentially, lost wax casting offers several advantages to the modeler including:

- ✓ Permits making of complex shapes that are otherwise difficult or impossible to produce by other means as machining
- ✓ Accurately reproduces finely detailed parts with good dimensional accuracy and smooth surfaces.
- ✓ Adaptable to almost any metal that can be melted and poured as brass, bronze, copper, pewter, zinc (white metal), etc.
- ✓ Works well for small parts.
- ✓ Castings require little or no finishing thus minimizing hands-on filing, grinding, sanding, etc.
- ✓ No parting line or parting line mismatch.

You've got a detail part that you want to reproduce, say, a sand dome. It becomes our **pattern master**, the original - the real thing. We want to take it and cast a mold around it (I use RTV). After the mold has cured we cut the mold lengthwise - head to toe and remove the original part. The two (2) piece mold has a cavity that is a perfect 3D image of the part. It is into this cavity that we will pour wax and cast our expendable pattern. The rubber mold is our **pattern die**. But it is "land locked" - there isn't any way of getting molten wax to the cavity unless we add a pathway to it. This can be done in either of two (2) ways: 1) cut a "V" shaped groove or **gate** into both sides of the rubber mold being sure that they match up. The gate should start at one end of the cavity and exit at the top surface of the mold. You can also 2) cast the gate in place. I prefer this method. Roll a small piece of molding clay into a cone shape and attach it to one end of the original part. Place the part / clay thing upside down on a glass plate. Put a dam or barrier around them, like a short length of



(Continued Page 7)

For Members Only!

A general e-mail discussion list has been established for the **NMRA**. This list is for the sharing of model railroad information and Association matters that may be of interest to **NMRA** members. It is a closed list open to **NMRA** members only. The member's name, address, **NMRA Member Number** and **e-mail address** are required for joining. It is not an official 'Question and Answer' type of list and all responses should be considered the opinion of the sender.

The list exists to further communications between members from all levels and parts of the **NMRA**, and the exchange of information about the promotion of the hobby and the **NMRA** is encouraged. A digest format and message archive are available to users.

To join, send your name, address, member number, and email address to general-owner@lists.nmra.org.

Roger Hensley, Editor

Page Six

Pike Ads

Removed

See the Pike Ad

Web Page

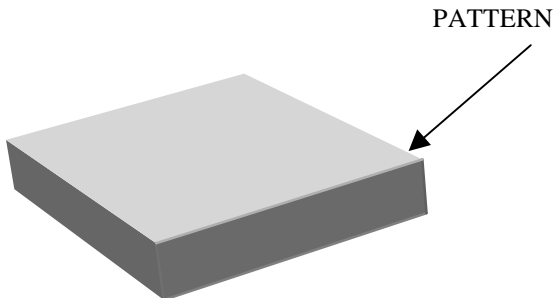
For the Ads

Without address

Information

LOST WAX PROCESS (continued)

the liquid rubber covering the assembly by about a ¼ inch. In this way the gate forms a direct avenue to the pattern – in fact, it becomes part of the pattern. It is the path that both the wax and eventually the molten metal will follow to fill the pattern cavity.



Again, slit the mold “head-to-toe” and remove the original part. You are now ready to cast your wax pattern. Mate the two (2) halves back together and secure them with rubber bands. Melt some wax in a small pot or ladle and pour it into the gate; filling it to its top. (I place solid wax over the gate and put the whole thing into the oven at 200°F so the wax melts down into the pattern cavity) Allow the wax to harden. After the wax has set open the mold and remove the pattern.

We are now ready to cast our investment mold. Set the wax pattern with its attached gate upside down on a glass plate and again put a barrier around it. A piece of iron pipe is suggested. Fill the inside of the pipe with the plaster investment to about ½ inch above the pattern. Allow to dry overnight. Next, ask your wife if you can borrow the oven for a short time. If permission is granted, place the investment filled pipe up-side-down in the oven on some sort of rack - over a catch pan - so when the wax melts it can exit and have some place to go. Don't want it all over the oven floor. Set the oven at about 400°F for about 2 to 3 hours and melt the wax out. You now have an investment mold ready for casting.

