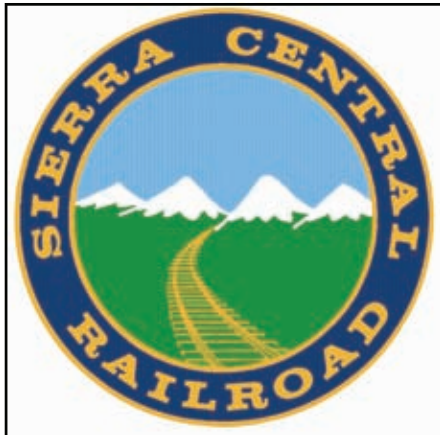


SIERRA CENTRAL HERALD

Publication of the Sacramento Model RR Historical Society, Inc.
Our 59th Year **March / April 2007**



Inside This Issue

Reverted Loops-Wrapped&Unwrapped
Operating the Walla Walla Valley RR
An Ethanol Alcohol Plant for your RR

Look for these and other interesting articles inside this issue of The Herald.



Articles Under Development

DCC Tips and Tricks
The End Game
The Bobber Caboose

This is a current list of articles being prepared for the Sierra Central Herald. If you have an idea for an article, please feel free to pull me aside and ask for help!

“Under The Hard Hat” by President Bob Rohwer

Construction continues at a good rate. Greg Hauser and crew have finished enough switches to complete the holding tracks at Reno, all the switches for the second ladder at 12th Street yard, and a few switches for the Quincy branch yard. We are also adjusting the gauge of the guard rails on the installed switches. About half the switches have been completed. We feel that this will increase the reliability of the railroad.

Don Butler has installed the new Digitrax 8 amp boosters. This will give us more power to deal with all those new DCC sound locomotives. A number of members have requested more UP’5 to plug in our throttles. Don will be adding more UP’5 shortly. He has been putting in a lot of time adding more detection circuits to the computer system. Portola and Bieber have been added. All the switches we are installing will require the building and installation of switch machines and wiring. The second ladder of the 12th street yard will require electro-magnets at both ends. If you would like to help, please see Don Butler or Dave Megeath.

Installation of the scenery in the Feather River canyon continues. Some new concepts are being looked at. They are experimenting with blending painted scenery with the Bragdon castings. Most of the tunnels have been lined. They were checked to insure those long articulated steam locomotives will go through the tunnels.

We still have two other projects that need to have cardboard mock-ups - ”R” street and the Quincy branch. We will not be able to finalize these areas until we have the mock-ups installed. See Dave Megeath if you would like to help.

The narrow gauge has a lot of activity installing track in the layout expansion. Lou Good built a number of narrow gauge switches. Most of the ties have been glued in place. Go into the back room and have a look.

Scott Inman is making a number of contacts to see if we can get better exposure for our July 14th Open House. We will continue in construction until about a month before open house.

I would like to request that everyone attend the March 30, 2007 business meeting. It is important to have a large attendance to vote on the updated by-laws, operating rules and standing rules. If you have any questions about the updates, please feel free to contact me. Printed copies are available at the Society’s club house if you have not received them over the Internet.



Reverted Loops-Wrapped and Unwrapped by Karl Griffin

The late great master track planner, John Armstrong had an interesting challenge. Design an end game track plan for a stub ended passenger terminal while maximizing the mainline run as well as providing a way of turning around the entire train for a return trip.

Every track plan evolves through numerous iterations as the requirements are more clearly defined. In this particular case, the desire for a stub end terminal was dictated by the desire to reduce the number of switches that would be required as compared to a through passenger terminal. It is also much more prototypical this way for a station that has more than two tracks leading into it. This arrangement is also a real estate and major time saver.

Figure #1 shows the configuration. There are a number of interesting features in this plan worth discussing. Later in this article I will then present alternate possibilities and their rationale.

First-Note how this plan meets all of the stated requirements. An East bound passenger train passes by the terminal station in the background (perhaps on a downgrade?) and then loops around and proceeds into the arrival track designated here as track #1. At some convenient time in the near future after unloading the incoming passengers, it will back out through the 'reverted loop' and reenter the terminal tracks on one of the other open tracks which are designated as outbound tracks. Again, after a suitable amount of time as per your timetable, this train or one of the other trains will now depart in the West bound direction.

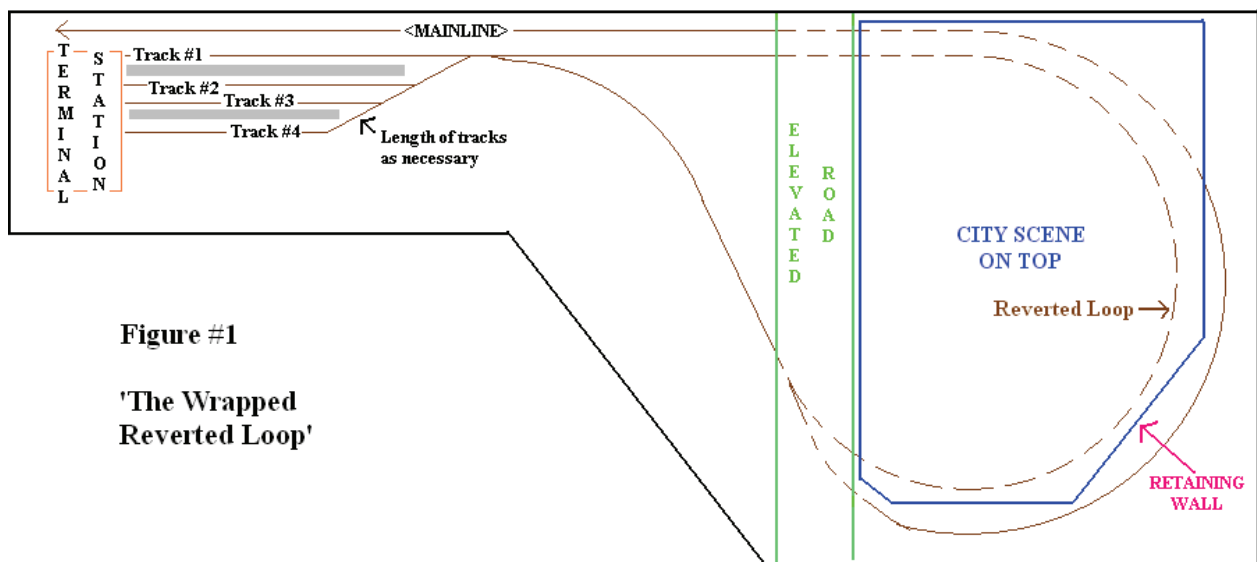
Because of this special loop arrangement the motive power and car order remains the same but headed properly for the return trip. After all we can't have a

passenger train going down the mainline backwards can we? (Amtrak excepted)

Second-just because you can see everything with the trackplan in front of you doesn't by any means mean that you or your audience has to. In fact, it is preferable that they don't see this bit of marvelous trickery of trackwork. The entire section of track that makes up the reverted section can be hidden from view by placing a city on top of it! Only the outer front part of the turnback loop is visible to the viewer as it enters the terminal entrance track. After stopping, an outbound passenger train leaves from a different track and only later does the newly arrived train back up under the city scape (completely hidden) and reappear on one of departure tracks. A truly elegant solution...

To further hide the reverted loop, an elevated road on concrete piers can be constructed on the West side of the city running North to South thereby hiding the entrance and exit points rather than having two tunnels covered by a hill. The front and East boundry sides of this raised city would be seen as having 5' high retaining walls. Your eyes would be so distracted by this city that you wouldn't guess that there is a second hidden reversing loop hidden underneath. Don't forget to provide access underneath the hidden loop (again none of which is visible to the viewer).

Notes: This arrangement is designed for passenger train operations. To utilize this configuration for freight operations, the upper portion of the reverted loop could be a switcher engine lead track to sort freight cars into a stub yard flat track interchange area. Construct an engine escape crossover from #1 to #2.



Reverted Loops *continued by Karl Griffin*

Now that I've introduced you to the concept of the Wrapped Reverted Loop, let's see what happens when we 'unwrap' it. The wrapped version is great for a peninsula that ends up in the middle of the layout room but 'what if' that isn't the case? Perhaps you have an around the walls configuration that has a turnback 'blob' instead of a loop? You still have unused space...this is called a crime in model railroad planning!