What is your choice of casting metal? Before we look at what's available let's consider what we want in the final product. It should be fairly hard and be able to be drilled, ground, filed, etc. This may eliminate some of the low melting alloys as the Cerro-type (antimony-based) metals. Okay, so what are our choices in metals?

✓ Brass, an alloy consisting primarily of copper with additions of zinc. A 65/35 “yellow brass” melts between 1650°F and 1710°F. At these temperature zinc will burn out and some may oxidize on the surface of the molten liquid. This is referred to as “dross”. This may present a problem so you may want to find alternatives to brass.

✓ Bronze is also a copper based alloy and does contain some zinc but it also has tin in it. Some alloys also contain small amounts of lead. Bronzes melt between 1575°F and 1830°F and are good to work with.

✓ Pure copper is a good choice but it does have a high melting point - 1988°F.

✓ Silicon bronze Type A contains 3% silicon with the balance copper. Trade names are Herculoy and Everdur (Revere Copper). Melts between 1780°F and 1880°F.

✓ Pewter is a tin-based alloy containing small amounts of copper and antimony. It melts at a relatively low temperature of 470°F to 565°F. If you work with pewter you may be able to use an RTV mold rather than investment paste.

After you have selected your casting alloy place a small quantity into the bowl of a ladle. CAUTION: you should be wearing a face shield, low-density welder's glasses and insulated gloves. Hold the ladle over an open gas flame and heat until the casting alloy is fully molten. Immediately pour into the mold gate; filling the gate to capacity. Allow cooling to room temperature. Knock the mold free from the containment pipe and gently hit it with a hammer. Your LOST WAX CASTING part should fall free. ***Congratulations!***

SUPPLIES

RTV (Room Temperature Vulcanization)

Micro-Mark
340 Snyder Avenue
Berkeley Heights, New Jersey
07922-1539
Phone: 1-800-225-1066
Cat # 81545 ONE-to-ONE Mold Rubber (24 hr. cure)
or
Cat # 82083 ONE-to-ONE Mold Rubber (4 hr. cure)

LADLE

Micro-Mark
340 Snyder Avenue
Berkeley Heights, New Jersey
07922-1539
Phone: 1-800-225-1066
Cat # 80961, Steel melting and pouring ladle

WAX

Kindt-Collins Company
12651 Elmwood Avenue
Cleveland, Ohio 44111
Phone 1-800-321-3170
Type: KC-1467-Dark Red Casting Wax

INVESTMENT PLASTER

PreVest, Incorporated
23420 Lakeland Boulevard
Cleveland, Ohio 44132
Phone: 1-800-327-4535
Type: SI-334 Solid Mold Investment

GENERAL SUPPLIES

SCOTT ART CASTINGS
2029 North German Church Road
Indianapolis, Indiana
1-317-894-3915

Page Eight

Pike Ads

Have Been Removed

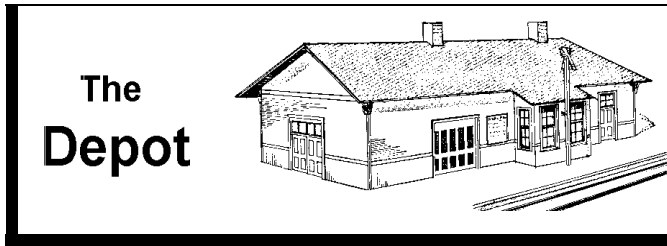
See the Pike Ad

Web Page

For the Ads

Without address

Information



Volunteer? Anyone?

This wasn't my planned bit for this spot as I had written about digging out some old **Mantua** cars and getting them ready for a grandson for Christmas. **Mantua** has just closed up shop and ceased production. Another old-line company bites the dust and joins the ranks of Fallen Flags. What has this to do with volunteers? Nothing, I just wanted to get it out of the way.