Now take a look at Figure #2. This represents a walk-in layout room with an around-the-walls shelf setup. Notice that all three types of 'blobs' are represented here. 'A' represents the reverted loop described on the previous page. 'B' represents the standard return loop that is seen in a 'dogbone' configuration. And 'C' is an unwrapped reverted loop. I've sketched in the mainline trackage only. You have the choice here of operating a loop to loop (3 variations) or loop to turnback to loop.

The unwrapped reverted loop gives you the option of a peninsula turnback to extend the mainline or a loop for a branchline operation. It is really important for you to remember that I haven't drawn in any view blocks or hidden any of the trackwork both of which need to be done to fully appreciate the potential here. View blocks prevent you from seeing the entire layout in one glance thereby making the layout seem larger and hiding parts of the mainline disguise the fact that we have turned the track around 180 degrees since we don't have an unlimited length of wall to work with.

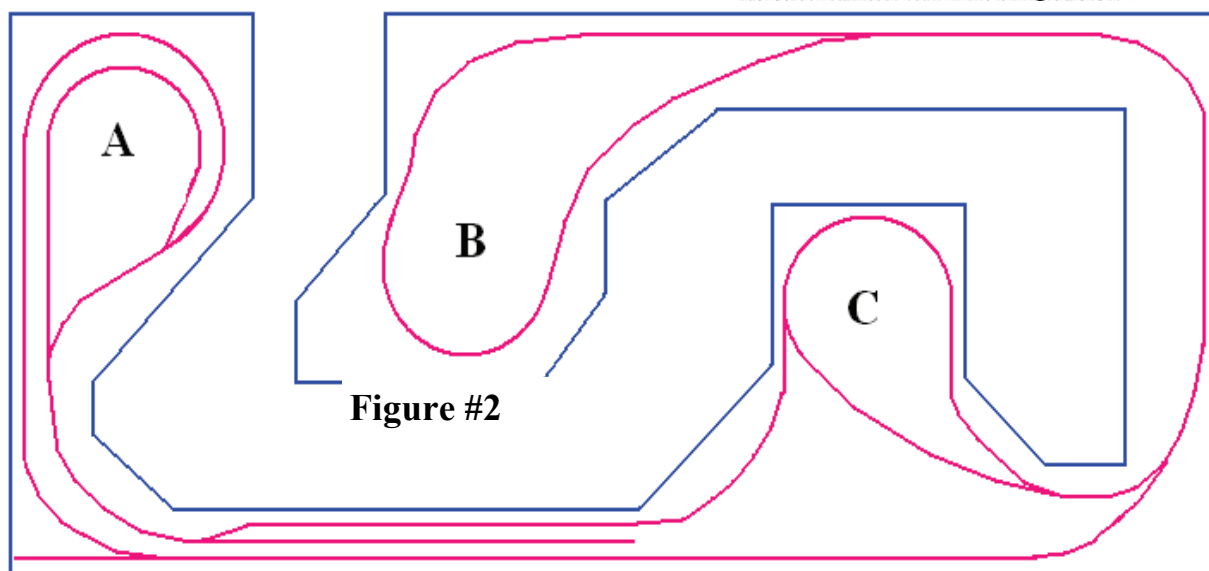
If you are determined to get a longer mainline run in then you can use the 'C' blob and helix up or down as

necessary to get to a different level. Of course if you have a 10 foot ceiling to work in then by all means you should give serious consideration to constructing a mushroom design to allow you to realistically see your trains climbing long grades in the open to travel between different levels without using a helix. If you don't mind stepping up and down a few steps as you follow your trains this can be quite entertaining.

In some respects this track planning thing is a bit like computer programming. Try to come up with an elegant solution that uses the fewest number of turnouts necessary to accomplish the task and don't be afraid to do some 'out of the box' thinking!