What can you do for your hobby?

Let's be clear, I'm not suggesting that you *owe* the hobby anything. I am asking you to consider becoming a volunteer. I became a volunteer not because I had to, but because I felt that I had something to share and could help out. If you noticed on page 4, there were two Association Volunteer AP Awards given with four more pending. I don't know that any of us started out to get the AP Volunteer Award. I know that I didn't. It just happened and I can say that I have had a lot of fun along the way. I have met some great people, some outstanding modelers and have seen some great layouts. Most of this happened because I got involved.

Call for Clinic Volunteers

We need more clinic presenters. I can run down a list of those who give clinics frequently and they enjoy doing it. But how many times do you want to see the same clinic? We'll all get bored eventually if new presenters don't come forward with new ideas. For example, Matt Hewitt does a great scenery clinic, but we would never know how good he was if he hadn't become involved. The same is true of Nicoletti and his DCC clinic and Cain, Wilhite, Morrison and many more. In fact, just about everyone but me. My Internet clinic was not very good and I don't plan on a repeat. But, hey, I tried. If you think that you might have something that would make a good clinic, give Bob Morrison a call at: 812-378-4275 or e-mail at: rcj@iquest.net

Election notification

It's election time again. There are elected two-year **Trainmaster** positions and appointed one-year **Affiliate** positions. If you'd like to see your Board at work, but don't want to run for a two-year position, ask about becoming an **Affiliate**. Frank Hermanek (317-487-6517) is Nominating Committee Chair. Nicoletti and Wilhite round out the committee.

Call for Auction items

I'm running out of space. Remember to bring in those items for the Annual CID Auction to benefit the division. I have several items stored in my enclosed porch room already and there is a locomotive tie clasp from the old **Railroadmen's Federal Savings and Loan** in my desk drawer. A nice piece for someone. Any questions? Call Asst. Supt. Gilbert or myself (numbers on page 2)

Roger

Dying Ties

By Al Askerberg

I've been into tie dying for a while and never really found a fully satisfactory method. Today, however, I think I might have happened on a really good method.

My first attempts were with India ink/alcohol and shoe dye/alcohol mixtures. Both of these methods worked to some degree but left many of the ties not well dyed and tended to over-exaggerate the grain. I also tried RIT brown dye #26 as well as their black dye. Again, both worked, but the ties tended to look more like painted wood, and mixing the dye is a bit of a pain. Recently, I tried regular oil stain. It also worked and gave better appearance, but the stain was thick which made it messy and hard to get the ties dry. Today (June 12, 2001) I discovered that MinWax makes a water based stain. I got their darkest American Walnut and simply dumped the stain and ties in a shallow vessel, lifted them out and drained them using an el-shaped stainless steel potato masher (wife's not home). Clean-up is easy with water and there are no oily paper towels or rags to create a hazard.

Speaking of water-based materials, I have also been using water-based polyurethane to seal Homasote roadbed. We used it on the G gauge layout at the club to prevent swelling from moisture. It has worked well for the last two years, and I'll be using it on my S scale layout as well. It's a little more expensive, but there is no odor and clean-up is with water. It's worth it for me.

Al

Spike Articles are also needed. Give writing a try!

Rusty Spike Vol. 32, No. 1
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Midwest Region, N.M.R.A.

Mailer Page Ten

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(Across from PSI - 6 miles West of Airport on US 40)
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Columbus Area RR Club

President: Matt Ahlbrand
P.O. Box 2653
Columbus, Indiana 47202-2653
(Foxes Den, Camp Atterberry)

Rocky's Train Corner

W.L.Rocky
419 W. 3rd Street
Peru, IN 46970
Ph. (765) 472-2164

Train Central

Wayne Maple
6742 E. Washington Street
Indianapolis, IN 46229
Ph. (317) 375-0832