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Operations on the Walla Walla Valley RR

Article by Karl Griffin, Layout Owner & Photos by Blair Kooistra

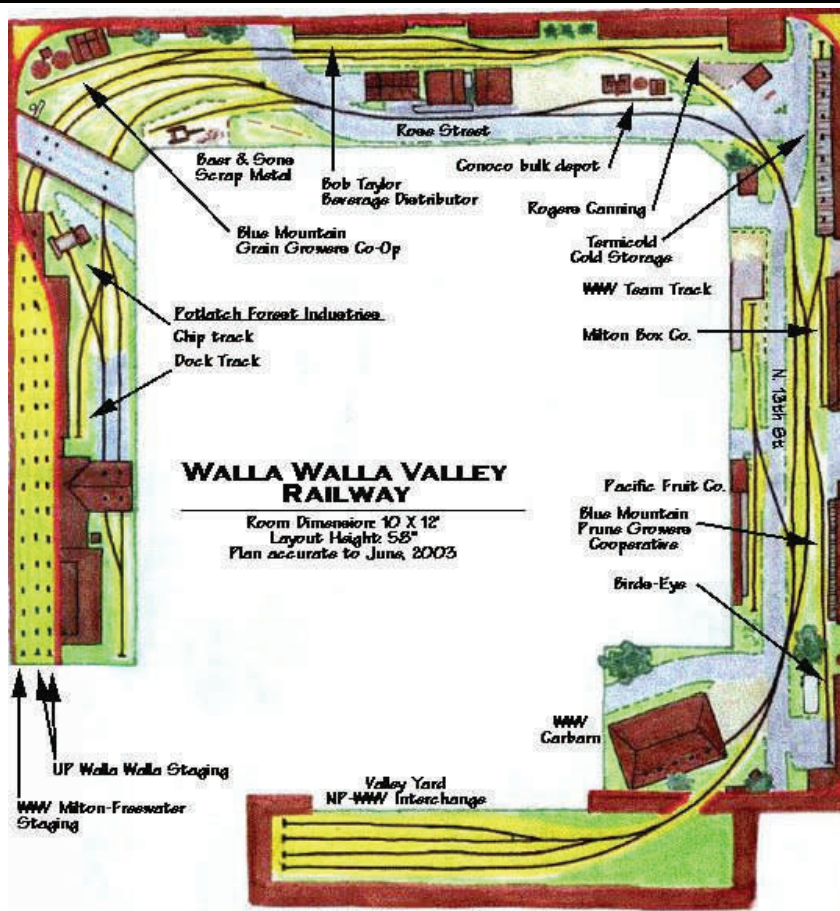
While many modelers wish they had a larger room available to construct their layout sometimes that just isn't going to happen. The kids grow up, move out and now a 12' x 12' bedroom becomes available. A lot of modeling activity can be created in just such a space. An around the walls shelf that is two feet wide and constructed fairly high certainly has the potential for some pretty serious operating pleasure.

Without trying to jam in as much as possible into this 144 square foot area, a layout in this configuration uses up about 76 square feet or approximately 50% of the available floor space which gives the operator(s) plenty of room to roam around without bumping into each other. If constructed as a single high level unit there is ample storage space underneath for storage, fiddle yards, etc. If you think of the layout as a shelf two foot wide and thirty eight foot long, you realize that you really have the opportunity to construct quite a large point to point switching operation! Now I realize that some folks just have to have a continuous running mainline and that certainly could also be accomplished here but why not strive for increased operating realism?

To maximize your opportunities here I make the following suggestions:

1. Utilize diesel switcher locomotives-no space wasting turning facilities needed. Construct a small engine shed and a simple adjacent service area.

2. Forget about large hills and lakes-a meandering stream or the mere suggestion of a dock facility will also maximize the available



space. Just because there is a zero grade throughout doesn't mean things will get boring.

3. Select your minimum curve radius and switch numbers. If things get a little tight a curved switch may be the answer. Using #6 turnouts and a 30" minimum radius can certainly be done and looks really good. Using building flats against the walls in selected places saves space, money and construction time.

4. Limit freight car length to 50'. Since your entire modeled mainline length is a little less than a mile why make it seem even smaller with long cars?

5. Design in an engine run around track in each major switching area. You'll need them!

6. A hidden staging track area (4 or 5 tracks works fine) permits you to pull off the theatre illusion of large cuts of cars coming onto and going off the layout. Place a long brick retaining wall in front and a roadbed or cityscape on top.

7. Try not to have the majority of your trackwork running parallel to the forward edge of your bench. This tip not only helps to disguise the nature of a shelf layout but stub tracks coming off your mainline have

The Walla Walla Valley RR *continued* by Karl Griffin

many more different angles for you to look at.

8. If a building flat is at the wrong angle in relationship with the trackwork, cut the entire building at a partial angle so you have the complete suggestion of a much larger building. Try to arrange the building so that in those areas where a car needs to be spotted, the car is visible for you to uncouple. The higher the layout is constructed the more critical this is. Or use strategically placed Kadee uncoupling magnets to allow shoving cars to their designated spots.

9. To enhance the operating realism give your operator(s) a rule book designed specifically for your railroad. Simple requirements such as being restricted from placing a hazardous material load directly behind the engine and diagrams for each drop spot number at each serviced building go a long way towards helping you and your fellow operators enhance the illusion that you are really trying to operate 'your' railroad in a professional manner.

10. Give your operators a place to put their waybills, switchlists and rulebooks. Whether it is an apron to wear or an open box at each area where you need both hands available to operate your throttle and uncoupler pics or to throw switches, make it easier for the crew to get their jobs done efficiently.

11. You've heard of building flats but have you tried tree flats? A tree can have the back half cut off just like a building in order to fit in against a back wall. You still get all the visual impact without wasting a lot of space. Branchlines are characterized by the presence of lots of weeds and



grasses and not very much heavily ballasted track. Note all of this type of detail in the photos above. It really adds dimensional height to your layout on what would otherwise be a flat surfaced area.

12. If you have numerous tracks that are crossed by a road it isn't necessary to have all the tracks protected by crossing gates—only the main track. All the others can have the standard crossbucks installed. See photo above.

13. You can get a lot more pride and satisfaction from a smaller completed, very well detailed and smooth running layout than from one that never gets to the nicely scened stage because it was too large for one person to get it to that point.



An Ethanol Alcohol Plant On Your Layout? by Karl Griffin

In the last few years there has been a lot of press regarding the phenomenon of global warming, our dependence on foreign oil, trade imbalances and smog. America consumes 21 million gallons of oil per day (1/4th of world production) of which 70% is imported and most of that is converted into gasoline and diesel fuel for transportation and home heating uses. Our country hasn't constructed a new oil refinery in 35 years.

In an effort to reduce smog levels, the Federal

Fortunately alcohol is biodegradable. So now we are left with Ethanol as the additive of choice which has created enormous demand for its production. The government has mandated that ethanol alcohol production be stepped up to 7.5 billion gallons by 2012 and we are already almost at this point.

So what is this stuff and how is it manufactured? Ethanol Alcohol's formula is C_2H_6O and when burned in an engine it is transformed thusly:



Government decreed that 'oxygenates' be added to gasoline to reduce the levels of carbon monoxide (CO), nitrous oxide (NO₂), and hydrocarbons-check your smog certificate that you get when your car is checked every other year. Refineries were given a choice of approved oxygenates to use. They decided on MTBE (methyl tertiary butyl ether) which is a natural gas (CH₄) additive for the East and West coast areas and Ethanol Alcohol in the Midwest. This RFG (reformulated gasoline) has been required since 1995 in all high smog areas, 10% by volume in each gallon of gasoline and is called E10. E85 which is 85% ethanol alcohol and 15% gasoline (a flex fuel available for the current fleet of six million cars is also available in the Midwest). Shortly thereafter it was discovered that MTBE was a very bad choice as any leakage into the ground pollutes ground water wells. This resulted in the mandatory changeout of all underground storage tanks so that they wouldn't leak and an eventual outright ban on this additive.



The good from this combustion is that there are no carbon monoxide, nitrus oxide, sulfur or hydrocarbons generated (smog forming compounds). The bad of course is the generation of carbon dioxide (CO₂) a greenhouse gas although not as bad as carbon monoxide (CO) a precursor to ozone (O₃) or methane gas (CH₄) which is 100 times worse as a greenhouse gas. Still not the perfect fuel but a lot better than 100% gasoline and it is renewable which is its biggest selling point. The only thing better would be a hydrogen fuel cell whose by products is water, but it has manufacturing problems because the hydrogen is currently made from natural gas (CH₄) and carbon has always been the problem!

If you take a bushel of corn grain (56 pounds) and add 4 gallons of water you get about 3 gallons of ethanol alcohol, 19 pounds of carbon dioxide gas and 19 pounds of distiller grains and syrups. It can be made

An Ethanol Plant *continued by Karl Griffin*

from corn or any other grain or sugar cane (Brazil) but in the USA corn is the most readily available. Here is how it is made here:

1. Milling: The corn kernels are pulverized into a fine powder called Meal.
2. Liquefaction: The meal is mixed with water and an enzyme (alpha-amylase) is added to start the process.
3. Cooking: The mixture is heated to 130-150C where it is converted into Mash.
4. Saccharification: The mash is cooled and a second enzyme is added (gluco-amylase) which converts the liquid starch into dextrose, a fermentable sugar.
5. Fermentation: Yeast is added to the fermentable sugar creating alcohol and CO2 gas.
6. Distillation: The alcohol is drawn off the top and residue (stillage) is drawn off the bottom of the distillation tower and goes to a co-product area.
7. Dehydration: The alcohol has all remaining water removed using a molecular sieve. It is now 200 proof.
8. Denaturing: Add 2-5% gasoline to make it unfit for human consumption.

Co-products: Distillers grain, a highly nutritious livestock feed sold to farmers and ranchers and CO2 which is captured, compressed and sold for use in other industries.

One of the biggest arguments against ethanol alcohol production has been the energy needed to effect the processes, usually coal or natural gas. Locating the plant next to a cattle feedlot and extracting the methane gas (CH4) from the manure is now being done in Texas creating a real win-win solution to reduce ground water pollution as well as a disposal problem for the feedlot operator and cheap energy for the ethanol plant. Here in the West we can expect to see solar power heating gray water to make steam to power the plant.

There are currently 100 ethanol plants in operation and another 30 in construction. Average production is 100 million gallons of alcohol per year per plant. There are four plants in California with more coming on line this year. And where do you think the railroads come into the picture? Transport of bulk commodities is a railroads forte! Twice a week 100-150 car UP trains will deliver MidWest corn to to these plants and then transport long tank car trains out to the gasoline refiners as ethanol isn't suitable for pipelines because alcohol absorbs moisture like a sponge.

I've enclosed a couple of pictures so you can see what a typical plant looks like. Notice how practical this would be on a model railroad layout. Covered hopper cars and tank cars. Maybe a cattle feedlot, solar power panels, corn farms and of course our wonderful terrain out here, anything from central valley to rolling hills and streams. The plant itself can be configured in whatever size area you have available and is a whole lot easier to model than a refinery.



Item of interest:

1. Top Center-office that computer controls all operations.
2. Center-Towers to store incoming grain and outgoing ethanol alcohol.
3. Far Right-compressors for the CO2 that is produced, green piping.
4. Upper Center-fermentation /distillation tanks.
5. Inside large buildings-the cookers.



6. Other tanks-for distillers grain storage-co-product for livestock feed.
7. Siding trackage for hopper and tank cars-industrial locomotive to perform all the switching chores.
8. Note how clean and organized the plant layout is! 40 people run this plant.

Editors' Comments by Karl Griffin

If you are relatively new to the 'world's greatest hobby' you might find yourself a bit lost in the jargon that is unique to railroads as well as to model railroads. If that is the case and you're trying to figure out what I'm saying in these newsletter articles fear not...send me an E-Mail and I'll explain it in layman speak! Our hobby is getting more and more technical with the introduction of DCC; if you have made some discoveries that you think would be useful in explaining some of its mysteries feel free to write up an article and send it my way. Or if you have some maintenance tips for locomotives or freight cars this is the forum to share-why reinvent the wheel again and again? Have you decided what structure you are going to build for the clubhouse layout? Rather than specialize in just one aspect of this hobby, branch out and learn more, do more and enjoy more!



**Articles for inclusion in the
May / June issue are due NLT
the second Friday of April!**

Sacramento Model Railroad Historical Society, Inc.
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The Sacramento Model Railroad Historical Society, Inc. is located at 1990 Grand Ave., Sacramento, CA 95838 and is open every Tuesday and Friday night at 7:30 p.m. It is the home of the **Sierra Central Railroad** which is modeled in both HO Standard and Narrow Gauge. Telephone (916) 927-3618 for info and directions. Visitors are always welcome!

Our Internet Club Website: www.smrhs.com

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	D Launderville	2 yrs
	Dave Good	1 yr

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**Next General Meeting is the last Friday of
March, 2007**

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